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NEPA Coordinator
Bureau of Land Management, Northwest Colorado District
2815 H Road
Grand Junction, CO 81506
November 26, 2013

To Whom It May Concern:

I am a Principal and the Senior Ecologist with Wyoming Wildlife Consultant, LLC. I have served as principal investigator, field supervisor, and/or research collaborator on research projects addressing various aspects of greater sage-grouse, sagebrush ecosystem, and sagebrush-obligate wildlife species ecology and management since 1996. My research emphasis has included: greater sage-grouse ecology, greater sage-grouse population response to energy development, livestock grazing and greater sage-grouse habitat suitability, habitat management planning to mitigate greater sage-grouse population declines, and sagebrush rangeland function, health and management. A copy of my Vitae is attached for reference.

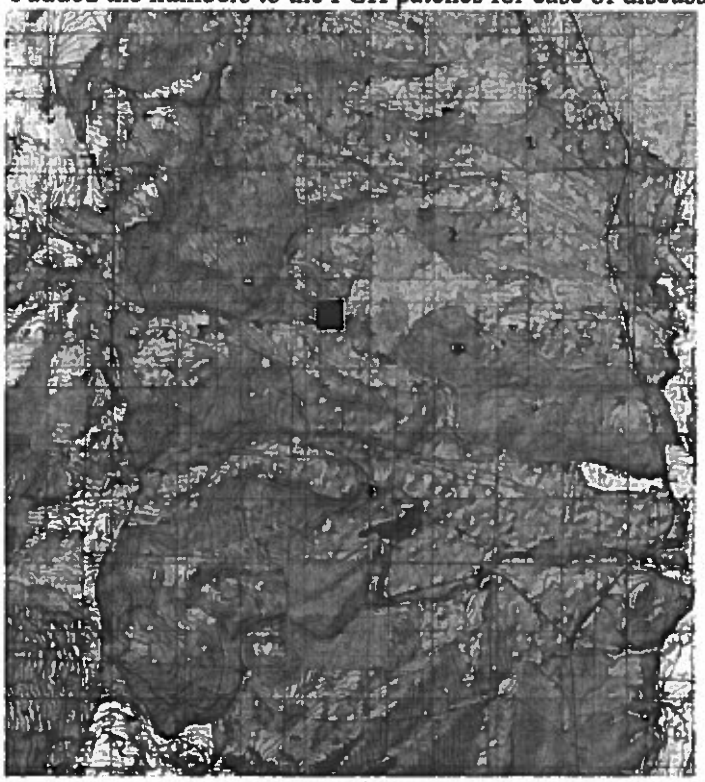
I made numerous site visits to Pinto Valley Ranch located in Grand County, Colorado since 2011, and these visits gave me the opportunity to view the sage-grouse habitats on the ranch. I designed and oversaw the implementation of a field survey with the objective of determining sagebrush habitats occupied by sage-grouse on Pinto Valley Ranch. I discussed the sage-grouse habitats, sage-grouse habitat designations, and extant information and data concerning sage-grouse on Pinto Valley Ranch with employees of Colorado Parks and Wildlife. Given these efforts, it is my opinion that: Pinto Valley Ranch provides habitats across all seasons (nesting, early and late brood-rearing, summer and winter [including severe winter]) for a resident sage-grouse population; substantially all of the sagebrush-dominated areas of Pinto Valley Ranch are used by sage-grouse; high elevation habitats on Pinto Valley Ranch are used by sage-grouse for late brood-rearing and summer; and irrigated hay meadows are used by sage-grouse for late brood-rearing and summer and may be used as connectivity corridors among leks and other critical habitats (e.g., breeding and severe winter range).

In this letter I address 4 overriding concerns I have regarding the Northwest Colorado greater sage-grouse Draft Land Use Plan Amendment and Environmental Impact Statement (referred to as the EIS from here-on):

1. The designation of habitats that should be considered Preliminary Priority Habitats (PPH) instead of Preliminary General Habitats (PGH) in certain areas in and near Pinto Valley Ranch;
2. The minimal attention and consideration of the importance of population connectivity;
3. Adopting of a 5% surface disturbance threshold in the preferred alternative as it compares to the 3% threshold supported in the National Technical Team (NTT) report as well as in the Kremmling Field Office Draft Resource Management Plan (2011); and
4. The administrative flexibility and subjectivity to grant exceptions, waivers and modifications built into the preferred alternative which negates the regulatory mechanisms presented in the preferred alternative thereby making them inadequate.

