June 27, 2015

Director
Attn.: Protest Coordinator
P.O. Box 71383
Washington, D.C. 20024-1383

Via first-class mail and email to protest@blm.gov

Dear Director Kornze:

The following is the protest of WildEarth Guardians, Prairie Hills Audubon Society, Wester Watersheds Project, Sierra Club, and Center for Biological Diversity on the Utah Greater Sage-grouse Resource Management Plan Amendment Final Environmental Impact Statement (FEIS). Unless specifically noted otherwise, all elements of this protest apply to management by both the BLM and Forest Service, in both Utah and Wyoming, within the planning area. This protest addresses issues raised by WildEarth Guardians and others in our comments at the Draft EIS stage of this process (Attachment 87) and in our Sage-grouse Recovery Alternative (Attachment 88), also submitted to the BLM as part of this NEPA process.

Energy development, particularly oil and gas development, has been a major factor in the demise of sage grouse populations over the past decades, and the Bureau of Land Management's (BLM's) past policies of elevating extractive uses of public land to the detriment of the health of the land has led the sage grouse to the brink of an Endangered Species listing. In the Great Basin states, livestock overgrazing has led to the rapid expansion of cheatgrass, a non-native invasive weed, directly degrading habitat and indirectly causing habitat loss through accelerating the cycle of range fires that wipe out the sagebrush that grouse need to survive. It is becoming increasingly apparent that excessive livestock grazing is also a chronic and widespread problem in the eastern half of the species' range as well. Adopting a system of sage grouse reserves and managing them to allow only those activities that do not negatively impact the grouse and its habitat will do a great deal to restore balance to public land management across the West's sagebrush basins, helping to rein in the excesses of extractive industries and provide healthy natural lands for the benefit of native wildlife, public recreation, and the scenic values of open space.

We would like to applaud the federal agencies for embarking on this effort to identify and designate key sage grouse habitats necessary for the species' survival and persistence, and

provide additional habitat protections under the designation of Priority Habitats. According to BLM, "The availability of large, uninterrupted areas of sagebrush habitat for sage-grouse to forage and nest is likely to influence the size of the breeding populations and persistence of leks." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-264, citations omitted. We agree. Protecting the greater sage grouse has ecosystem-wide importance, because hundreds of other sagebrush species depend on the same habitats, and providing strong protection for sage grouse Priority Habitats helps to assure the long-term function of sagebrush ecosystems as a whole. It is imperative to provide a system of interlinked and well-connected sagebrush reserves in order to provide resiliency in the face of a changing climate, which is likely to result in changes to the distribution of sagebrush (Neilson et al. 2005). All of these factors favor a course correction in land management across the sagebrush basins of the West, a shift away from maximizing the profits of private corporations and toward permitting only those activities that are compatible with maintaining healthy lands and wildlife populations. But federal agencies also must do a competent job of applying appropriate protections for the bird and its habitats, which the agencies have not yet accomplished.

The National Technical Team (2011: 6) wrote that the BLM's National Sage-Grouse Planning Strategy ushered in a "New Paradigm" under which

> Land uses, habitat treatments, and anthropogenic disturbances will need to be managed below thresholds necessary to conserve not only local sage-grouse populations, but sagebrush communities and landscapes as well. Management priorities will need to be shifted and balanced to maximize benefits to sage-grouse habitats and populations in priority habitats.

Improvements must be made to the preferred alternative in this Final EIS in order to meet the objectives of this new paradigm.

The U.S. Fish and Wildlife Service correctly identified in 2010 that the greater sage grouse warranted Endangered Species Act protection, that it faced numerous threats to its continued survival, and that inadequacy of regulatory mechanisms in general (and the inadequacy of protections in federal land-use plans in particular) were contributing to the need to list the species. We have previously submitted a checklist of necessary conservation measures required to meet the agencies' legal mandates as well as the Purpose and Need for the Environmental Impact Statement (EIS). It will be necessary to ensure that the final plans meet or exceed each one of these protective thresholds so that these plans can survive judicial scrutiny as adequate regulatory mechanisms in the context of Endangered Species Act consideration.

