

Greater Sage-Grouse Habitat Conservation Strategy for NRCS in Idaho

The decline of greater sage-grouse (*Centrocercus urophasianus*; hereafter sage-grouse) populations has concerned naturalists and biologists for at least 90 years (Hornaday 1916, Patterson 1952, Autenreith 1981, Connelly and Braun 1997). Documented sage-grouse population declines and rising threats to their survival led the US Fish and Wildlife Service (USFWS) to determine that greater sage-grouse is warranted for protective listing under the Endangered Species Act (ESA), but precluded by higher listing priorities, leaving the species a candidate for future listing (USFWS 2010).

Sage-grouse, as their name implies, are dependant year-round on sagebrush-grassland for survival. The U.S. Department of Agriculture—NRCS' primary function is assisting agricultural producers with treating resource concerns on their lands. Nineteen percent of sagebrush habitat in Idaho is privately owned, making NRCS an important partner in sage-grouse conservation. In addition, agricultural producers use state and federal lands for livestock grazing. State and federal lands provide approximately 7% and 73%, respectively, of sagebrush habitat in Idaho.

In March 2010, NRCS launched a Sage-Grouse Initiative (SGI) to direct a portion of Farm Bill conservation program funding to reduce threats to sage-grouse while enhancing the sustainability and productivity of working ranches. NRCS and the USFWS used the conferencing provisions under Section 7 of the ESA to ensure that NRCS programs and conservation practices will help ameliorate threats and produce significant conservation benefits to sage-grouse and its habitat at the local and landscape scale. In accordance with the conference requirements, Idaho NRCS developed this *Greater Sage-Grouse Habitat Conservation Strategy* to focus program funding to maintain and enhance sage-grouse habitat and sage-grouse populations. This document outlines measures that Idaho NRCS will pursue for sage-grouse conservation, primarily on private lands and can change over time as new priorities are identified and new information becomes available.

Other sagebrush obligate wildlife species experiencing population declines include the Brewer's sparrow, sage sparrow, sage thrasher, pygmy rabbit, and sagebrush vole. Many of these species share the same threats as sage-grouse, and implementation of this strategy will directly benefit them as well.

The *Conservation Plan for the Greater Sage-grouse in Idaho* (Idaho Sage-grouse Advisory Committee 2006) was completed in 2006 by representatives of federal and state agencies, Tribes, and members of sage-grouse Local Working Groups (LWGs). NRCS entered into an interagency Memorandum of Understanding to support and help implement the intent and actions contained in the Plan. The details of this strategy are based on the threats and conservation measures contained in the Plan and may change when the Plan is updated.

Idaho NRCS is fully committed to large-scale implementation of this strategy. Applicable Farm Bill conservation programs to implement the conservation measures listed below include the Grassland Reserve Program (GRP), Environmental Quality Incentives Program (EQIP), Farm and Ranch Lands Protection Program (FRPP), Wetlands Reserve Program (WRP), Wildlife Habitat Incentives Program (WHIP), Conservation Stewardship Program (CSP), Conservation Cooperative Partnership Initiative (CCPI), and Conservation Technical Assistance Program (CTA), including the assistance provided to the Farm Service Agency's Conservation Reserve Program (CRP), Continuous Conservation Reserve Program (CCRP), and State Acres For wildlife Enhancement (SAFE).

Idaho NRCS is further committed to supporting the State's Candidate Conservation Agreements with Assurances (CCAAs) with the implementation of this strategy. CCAAs are being developed in areas having a high percentage of sage-grouse habitat on private lands.