1. The figure below is a copy of the BLM's map set out in Appendix B Figure 1-4 of the Sage-Grouse EIS of PPH (orangish/pinkish color) and PGH (green) in Middle Park, Colorado enlarged to the area north and west of the intersection of Highway 40 and Highway 134 and encompassing Pinto Valley

Ranch; the reservoir in the lower third of the image is Hinman Reservoir and the black square is a known active sage-grouse lek. I added the numbers to the PGH patches for ease of discussion.

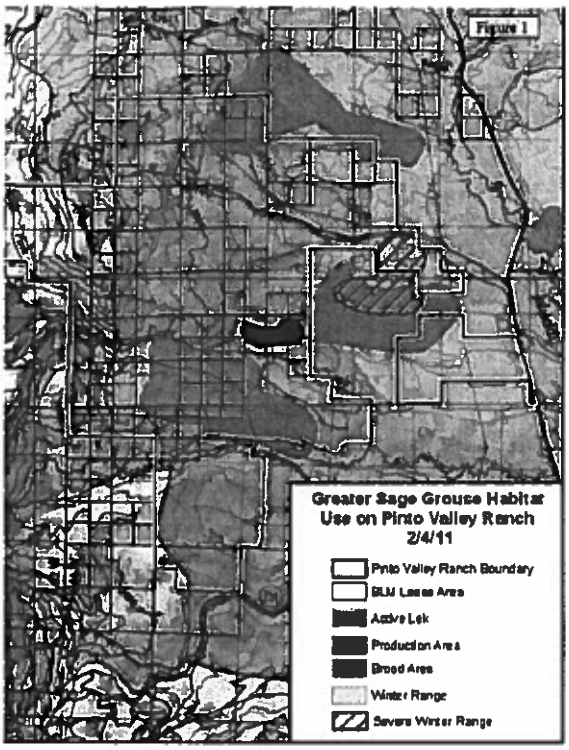


I was able to discern from information presented by the Colorado Parks and Wildlife (CPW) on the website:
http://wildlife.state.co.us/SiteCollectionDocuments/DOW/Maps/WildlifeSpecies/Birds/GrSG_PPH_PGH_20120309_Final.pdf that the BLM used the following information to identify PPH and PGH:

1. Breeding, summer and winter habitat models developed at state-wide spatial scales from occurrence data; models are presented in Rice, M. B., A. D. Apa, M. L. Phillips, J. H. Gammonley, B. B. Petch, and K. Eichhoff. 2013. Analysis of regional species distribution models based on radio-telemetry datasets from multiple small-scale studies. Journal of Wildlife Management 77:821-831; and
2. Production Area and Occupied Range maps maintained by the CPW.

I fully support the BLM's approach of using data-derived models as the basis for identifying suitable sage-grouse habitats. I also fully agree with the BLM's use of extant production area and seasonal range maps as site-specific knowledge important for verifying and "tweaking" modeled estimates of habitat suitability. The use of localized information to ensure that statewide projections accurately reflect conditions at smaller spatial scales is an extremely important step and I applaud the BLM for recognizing this.

However, the verification step of identifying PPH does not appear to have been fully vetted on certain portions of Pinto Valley Ranch and the habitat immediately adjacent to the ranch. Below is again a figure centered on Pinto Valley Ranch in Middle Park, CO; the active lek shown in red in the following figure is the same lek identified by the black box in the first figure I present. The sage-grouse seasonal ranges depicted in the figure were identified and mapped by CPW.




A comparison of the areas identified as PGH in the first figure I present with this figure highlights several inconsistencies. Portions of PGH #2 and #3 are identified by CPW as severe winter range, winter range, and a brood-rearing area. Portions of PGH #1 are identified by CPW as winter range and a brood-rearing area. All of the PGH highlighted (PGH #1-4) in the figure is identified by CPW as a production area. In support, the field surveys conducted on Pinto Valley Ranch established sage-grouse use of PGH #1 (the other PGH habitats identified in the figure were not surveyed).