A population persistence study by Garton et al. (2015) incorporates the latest state population data to calculate the probability that various populations will drop below minimum viable population thresholds at the Management Zone and subpopulation levels. *See* Attachment 89. According to this study, the prospects for sage grouse populations overall are even bleaker today than in 2010, when the species was found to be 'warranted, but precluded' for Endangered Species Act listing. According to this study, the larger Utah populations (Northeast Interior and South-central Utah) have a significant probability of dropping below 50 birds in 100 years (a 27.5% and 18.7% chance, respectively), and small and isolated populations in Sanpete-Emery

Counties, Summit-Morgan Counties, and Toole-Juab Counties are already flirting with this critical threshold today (minimum male lek counts of 48 males, 65 males, and 57 males, respectively). Overall, there is a 10% chance that sage grouse populations in the Southern Great Basin Management Zone as a whole will drop below an effective population size of 50 birds in 100 years. These conclusions illustrate that BLM has been failing to uphold its FLPMA obligation to prevent unnecessary or undue degradation to sage grouse habitats, and failing to uphold Sensitive Species requirements, (and the Forest Service has not been in full compliance with its Sensitive Species and NFMA viability requirements) for many years; this plan revision offers BLM the opportunity to reverse this legal failing and the agency is obligated by law to do this.

These are serious extinction risks, particularly for the small and isolated populations. Federal agencies must work that much harder to ensure that federal plan amendments and revisions give sage grouse and their habitats the full measure of protection demanded by the science. Scientists submitted a letter in March of 2015 highlighting some of the most compelling needs to improve protections (*see* Attachment 90); no federal sage grouse plan amendment or revision in the greater sage grouse range (including Utah) meets these recommendations.

The Purpose and Need for this EIS addressed the following issues:

> The purpose of the LUPAs is to identify and incorporate appropriate conservation measures in LUPs to conserve, enhance, and/or restore GRSG habitat by reducing, eliminating, or minimizing threats to that habitat.

FEIS at ES-3. As described below, many aspects of the proposed RMP do not conform to the best available science or the recommendations of BLM's own experts regarding necessary measures to protect sage grouse habitats and prevent population declines, and therefore do not meet the Purpose and Need to "conserve, enhance, and/or restore GRSG Habitat."

Due to the multiple descriptors for important sage grouse habitats used by BLM throughout this process, we use 'Core Areas,' 'Priority Habitats,' 'Priority Areas for Conservation' (or "PACs"), and 'Priority Habitat Management Areas' (or "PHMAs") interchangeably throughout these comments as they each refer to approximately or exactly the same geography. We incorporate by reference into this protest all attachments that the undersigned organizations has submitted with comments earlier in this NEPA process, and will not attach them here as they are already in the agencies' possession.

Statements of Interest

WildEarth Guardians is a nonprofit organization working to protect wildlife, wild places, wild rivers, and the health of the American West with offices in New Mexico, Colorado, Wyoming, Montana, Utah, and Oregon. We have almost 67,000 members and supporters, including those who live in each of ten the states represented in the greater sage grouse plan revisions and amendments. Our members and supporters strongly value wildlife and healthy ecosystems, which will be supported to the greatest extent by mandatory, science-based conservation measures in important sage grouse habitats. Over 350 species of native wildlife depend on the

sagebrush ecosystems that the sage grouse calls home, and our members have a deep and abiding interest in providing healthy native habitat for each one of these, particularly the greater sage grous, in addition to all of the native plants that share these ecologically important communities of life. Our members actively and variously engage in wildlife viewing, photography, hiking, camping, nature study, nature study, appreciation of natural beauty, and other recreational activities on public lands covered in the sage grouse plan amendments and revisions.