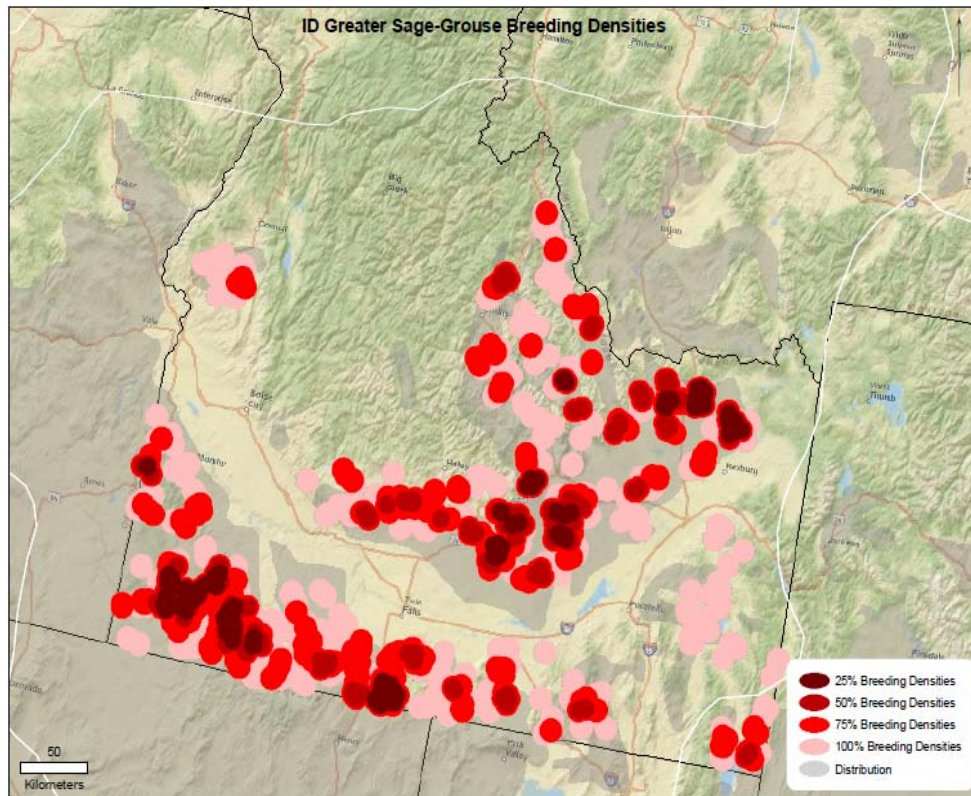
Partner agencies and organizations also have funds available for sage-grouse conservation. NRCS is working with these partners to identify ways to leverage SGI program dollars with other funding sources.

The strategy involves four steps:

- Identifying priority areas where the largest benefit for sage-grouse conservation can be attained;
- Providing sage-grouse conservation outreach and education to stakeholders, including private landowners, Conservation Districts, Sage-Grouse Local Working Groups, and NRCS employees;
- Reducing threats to sage-grouse by improving the health and overall habitat values associated with sagebrush communities through management and structural improvements and/or modifications and by providing long-term protection of agricultural lands important to sage-grouse;
- Incorporating NRCS' SGI three-tiered monitoring plan to assess the effectiveness of the strategy on sage-grouse populations.

Identifying Priority Areas. There are currently about 12.3 million acres of sage-grouse habitat in Idaho. However, sage-grouse are not uniformly distributed throughout this habitat. To focus conservation efforts, NRCS will initially use the GIS-based tool developed by Doherty, et al. (2010) for the Bureau of Land Management. The tool uses lek-count data obtained from state wildlife agencies to delineate high abundance population centers that contain 25, 50, 75, and 100% of the known breeding population for use in conservation planning. Findings show sage-grouse breeding abundance is highly clumped at the state-wide analysis scale. In Idaho, breeding density areas contain 25% of the known population within 17% of the species range, and 75% of birds are within 49% of the species range.

In addition to breeding density maps, NRCS will use other spatial information developed by conservation partners to identify areas where the largest benefit for sage-grouse conservation can be attained. This may include maps of seasonal habitats, vegetation/fragmentation patterns, and locations of threats to sage-grouse. NRCS is working closely with the Bureau of Land Management (BLM), USFWS, IDFG and others to refine existing map products and collectively identify priority conservation areas for sage-grouse in Idaho.



Until more specific priority areas are identified, NRCS conservation actions for sage-grouse will be prioritized by breeding density area, with the 25% Breeding Densities receiving highest priority for program funding, the 50% Breeding Densities receiving second highest priority, and so forth.

CCAAs are additional priority areas and program applications in CCAA areas will receive priority consideration for funding, regardless of breeding density locations.

Outreach and Education. In May 2010, NRCS Idaho participated in a range-wide training on sage-grouse and the SGI. Approximately 60 NRCS field office staff located in sage-grouse range were trained on sage-grouse biology and habitat needs, sagebrush habitat management, threats to sage-grouse in Idaho, and regulatory considerations. Training on the requirements of the NRCS-FWS Conference Report (Appendix 1) was provided to all District Conservationists in November 2010. On-going training will be provided by state and area office staff as needed.