As I have previously stated in documents submitted to the BLM, surveys undertaken on Pinto Valley Ranch corroborate CPW's contention that the sagebrush-dominated areas on the ranch are important for sage-grouse. Pinto Valley Ranch provides a critical mix of intact sage-grouse nesting, early and late brood-rearing, summer and winter (including severe winter) ranges. Oil and gas exploration and development on or near Pinto Valley Ranch is likely to either directly (e.g., surface disturbance) or indirectly (e.g., sage-grouse avoidance of infrastructure) adversely modify and destroy critical sage-grouse habitat resulting in reduced lek attendance and persistence, nesting and winter habitat use, chick productivity and adult survival. Therefore, based on the methodology used by the BLM as supported by information maintained by CPW and my analysis of the habitats on Pinto Valley Ranch, the areas shaded in green as PGH on the BLM's map are more accurately PPH, and should be designated as such.

In the preferred alternative D, a No Surface Occupancy (NSO) designation is put in place for all PPH for which the minerals have not been leased. This establishes (as is pointed out in the EIS) that minerals underlying PPH will need to be accessed directionally from infrastructure placed in PGH or in unoccupied habitat. As mitigation, this infrastructure will be subjected to timing limitations. The research is unequivocal that energy development of non-renewable reserves (e.g., gas and oil) is detrimental to sage-grouse, with most research suggesting an impact to at least 4 miles. The research is also unequivocal that implementing timing limitations including those referenced in the EIS are not an effective means of minimizing impacts of energy development to sage-grouse (see Manier, D. J., Wood, D. J. A., Bowen, Z. H., Donovan, R. M., Holloran, M. J., Juliusson, L. M., Mayne, K. S., Oyler-McCance,

S. J., Quamen, F. R., Saher, D. J., and Titolo, A. J. 2013. Summary of science, activities, programs, and policies that influence the rangewide conservation of Greater Sage-Grouse (*Centrocercus urophasianus*): U.S. Geological Survey Open-File Report 2013–1098, 170 p., http://pubs.usgs.gov/of/2013/1098/ for review of literature). Additionally, the NTT report specifically states: "We do not include timing restrictions on construction and drilling during the breeding season because they do not prevent impacts of infrastructure (e.g., avoidance, mortality) at other times of the year, during the production phase, or in other seasonal habitats that are crucial for population persistence" (page 21 of 74). The PGH designated in the figures presented above is all within 4 miles of the active lek identified in the figures, and the mitigation measures outlined in the preferred alternative are ineffective. Therefore, energy development occurring on that PGH to access minerals under PPH will negatively influence the sage-grouse population breeding on the lek. There are only 19 active leks in Middle Park, with 12 of those leks being on private lands. According to biologists with CPW, the Middle Park sage-grouse population is one of only two populations in Colorado not currently influenced by oil and gas development. Therefore, impacts to the sage-grouse population using the lek identified above would have major adverse consequences on the conservation of the Middle Park and Northwest Colorado sage-grouse population.

2. A recent publication investigating connectivity between sage-grouse leks in western portions of the species range concluded that: (1) connectivity among leks (populations) is important for species persistence; and (2) peripheral populations are often connected by limited numbers of corridors, and habitat loss or human development that eliminates habitat in these corridors could result in extirpation of these populations from regional, stochastic events (Knick, S. T., S. E. Hanser and K. L. Preston. 2013. Modeling ecological minimum requirements for distribution of greater sage-grouse leks: implications for population connectivity across their western range, U.S.A. Ecology and Evolution. doi: 10.1002/ece3.557). Anthropogenic development in the PGH habitats on and near Pinto Valley Ranch may eliminate movement corridors used by sage-grouse to move to and from habitats on the Ranch. Elimination of these corridors could effectively isolate the population which would increase the probability of extirpation of this population which in turn would have major adverse consequences on the conservation of the Middle Park and Northwest Colorado sage-grouse populations as a whole.

Based on the foregoing analyses it is important to prohibit energy development on Pinto Valley Ranch and nearby areas to the east and west of the ranch to maintain the unique and irreplaceable intact sage-grouse habitats the ranch provides, maintain travel corridors to and from the habitats on the ranch, and thereby maintain the population of sage-grouse established by the CPW as critically important for sustaining populations in Colorado. In order for the regulatory mechanisms to be adequate and pass the scrutiny of the USFWS, the area of PPH should be expanded as proposed above to afford the entire area the no surface occupancy protections as set forth in Alternative D. If habitat designations cannot be changed, the protections set forth in Alternative D should be modified to extend no leasing provisions to PPH as set forth in Alternative B and the NTT report; and the protections set forth in Alternative D should be significantly strengthened by insuring that regulatory mechanisms are not negated by the administrative subjectivity as discussed below.