Prairie Hills Audubon Society ("PHAS") is a non-profit South Dakota corporation with its principal place of business in Black Hawk, South Dakota. Our members generally reside in western South Dakota. PHAS is a chapter of the National Audubon Society. The mission of PHAS is to engage in educational, scientific, literary, historical, and charitable pursuits that will educate about, protect, and restore the environment and natural heritage. Its members use BLM and Forest Service lands for wildlife and plant observation, hiking, photography, aesthetic appreciation, spiritual renewal, and other recreational purposes. We have a special interest in birds and sage grouse. PHAS believes that sage grouse in North and South Dakota are fringe populations to Montana, and the continued existence of these birds in northwest South Dakota and North Dakota is contingent on grouse management in Montana and Wyoming. We believe any possible recovery (repatriation) of our southwestern South Dakota sage grouse leks is dependent on sound management in Wyoming and Montana.

Western Watersheds Project ("WWP") is a non-profit conservation organization with an interest in protecting and restoring western watersheds and wildlife on public lands. WWP submitted extensive comments on the draft RMPA and draft EIS. WWP has staff and/or members who use the lands within the planning area for recreational, scenic, aesthetic, and scientific interests, and whose direct concern for Greater sage grouse is affected by the current planning effort.

The **Center for Biological Diversity** is a non-profit environmental organization with over 900,000 members and online activists nationwide, including members who live and recreate in the states affected by Bureau of Land Management and Forest Service management of sage grouse habitat. The Center uses science, policy and law to advocate for the conservation and recovery of species on the brink of extinction and the habitats they need to survive. The Center has and continues to actively advocate for increased protections for species and habitats in the planning area on lands managed by the BLM. The lands that will be affected by the proposed plan amendments include habitat for listed, rare, and imperiled species that the Center has worked to protect including the greater sage grouse. The Center's board, staff, and members use the lands within the affected planning area, including the lands and waters that would be affected by actions under the lease sale, for quiet recreation (including hiking and camping), scientific research, aesthetic pursuits, and spiritual renewal. The Center has previously participated in this planning process by submitting detailed comments on the Draft EISs for the Idaho/Southwest Montana, Oregon/Washington, Inyo National Forest, Utah, Nevada and Northeast California, and Wyoming sage grouse plan revisions.

Sierra Club is America's largest grassroots environmental organization, with more than 2.4 million members and supporters nationwide, many of whom live, work, and recreate in areas covered by the greater sage grouse plan amendments. In addition to creating opportunities for

people of all ages, levels and locations to have meaningful outdoor experiences, the Sierra Club works to safeguard the health of our communities, protect wildlife, and preserve our remaining wild places through grassroots activism, public education, lobbying, and litigation. Sierra Club is dedicated to exploring, enjoying, and protecting the wild places of the Earth; to practicing and promoting the responsible use of the Earth's resources and ecosystems; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives. The Utah Chapter of the Sierra Club has approximately 3,900 members, many of whom live, work, or recreate in the planning area.

National Environmental Policy Act

The National Environmental Policy Act ("NEPA") requires agencies to conduct environmental analysis of the direct and cumulative impacts of proposed projects, consider a range of reasonable alternatives (including an alternative that minimizes environmental impacts), solicit and respond to public comments.

Range of Alternatives Requirements

The range of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. NEPA requires BLM to "rigorously explore and objectively evaluate" a range of alternatives to proposed federal actions. See 40 C.F.R. §§ 1502.14(a) and 1508.25(c). Formulation of alternatives during the NEPA disclosure and study process is at the heart of Congress' choice of NEPA as the procedural method that guides federal agencies' management of the public lands. *See Natural Resources Defense Council v. Hodel*, 865 F.2d 288, 299 (D.C. Cir. 1988) (citing *Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976)). In fact, NEPA requirements state that while plans are under revision, "no action concerning the proposal should be taken which would: (1) Have an adverse environmental impact; or (2) Limit the choice of reasonable alternatives." 40 C.F.R. § 1506.1(a). *Catron County v. U.S Fish and Wildlife Service*, 75 F.2d 1429 (10th Cir. 1996)(partial NEPA compliance is not enough.) NEPA regulations also require agencies to address appropriate alternatives in Environmental Assessments. 40 C.F.R. § 1508.9, with specific reference to section 102(2)E of NEPA. In addition, the law requires consideration of a range of mitigation measures. *See Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094,1122-1123 (9th Cir. 2002) (and cases cited therein) (stating that agencies must develop and analyze environmentally protective alternatives in order to comply with NEPA).