NRCS holds an advisory position on the state Sage-grouse Advisory Committee and staff also participate in the development and implementation of CCAAs, in Sage-grouse Local Working Groups (LWGs) and at Conservation District meetings.

NRCS' Public Affairs Specialist developed Fact Sheets and news releases for the SGI in 2010, and these will be updated as needed in future years. NRCS also distributes outreach and education materials developed by partners through our field offices to the landowners they serve.

NRCS will also look for opportunities to participate in sage-grouse events such as Dubois Grouse Days.



Reduction of Threats to Sage-grouse. Nineteen threats identified by the Idaho sage-grouse science panel are listed and ranked in the Idaho Sage-grouse Conservation Plan (Table 1). The Plan also recommends conservation measures designed to eliminate, reduce, or mitigate each threat. Although NRCS cannot address all of these threats, implementation of this strategy will reduce many of them.

Threats to sage-grouse are not consistently distributed across the state. For example, wildfire is considered a major threat in the Big Desert, Jarbridge, Shoshone Basin and West Central Planning Areas; conifer encroachment in the Owyhee Planning Area; and livestock impacts in the Curlew, Shoshone Basin, and West Central Planning Areas. Therefore, Idaho NRCS will also consider LWGs priorities in planning and funding conservation actions for sage-grouse.

Table 1. – Relative Ranking of Threats to Sage-Grouse in Idaho (Idaho Sage-grouse Advisory Committee 2006)
1) Wildfire*
2) Infrastructure
3) Annual Grassland*
4) Livestock Impacts*
5) Human Disturbance*
6) West Nile Virus
7) Prescribed Fire*
8) Seeded Perennial Grassland*
9) Climate Change*
10) Conifer Encroachment*
11) Isolated Populations
12) Predation*
13) Urban/Exurban Development*
14) Sagebrush Control*
15) Insecticides
16) Agricultural Expansion*
17) Sport Hunting
18) Mines/Landfills/Gravel Pits
19) Falconry

Threats that NRCS will directly or indirectly address with this strategy are marked with an asterisk (*). Related threats have been grouped together in the descriptions below. Conservation Measures from the Idaho Sage-grouse Plan have been modified for brevity, consistency with NRCS legal authorities and mission, to incorporate more recent scientific information, and to use English Customary units of measurement. Not all programs or practices listed under each threat are expected to be used for SGI every year. All practices will be implemented in accordance with the NRCS-FWS Conference Report and NRCS Conservation Practice Standards and Specifications.

Wildfire, Annual Grassland, and Climate Change. Wildfire can destroy hundreds of thousands of acres of sagebrush habitat in a single season. Cheatgrass and other invasive annual grasses alter fire regimes by increasing fine fuel loads, resulting in more frequent fires and reduced habitat quantity and quality. Following fire, invasive annual grasses can proliferate and out-compete native grasses and forbs, reducing the availability of desirable plant species needed by sage-grouse for cover or food as well as productivity for livestock forage. Climate change may also increase the frequency and intensity of wildfires.

Idaho Sage-grouse Plan Conservation Measures:

- 1) Reduce the risk and rate of fire spread to stronghold, key, and restoration habitats.
- 2) Restore annual grasslands to a species composition characterized by perennial grasses, forbs and shrubs.
- 3) Rehabilitate burned areas using native plant materials or introduced materials from the same functional groups, as appropriate for the ecological site.
- 4) Control noxious and invasive weeds.

Programs: EQIP, WHIP, GRP

Practices: Firebreak (394), Restoration and Management of Rare or Declining Habitats (643), Herbaceous Weed Control (315), Range Planting (550), Critical Area Planting (342), Upland Wildlife Habitat Management (645)



Livestock Impacts, Human Disturbance, and Predation. Conservation and improvement of sage-grouse habitat is consistent with long-term grazing management programs that support ecological conditions or trends toward healthy rangelands. Poor livestock grazing practices can negatively impact sage-grouse habitat by changing the proportion of the shrub, grass, and forb functional groups; increasing opportunities for invasion and dominance of introduced annuals; and in some cases eroding the topsoil. Concentration of livestock on leks and other human activity associated with livestock management can disrupt breeding and nesting activity near the lek. Unmanaged livestock grazing can reduce the height of grasses that provide nesting cover and visual obstruction of nests from predators as well as forb diversity and cover needed in brood-rearing habitat. Fences needed to facilitate grazing management can also be a collision hazard for sage-grouse and provide perches for predators. Watering facilities pose a potential threat if not equipped with wildlife escape ramps to prevent sage-grouse from drowning. Spring developments can disrupt or diminish the free flow of water, adversely affecting wet meadows or other moist areas used by foraging grouse during brood-rearing.