3. The expert opinion of the NTT report concluded that a 3% surface disturbance threshold was necessary to maintain sage-grouse populations. Additionally, the Kremmling Field Office Draft Resource Management Plan (KFO DRMP) established that a "3 percent surface disturbance threshold will be maintained within sage-grouse core areas" (page 4-283). Given the MOU as presented in Appendix A of the EIS as well as the KFO DRMP, the onus is on the authors of the EIS to justify and support any deviation from recommendations made by the NTT. The authors of the EIS present no scientific justification for deviating from the 3% threshold, and no scientific literature exists that I am aware of justifying this deviation. Therefore the surface disturbance threshold should be maintained at 3% within the preferred alternative.

4. The authors of the EIS repeatedly emphasize throughout the document that the preferred alternative includes broad administrative subjectivity to grant exceptions and make decisions based on site-specific or local conditions; this subjectivity is not a major part of any of the other pertinent alternatives. The following statements in the EIS are examples of the excessive flexibility and subjectivity built into Alternative D: "it is not possible to quantify the reductions [in development] because the flexibility built into this alternative [preferred alternative] would be highly variable…" (page 646) and "because this alternative [D] would apply more widely but with less stringent restrictions and greater flexibility to approve projects, the number of acres potentially affected is not a meaningful number…" (page 638). In Appendix F of the EIS and specific to how "prioritization" was used on page F-6, the NTT report (and as such Alternative B) states: "management priorities will need to be shifted and balanced to maximize benefits to sage-grouse habitats and populations in priority habitats" whereas the preferred alternative presents the following for prioritization: "Consider GRSG [greater sage-grouse] habitat requirements in conjunction with all resource values managed by the BLM, and give preference to GRSG habitat unless site-specific circumstances warrant an exemption." The repeated use of the *flexibility* language establishes a broad subjective administrative discretion, modification and limitation to the preferred alternative. Subjectivity undermines the scientific-credibility and potential efficacy of actions suggested under the preferred alternative. Although it is more scientifically valid to eliminate the administrative subjectivity in PPH, if flexibility is allowed under the preferred alternative, specific and inflexible sidebars based on documented scientific analysis of when exemptions can be considered need to be established in the EIS. In my opinion, the administrative subjectivity to grant exceptions, waivers and modifications included in the preferred alternative negates the protections and regulatory mechanisms included in this alternative thereby making them, and the alternative, inadequate.

Thank you for your consideration,

Matt Holloran
Wyoming Wildlife Consultants, LLC
P.O. Box 893
Pinedale, WY 82941

# Matthew J. Holloran
## Vitae
January 2013

**PERSONAL**

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| Office Address: | Wyoming Wildlife Consultants LLC<br>1612 Laporte Avenue No. 9<br>Fort Collins, CO 80521 |
| Office: | 307.399.6885 |
| Cell: | 307.399.6885 |
| Email: | matth@wyowildlife.com |


**EDUCATION**

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|---|---|
| 2005 | Ph.D., Zoology and Physiology with Wildlife Management concentration, University of Wyoming, Laramie, WY, USA. Dissertation: *Greater sage-grouse* (Centrocercus urophasianus) *population response to natural gas field development in western Wyoming*. Dr. Stanley H. Anderson, advisor. |
| 1999 | M.S., Zoology and Physiology, University of Wyoming, Laramie, WY, USA. Thesis: *Sage grouse* (Centrocercus urophasianus) *seasonal habitat use near Casper, Wyoming*. Dr. Stanley H. Anderson, advisor. |
| 1991 | B.S., Biology, Colorado College, Colorado Springs, CO, USA. |

**RECENT POSITIONS HELD**

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|---|---|
| 2013 – present | Chief Scientist, Wildlife Management Research Support (a fiscally-sponsored nonprofit) |
| 2005 – present | Principal and Senior Ecologist, Wyoming Wildlife Consultants, LLC. |
| 2003 – 2005 | Doctoral Researcher, Wyoming Cooperative Fish and Wildlife Research Unit; with Dr. Stanley H. Anderson, University of Wyoming. |
| 1999 – 2003 | Research Scientist, Wyoming Cooperative Fish and Wildlife Research Unit; University of Wyoming. |

**PROFESSIONAL EXPERIENCE**

2005 – present: **Principal and Senior Ecologist; Wyoming Wildlife Consultants, LLC.**
Partner: John Dahlke; Principal Wyoming Wildlife Consultants LLC; 207 West Pine Street, Pinedale, WY 82941; (307) 367-2765.