Section 102(2)(C) of NEPA requires an agency to present alternatives to the proposed action, and Section 102(2)(E) requires the agency to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. § 4332(2)(C) and (E) (1994); *see* 40 C.F.R. § 1501.2(c); *Biodiversity Associates*, IBLA 2001-166 at 6; *Wyoming Outdoor Council*, 151 IBLA 260, 272 (1999); *Howard B. Keck, Jr.*, 124 IBLA 44, 53 (1982); *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228-29 (9th Cir. 1988), cert. Denied, 489 U.S. 1066 (1989).

The fact that this basic, fundamental requirement that is the touchstone of *every* NEPA document has not gone unnoticed on the federal judiciary in sending back environmental studies that fail to meet this requirement, is noteworthy. *See e.g., Calvert Cliffs Coordinating Comm., Inc. v. United States Atomic Energy Comm'n*, 449 F.2d 1109, 1114 (D.C. Cir. 1971) (detailed EIS required to ensure that each agency decision maker has before him and takes into account all possible approaches to a particular project . . . which would alter the environmental impact and the cost-benefit balance); *Natural Resource Defense Council v. Callaway*, 524 F.2d 79, 93 (2d Cir. 1975); ("The duty to consider reasonable alternatives is independent from and of wider scope than the duty to file an environmental statement."); *Simmons v. United States Army Corps of Engineers*, 120 F.3d 664, 660 (7th Cir. 1997) ("The highly restricted range of alternatives evaluated and considered violates the very purpose of NEPA's alternative analysis requirement: to foster informed decision making and full public involvement."); *Alaska Wilderness Recreation & Tourism v. Morrison*, 67 F.3d 723, 729 (9th Cir. 1995) ("The existence of a viable but unexamined alternative renders an environmental impact statement inadequate."); *Dubois v. U.S. Dept. of Agric*., 102 F.3d 1273, 1288 (1st Cir. 1996) (EIS invalid because agency did not consider alternative of using artificial water storage units instead of a natural pond as a source of snowmaking for a ski resort); *Libby Rod & Gun Club v. Poteat*, 457 F. Supp. 1177, 1187-88 (D. Mont. 1978), *rev'd in part on other grounds*, 594 F.2d 742 (9th Cir. 1979) (Army Corps of Engineers violated NEPA in an EIS for a hydroelectric dam by only cursorily addressing the alternatives of meeting the Northwest's energy needs through other sources or conservation.); *Northwest Envt'l Defense Center v. Bonneville Power Admin*., 117 F.3d 1520, 1538 (9th Cir. 1997) ("An agency must look at every reasonable alternative, with the range dictated by the nature and scope of the proposed action.")

The failure to look at the full range of reasonable alternatives is related to BLM's duty in any environmental analysis to develop, study, analyze and adopt mitigation measures to protect other resources. The ability to adopt post-leasing mitigation measures – see 43 C.F.R. § 3101.1-2 – is quite broad, as all reasonable measures not inconsistent with a given lease may be imposed by BLM. This is particularly true given that BLM, pursuant to FLPMA, must manage public lands in a manner that does not cause either "undue" or "unnecessary" degradation. 43 U.S.C. § 1732(b). Put simply, the failure of BLM to study and adopt these types of mitigation measures – especially when feasible and economic – means that the agency is proposing to allow this project to go forward with unnecessary and/or undue impacts to public lands, in violation of FLPMA.