Idaho Sage-grouse Plan Conservation Measures:

- 1) Implement effective grazing management practices and/or vegetative manipulation to achieve sage-grouse habitat objectives and maintain or improve vegetation conditions or trends.
- 2) Design and implement grazing management systems that maintain or enhance herbaceous understory cover, height, and species diversity that occurs during the spring nesting season, consistent with ecological site characteristics and potential.
- 3) Minimize grazing effects on the cover and height of primary forage species in occupied habitat during the nesting season. Maintain residual herbaceous vegetation at the end of the grazing season to contribute to nesting and brood-rearing habitat during the coming nesting season.
- 4) Avoid grazing within the lesser of 0.6 mile or direct line of sight of occupied leks during the lekking periods.

- 5) Manage grazing of riparian areas, meadows, springs, and seeps in a manner that promotes vegetation structure and composition appropriate to the site.
- 6) In agricultural fields where sage-grouse use has been documented or is likely, avoid or limit use of alfalfa by livestock after the last cutting, to provide residual alfalfa for use by sage-grouse broods.
- 7) In sage-grouse nesting and brood-rearing habitats, adjust livestock use during drought to minimize the additional stress placed on herbaceous species.
- 8) Place salt and mineral supplements to reduce impacts to sage-grouse breeding habitat and to improve management of livestock for the benefit of sage-grouse habitat.
- 9) Avoid constructing new fences within 0.6 mile of occupied leks, near winter-use areas, movement corridors, and other important seasonal habitats.
- 10) Install fence markers or remove fences where sage-grouse mortality due to collision with fences is documented or likely to occur due to new fence placement.
- 11) Design new spring developments in sage-grouse habitat to maintain or enhance springs and wet meadows. Retrofit existing water developments during normal maintenance activities.
- 12) 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.
- 13) Avoid placing new water developments into higher quality native breeding/early brood habitats that have not had significant prior grazing use.

Programs: EQIP, WHIP, CSP, GRP, WRP

Practices: Prescribed Grazing (528), Access Control (472), Range Planting (550), Grade Stabilization Structure (410), Riparian Herbaceous Cover (390), Fence (382), Obstruction Removal (500), Watering Facility (614),

Spring Development (574), Pipeline (516), Upland Wildlife Habitat Management (645), Wetland Wildlife Habitat Management (644)



Prescribed Fire and Sagebrush Control. Prescribed fire and sagebrush control activities can pose a risk to sage-grouse if projects are planned without appropriate consideration for habitat conditions across multiple scales on the landscape and cumulative effects over time. Such treatments can result in the elimination or reduction of sagebrush cover in situations where breeding or winter habitat may be already limited or fragmented on the landscape, and increase the risk of expansion by invasive plant species.

Idaho Sage-grouse Plan Conservation Measures:

- 1) Design sagebrush control with interdisciplinary input, and in cooperation with IDFG.
- 2) Ensure that sagebrush treatment acreage is conservative in the context of surrounding seasonal habitats and landscape.
- 3) Configure treatments in a manner that promotes use by sage-grouse (generally no more than 100 feet from center of treatment to intact sagebrush cover).
- 4) Leave adequate untreated sagebrush areas for loafing/hiding cover near leks for sage-grouse.
- 5) Evaluate and monitor treatments to determine whether the project was successful and is meeting or trending toward desired objectives.

6) Avoid 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.

Programs: EQIP, WHIP, GRP

Practices: Brush Management (314), Prescribed Burning (338), Access Control (472), Prescribed Grazing (528), Herbaceous Weed Control (315), Range Planting (550), Upland Wildlife Habitat Management (645)



Seeded Perennial Grassland. Since sage-grouse are dependent on sagebrush, extensive areas of seeded perennial grasslands can pose a threat to sage-grouse due to a lack of adequate sagebrush cover to meet seasonal habitat requirements and limited plant species diversity and structure. Without deliberate intervention, some large grass seedings are unlikely to support habitat characteristics suitable for sage-grouse within a reasonable management timeframe.