**Project Specific Information:**

- Principal investigator: *Holistic greater sage-grouse management on a ranch destined for wind development.* Project designed to investigate the following objectives: (1) develop quantified predictions of population-level response of sage-grouse to wind energy developments; and (2) develop quantified and detailed wildlife habitat suitability focused state-and-transition models for the ecological sites occurring on the Pathfinder Ranch. ($847,900)
- Co-Principal investigator: *Greater sage-grouse telemetry study for the Simpson Ridge Wind Resource Area; Carbon County, Wyoming.* Project designed to compile pre-treatment sage-grouse information necessary to effectively document sage-grouse population response to wind development. ($621,260)
- Co-Principal investigator: *Documenting structural and spatial characteristics of sage-grouse nesting and early brood-rearing habitat suitability at selected ecological sites in the Wyoming Basin.* Project designed to correlate ecological site information with habitat requirements of sage-grouse. ($317, 590)
- Principal investigator: *Greater sage-grouse winter habitat selection in the Upper Green River Basin, Wyoming.* Project to determine whether natural gas development influenced habitat selection of wintering greater sage-grouse in southwestern Wyoming. Probability-of-occurrence differences between distinct patches of habitat relative to the proximity of those patches to natural gas field infrastructure being investigated. (≈$800,000)
- Initiator: *Identifying habitats for greater sage-grouse population persistence on Atlantic Rim, Rawlins, Wyoming: A process of protecting specific areas within a developing natural gas field critical for population*

*sustainability in an adaptive management framework.* Study designed to identify source breeding season habitats through seasonal risk-assessment modeling and to generate areas-of-critical-conservation-concern maps based on limiting seasonal habitats, risk assessment, multi-seasonal occurrence, and seasonal juxtaposition. (*Study being conducted by University of Wyoming*) ($75,000)

- Principal investigator: *Habitat mitigation planning for greater sage-grouse in the Upper Green River Basin, Wyoming.* Project designed to compile the wildlife and vegetative information, and establish the landowner contacts required to effectively prepare allotment scale habitat management plans focused on enhancing areas for greater sage-grouse. ($478,000)
- Principal investigator: *Recruitment by greater sage-grouse in association with natural gas development in western Wyoming.* Study designed to establish the reaction of yearling greater sage-grouse males and females to natural gas field development. (*Study a continuation of a master's project (University of Wyoming) completed in 2006, and completed August 2007*)
- Principal investigator: *Pygmy rabbit block survey of EnCana Oil & Gas (USA) Inc. proposed 2007 drilling locations in the Jonah Infill Drilling Project Area.* Project identified habitats utilized by pygmy rabbits within the Jonah natural gas field in southwestern Wyoming. (*Project completed April 2007*)
- Principal investigator: *EnCana offsite habitat manipulation project at Arambel Reservoir.* (*Project completed February 2007*)

2002 – 2005: **Ph.D. Candidate; University of Wyoming.**
Advisor: Dr. Stanley H. Anderson (deceased); Leader, Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie, WY 82071; Dr. Matt Kaufman (*current contact*), (307) 766-5415.

Doctoral researcher for the study: *Greater sage-grouse* (Centrocercus urophasianus) *population response to natural gas field development in western Wyoming.* Determine if and how the development of natural gas resources was influencing greater sage-grouse populations in the upper Green River Basin of southwestern Wyoming.

1999 – 2003: **Research Scientist; Wyoming Cooperative Fish and Wildlife Research Unit.**
Supervisor: Dr. Stanley H. Anderson (deceased); Leader, Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie, WY 82071; Dr. Matt Kaufman (*current contact*), (307) 766-5415.