The Tenth Circuit examined NEPA's alternatives requirement and agreed with other courts that "have interpreted NEPA to preclude agencies from defining the objectives of their actions in terms so unreasonably narrow that they can be accomplished be only one alternative (i.e. the applicant's proposed project)." *Colorado Environmental Coalition v. Dombeck*, 185 F.3d 1162, 1165 (10th Cir. 1999), at 1174 (*citing Simmons v. United States Corps of Eng'rs*, 120 F.3d 664, 669 (7th Cir. 1997)). At the same time, an agency may not completely ignore an applicant's objectives. *See id*. at 1174-75. Taken together, these directives "instruct agencies to take responsibility for defining the objectives of an action and then provide legitimate consideration to alternatives that fall between the obvious extremes." *Id.* at 1175. *See All Indian Pueblo Council v. United States*, 975 F.2d 1437, 1444 (10th Cir. 1992) (a thorough discussion of alternatives is "imperative"). Accordingly:

> In short, the mitigation measures relied upon by the Corps, while mandatory, are not supported by a single scientific study, paper, or even a comment. This Court does not expect the Corps to conduct extensive research on the efficacy of wetland replacement. Neither can the Court defer to the Corps' bald assertions that mitigation will be successful. … As such, the Corps was arbitrary and capricious in relying on mitigation to conclude that there would be no significant impact to wetlands. The Court remands to the Corps to support its reliance on mitigation.

351 F.Supp.2d 1232, 1252, footnote omitted. The court concluded, "This Court will not rubberstamp an agency determination that … relies on unsupported, unmonitored mitigation measures. NEPA and the CWA require more." 351 F.Supp. 2d 1232, 1252. In particular, federal agencies must explore alternatives to proposed actions that will avoid or minimize adverse effects on the environment, 40 C.F.R § 1500.2(3), alternative kinds of mitigation measures, 40 C.F.R. § 1508.25(c)(3), alternatives that would help address unresolved conflicts over the use of available resources (e.g. sage grouse key habitats), 40 C.F.R. § 1501.2(c), and other reasonable courses of action, 40 C.F.R. § 1508.25(c)(2). The requirement to consider such less damaging alternatives helps agencies meet NEPA's primary purpose of promoting "efforts which will prevent or eliminate damage to the environment and biosphere..." 42 U.S.C. § 4321. These requirements are affirmed in BLM policy: "BLM officials may not so narrow the scope of a planning/NEPA document as to exclude a reasonable range of alternatives to the proposed action..." USDI Instruction Memorandum No. 2001-075. The IBLA has established that the elimination of reasonable alternatives without sufficient analysis does not satisfy NEPA, and noted that "While we could speculate about the BLM's rationale for dismissing…alternatives, we should not be required to fill in the blanks for BLM. The record should speak for itself." *Biodiversity Associates*, IBLA 2001-166, at 7 (2001). Such objective evaluation is gravely compromised when agency officials bind themselves to a particular outcome or foreclose certain alternatives at the outset. Importantly, BLM's decision to allow high-impact projects in sensitive and undeveloped lands when lower-impact alternatives and mitigation measures are readily available has resulted in a Preferred Alternative that results in unnecessary impacts on the public lands.

BLM must consider implementing key sage grouse protections recommended by USFWS and the BLM's own National Technical Team (e.g., a 4-mile no surface disturbance buffer as a Condition of Approval on current fluid mineral leases for active leks within Priority Habitats, apparently not considered in any alternative). Importantly, according to BLM,

> In August 2011, the BLM convened the Sage-Grouse National Technical Team (NTT), which brought together resource specialists and scientists from the BLM, state fish and wildlife agencies, the USFWS, the U.S. Department of Agriculture (USDA) NRCS, and the USGS. The NTT developed a series of science-based conservation measures to be considered and analyzed through the land use planning process.