Idaho Sage-grouse Plan Conservation Measures:

1) Re-establish sagebrush and restore plant species diversity in high priority areas.

2) Reduce competition of crested wheatgrass to facilitate the establishment and persistence of the desired species.

3) Ensure that livestock grazing and rest intervals are matched with the phenology and life history characteristics of the desired/ seeded/ transplanted species.

4) Implement monitoring to clearly document how, what, when and where treatments were implemented.

Programs: EQIP, WHIP, GRP

Practices: Restoration and Management of Rare or Declining Habitats (643), Range Planting (550), Herbaceous Weed Control (315), Access Control (472), Prescribed Grazing (528), Upland Wildlife Habitat Management (645)



Conifer Encroachment. Juniper and pinyon woodlands have increased tenfold in extent since the late 1880s in the Intermountain region. Climate models suggest that expansion of juniper will continue throughout the 21st century. Approximately 355,004 acres of conifer encroachment occurs in Idaho's Sage-Grouse Planning Areas (SGPAs). About 31% of these acres are on private or state lands, with the remainder on federal lands. The primary encroaching species are western juniper (Owyhee SGPA) and Utah juniper (Curlew, South Magic Valley SGPA). Douglas-fir encroaches into higher elevation wet meadows, reducing brood habitat suitability. Conifer encroachment typically occurs along or near the sagebrush-woodland interface due to the lack of wildfire or other disturbance. Over time, as

conifer cover increases, sagebrush cover and other understory species decline, reducing the quality and quantity of sage-grouse habitat. Conifers also provide perches for avian predators of sage-grouse.

Idaho Sage-grouse Plan Conservation Measures:

1) Remove Douglas-fir or other conifers where they are encroaching on wet meadows, riparian areas or sagebrush stands that provide potential sage-grouse habitat.

2) Where juniper or other conifer species have encroached upon sagebrush communities at larger scales, employ prescribed fire, chemical, mechanical (e.g., chaining, chipper, chainsaw, commercial sale) or other suitable methods to reduce or eliminate juniper.

3) Remove juniper, Douglas-fir, pinyon pine, or other trees within at least 330 feet or 8-acre area of occupied sage-grouse leks to reduce perching opportunity for avian predators within view of leks.

4) Ensure cutting and slash disposal is completed between approximately July 15 and January 30 to minimize disturbance to grouse that may be in the vicinity (e.g., males at leks, nesting females, young broods).

Programs: EQIP, WHIP, GRP

Practices: Brush Management (314), Prescribed Burning (338), Upland Wildlife Habitat Management (645)



Urban/Exurban Development and Agricultural Expansion.

Urban/exurban expansion and population growth remove habitat and present inhospitable environments for sage-grouse. However, the connecting roads, power lines and communication corridors, and use of surrounding regions for recreation exert a greater influence on sagebrush habitats. Well-managed, viable ranches can provide habitat and open space needed by sage-grouse and other wildlife.

Large-scale losses of big sagebrush in Idaho since historical times are mainly attributed to conversion to cropland and pasture. Prime areas for growing crops (areas with deeper, fertile soils such as the Snake River Plain) were claimed first during settlement. Pesticides used on cropland can affect sage-grouse foraging in farm fields. Harvest operations can result in mortality to foraging sage-grouse. Certain predators, such as coyote, red fox, ravens, and domestic cats are present in greater numbers in agricultural areas.

Recent upswings in commodity crop prices and a reduction in the enrollment cap for the Conservation Reserve Program (CRP) may cause Idaho to lose a significant acreage of CRP lands currently used by sage-grouse. Some CRP lands have been re-colonized by sagebrush, and returning to cultivation is undesirable for sage-grouse and associated obligate sage/steppe wildlife species. Expiring CRP acres are targeted for enrollment in GRP and FRPP. Financial assistance programs can be utilized to restore these sites to sagebrush-grassland or enhance vegetative diversity.

Idaho Sage-grouse Plan Conservation Measures:

- 1) Utilize USDA easement and rental programs to protect, enhance, and restore habitat for sage-grouse where feasible.
- 2) Acquire, restore, or improve habitat within or adjacent to occupied habitats.
- 3) Protect wildland areas from wildfire originating on private lands, infrastructure corridors and recreation areas.