**Project Specific Information:**

- Initiated the study: *Grazing system and linear corridor influences on greater sage-grouse* (Centrocercus urophasianus) *habitat selection and productivity.* Study determined the effects of differing cattle grazing practices on sagebrush dominated landscapes as they relate to greater sage-grouse seasonal habitat selection and productivity. (*A master's student (University of Wyoming) assumed the study in 2002; the study was completed August 2004*)
- Initiated the study: *Sage-grouse* (Centrocercus urophasianus) *use of different-aged burns and the effects of coyote control in southwestern Wyoming.* Study determined temporal effects to greater sage-grouse survival and productivity of prescribed fire by quantifying use of different aged sagebrush burns. (*A master's student (University of Wyoming) assumed the study in 2001; the study was completed December 2003*)
- Principal investigator for the study: *Greater sage-grouse seasonal habitat selection and survival in Jackson Hole, Wyoming.* Study documented greater sage-grouse seasonal habitat selection and survival, identified limiting seasonal range(s), and quantified habitat conditions associated with sustainable and increasing productivity. (*Study completed August 2004*)

**RECENT PEER-REVIEWED PUBLICATIONS**

**Holloran**, M. J., B. C. Fedy, and J. Dahlke. *In Review.* Winter habitat selection of greater sage-grouse relative to activity levels at natural gas well pads. Journal of Wildlife Management.

LeBeau, C. W., J. L. Beck, G. D. Johnson, and M. J. **Holloran**. *In Review.* Short-term impacts of wind energy development on greater sage-grouse fitness parameters. Journal of Wildlife Management.

Kirol, C. P., J. L. Beck, S. V. Huzurbazar, M. J. **Holloran**, and S. N. Miller. *In Review.* Identifying greater sage-grouse source and sink habitats for conservation planning in an energy development landscape. Ecological Applications.

Johnson, D. H., M. J. **Holloran**, J. W. Connelly, S. E. Hanser, C. L. Amundson, and S. T. Knick. 2011. Influences of environmental and anthropogenic features on greater sage-grouse populations, 1997-2007. pp.

407-450 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA, USA.

Naugle, D. E., K. E. Doherty, B. L. Walker, H. E. Copeland, M. J. **Holloran**, and J. D. Tack. 2011. Sage-grouse and cumulative impacts of energy development. pp. 55-70 in D. E. Naugle (editor). Energy development and wildlife conservation in western North America. Island Press, Washington, DC, USA.

Naugle, D. E., K. E. Doherty, B. L. Walker, M. J. **Holloran**, and H. E. Copeland. 2011. Energy development and greater sage-grouse. pp. 489-503 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA, USA.

**Holloran**, M. J., R. C. Kaiser, and W. A. Hubert. 2010. Yearling Greater Sage-grouse Response to Energy Development in Wyoming. Journal Wildlife Management 74:65-72.

Kiesecker, J. M., H. Copeland, A. Pocewicz, N. Nibbelink, B. McKenney, J. Dahlke, M. **Holloran**, and D. Stroud. 2009. A framework for implementing biodiversity offsets: selecting sites and determining scale. BioScience 59:77-84.

Thompson, K. M., M. J. **Holloran**, S. J. Slater, J. L. Kuipers, and S. H. Anderson. 2006. Early brood-rearing habitat use and productivity of greater sage-grouse in Wyoming. Western North American Naturalist 66:332-342.

**Holloran**, M. J., and S. H. Anderson. 2005. Spatial distribution of greater sage-grouse nests in relatively contiguous sagebrush habitats. Condor 107:742-752.

**Holloran**, M. J., and S. H. Anderson. 2005. Greater sage-grouse population response to natural gas development in western Wyoming: are regional populations affected by relatively localized disturbances? Transactions North American Wildlife and Natural Resources Conference 70:160-170.

**Holloran**, M. J., B. J. Heath, A. G. Lyon, S. J. Slater, J. L. Kuipers, and S. H. Anderson. 2005. Greater sage-grouse nesting habitat selection and success in Wyoming. Journal Wildlife Management 69:638-649.

**Holloran**, M. J., and S. H. Anderson. 2003. Direct identification of northern sage-grouse, Centrocercus urophasianus, nest predators using remote sensing cameras. Canadian Field-Naturalist 117:308-310.

## GROUP INVOLVEMENT

- Wyoming statewide greater sage-grouse working group (*Wyoming greater sage-grouse conservation plan*).
- Wyoming Game and Fish Department greater sage-grouse management and livestock grazing technical team.
- Wyoming Game and Fish Department greater sage-grouse working group.
- Wyoming State Governor's greater sage-grouse conservation task force.
- Wyoming Chapter of The Wildlife Society (President)

*References Available upon Request*