FEIS at 36. Guardians also submitted our Sage-Grouse Recovery Alternative earlier in this NEPA process; the issues raised in this alternative are also part of our expectations for the final

plan amendments and revisions. We requested that agencies should designate as Priority Habitat and General Habitat all lands identified as PPMAs and PGMAs, and in addition should expand Priority Habitat to include all Priority Areas for Conservation identified by USFWS, but this alternative does not appear to have been considered in detail in violation of NEPA.

Hard Look Requirements

NEPA's purpose is to maintain a national "look before you leap" policy in regard to all major federal actions. Congress' intent in establishing this objective was to avoid uninformed agency decisions that could have serious environmental consequences. Thus, NEPA's mandate is that all federal agencies analyze the likely effects of their actions, as well as address the potential alternatives. "Agencies are to perform this hard look *before* committing themselves irretrievably to a given course of action so that the action can be shaped to account for environmental values. NEPA § 102(2)(c) requires the agency to consider numerous factors [including] irreversible commitments of resources called for by the proposal." *Sierra Club v. Hodel*, 848 F.2d 1068 (10th Cir. 1988) (rev'd on other grounds)(emphasis added). NEPA provides procedural protections for resources at risk by requiring analysis of impacts *before* substantial decisions are made that set development in motion. *See Conservation Law Foundation v. Watt*, 560 F. Supp. 561, 581 (D. Mass. 1983), *aff'd by Massachusetts v. Watt*, 716 F. 2d 946 (1st Cir. 1983).

Section 102(2)(C) of NEPA requires that the responsible federal agency prepare a detailed statement on the environmental impacts of the proposed action and any adverse environmental effects which cannot be avoided should the proposal be implemented. The regulations implementing NEPA provide that "[t]o determine the scope of environmental impact statements, agencies shall consider . . . (1) Connected actions, which means that they are closely related and therefore should be discussed in the same impact statement. . . . (2) Cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement. . . . [and] (3) Similar actions, which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography." 40 C.F.R. § 1508.25. A cumulative impact is defined as "the impact on the environment which results from the incremental impact of the actions when added to other past, present, and foreseeable future actions regardless of what agency ...or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7. Because of the importance of cumulative impacts, "the consistent position of the case law is that … the agency's EA must give a realistic evaluation of the total impacts and cannot isolate a proposed project, viewing it in a vacuum." *Grand Canyon Trust*, 290 F.3d 339, 342 (citations omitted). To satisfy NEPA's hard look requirement, the cumulative impacts assessment must do two things. First, BLM must catalogue the past, present and reasonably foreseeable projects in the area that might impact the environment. *Muckleshoot Indian Tribe v. USFS,* 177 F.3d 800, 809-810 (9th Cir. 1999). Second, BLM must analyze these impacts in light of the proposed action. *Id.* If BLM determines that certain actions are not relevant to the cumulative impacts analysis, it must "demonstrat[e] the scientific basis for this assertion." *Sierra Club v. Bosworth*, 199 F.Supp.2d

971, 983 (N.D. Ca. 2002). In *Wyoming Outdoor Council v. U.S. Army Corps of Engineers*, the court ruled,

> The Court cannot defer to an EA/FONSI which has neglected, by its own terms, to even attempt to assess the extent of cumulative impacts that might be attributed to the agency action….The Corps must assess cumulative impacts to such a degree as to assure this Court that its issuance of a FONSI was not arbitrary and capricious.

351 F.Supp.2d 1232, 1243 (D. Wyoming 2005). The standard for an Environmental Impact Statement is even higher.

BLM must evaluate the effectiveness of the conservation measures used to minimize adverse impacts to wildlife and sensitive species with the best available science. "The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." 40 C.F.R. § 1500.1(b) (2009). "For this reason, agencies are under an affirmative mandate to 'insure the professional integrity**,** including scientific integrity**,** of the discussions and analyses in environmental impact statements[,] identify any methodologies used and . . . make explicit reference by footnote to the scientific and other sources relied upon for conclusions[.]'" *Envtl. Def. v. U.S. Army Corps of Eng'rs*, 515 F. Supp. 2d 69, 78 (D.D.C. 2007) (citing 40 C.F.R. § 1502.24 (2009)).