4) Manage nearby native habitats, especially moist meadows and riparian areas, for brood-rearing habitat.

Programs: GRP, FRPP, CRP, CCRP, SAFE, WRP, EQIP, WHIP, CSP

Practices: Restoration and Management of Rare or Declining Habitats (643), Range Planting (550), Herbaceous Weed Control (315), Access Control (472), Prescribed Grazing (528), Firebreak (394), Forage Harvest Management (511), Upland Wildlife Habitat Management (645), Wetland Wildlife Habitat Management (644)



Acknowledgements

NRCS thanks the following sage-grouse conservation partners for providing review and helpful comments on this strategy:

Sal Palazzolo, Idaho Department of Fish and Game

Paul Makela, Bureau of Land Management

Brian Kelly, US Fish & Wildlife Service

Literature Cited

Autenrieth, R.E. 1981. Sage grouse management in Idaho. Idaho Department of Fish and Game, Wildlife Bulletin 9, Boise, Idaho, USA.

Blenden, M.D., J.J. Armbruster, T.S. Baskett, and A.H. Farmer. 1986. Evaluation of model assumptions: the relationship between plant biomass and arthropod abundance. Pages 11-18 in J. Verner, M.L. Morrison, D.J. Ralph, editors. Wildlife 2000: Modeling habitat relationships of terrestrial vertebrates. University of Wisconsin Press, Madison, USA.

Brush, T. and E.W. Stiles. 1986. Using food abundance to predict habitat use by birds. Pages 57-63 in J. Verner, M.L. Morrison, C.J. Ralph, editors. *Wildlife 2000: Modeling habitat relationships of terrestrial vertebrates*. University of Wisconsin Press, Madison, USA.

Connelly, J.W., and C.E. Braun. 1997. Long-term changes in sage grouse *Centrocercus urophasianus* populations in western North America. *Wildlife Biology* 3/4: 123-128.

Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. *Wildlife Society Bulletin* 28:967-985.

Danvir, R.E. 2002. Sage grouse ecology and management in northern Utah sagebrush-steppe. *Deseret Land and Livestock Ranch and the Foundation for Quality Resource Management, Woodruff, Utah, USA*.

Doherty, K.E., J.D. Tack, J.S. Evans, and D.E. Naugle. 2010. Mapping breeding densities of greater sage-grouse: A tool for range-wide conservation planning. Bureau of Land Management, Washington, DC. BLM Completion Report L10PG00911. September 16, 2010.

Drut, M.S., J.A. Crawford, and M.A. Gregg. 1994a. Brood habitat use by sage grouse in Oregon. *Great Basin Naturalist* 54:170-176.

Drut, M.S., W.H. Pyle, and J.A. Crawford. 1994b. Technical note: diets and food selection of sage grouse chicks in Oregon. *Journal of Range Management* 47:90-93.

Hornaday, W.T. 1916. Save the sage grouse from extinction, a demand from civilization to the western states. *New York Zoological Park Bulletin* 5:179-219.

Idaho Sage-grouse Advisory Committee. 2006. Conservation Plan for the Greater Sage-grouse in Idaho.

Johnson, G.D., and M.S. Boyce. 1990. Feeding trials with invertebrates in the diet of sage grouse chicks. *Journal of Wildlife Management* 54:89-91.

Patterson, R.L. 1952. *The sage grouse in Wyoming*. Sage Books, Denver, Colorado, USA.

Sveum, C.M., J.A. Crawford, and W.D. Edge. 1998. Use and selection of brood-rearing habitat by greater sage grouse in south central Washington. *Great Basin Naturalist* 58:344-351.

USFWS. 2010. Endangered and Threatened Wildlife and Plants; 12-Month Findings for Petitions to List the Greater Sage- Grouse (*Centrocercus urophasianus*) as Threatened or Endangered. 75 Federal Register 55 (23 March 2010), pp. 13910-14014.

Wolfe, D. H., M. A. Patten, E. Shochat, C. L. Pruett, and S. K. Sherrod. 2007. Causes and patterns of mortality in Lesser Prairie-Chickens and implications for management. *Wildlife Biology*. 13 (Suppl. 1):95-104.

Appendices

[Conference Report for the Natural Resources Conservation Service Sage-Grouse Initiative, July 2010.](#)