Baseline Information Requirements

Importantly, 40 C.F.R. §1502.15 requires agencies to "describe the environment of the areas to be affected or created by the alternatives under consideration." Establishment of baseline conditions is a requirement of NEPA. In *Half Moon Bay Fisherman's Marketing Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988), the Ninth Circuit states that "without establishing . . . baseline conditions . . . there is simply no way to determine what effect [an action] will have on the environment, and consequently, no way to comply with NEPA." The court further held that, "The concept of a baseline against which to compare predictions of the effects of the proposed action and reasonable alternatives is critical to the NEPA process." Text on Affected Environment with regard to sage grouse habitat failed to discuss the winter habitat needs of the birds, in spite of clear scientific evidence that impacts to sage grouse by oil and gas development on winter ranges can have profound effects on the birds (Walker 2008).

BLM Sensitive Species policy imposes additional requirements to provide baseline information. For BLM Sensitive Species, the agency is responsible for "Determining, to the extent practicable, the distribution, abundance, population condition, current threats, and habitat needs for sensitive species, and evaluating the significance of BLM-administered lands and actions undertaken by the BLM in conserving those species." BLM Manual 6840.2(C)(1). Furthermore, the agency is responsible for "Monitoring populations and habitats of Bureau sensitive species to

determine whether species management objectives are being met." BLM Manual 6840.2(C)(3). The BLM must make up for the absence of population status and trend data for BLM Sensitive Species (i.e., greater sage grouse) by generating these data of its own accord where they are unavailable through Wyoming state agencies or other external sources.

Response to Public Comment Requirements

Under the National Environmental Policy Act, agencies have a responsibility to respond to comments submitted by the public or cooperating agencies:

> An agency preparing a final environmental impact statement shall assess and consider comments both individually and collectively, and shall respond by one or more of the means listed below, stating its response in the final statement. Possible responses are to:
>
> 1. Modify alternatives including the proposed action.
>
> 2. Develop and evaluate alternatives not previously given serious consideration by the agency.
>
> 3. Supplement, improve, or modify its analyses.
>
> 4. Make factual corrections.
>
> 5. Explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response.

40 C.F.R. § 1503.4(a). Importantly, while agencies must attach comments considered "substantive" to the EIS (40 C.F.R. § 1503.4(b)), a comment need not be substantive to trigger the agency's response requirement. We expect BLM to respond substantively to each issue raised in these comments pursuant to the requirements of NEPA.

FLPMA Unnecessary or Undue Degradation Requirements

By law, the BLM must "take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b). BLM's Unnecessary or Undue Degradation ("UUD") responsibilities are intertwined with the agency's NEPA duties. Under NEPA, BLM must identify impacts a proposed action will have to the environment; married to this obligation are the duties imposed by FLPMA to identify the thresholds of acceptable impact and then determine whether the impacts are unnecessary or undue. If the impacts are determined to be necessary and

unavoidable, BLM must then analyze whether the impacts are undue. NEPA then reasserts itself in the process by mandating that alternatives be considered to ensure that unnecessary or undue actions are not undertaken and to ensure that methodologies used to prevent UUD are supported and verified. *Ecology Center, Inc. v. Austin*, 430 F.3d 1057, 1065 (9th Cir. 2005).

In the context of hard-rock mining, "[a] reasonable interpretation of the word 'unnecessary' is that which is not necessary for mining. 'Undue' is that which is excessive, improper, immoderate, or unwarranted." *Utah v. Andrus*, 486 F.Supp.995, 1005 n.13 (Dist. Utah 1979). FLPMA requires that,

> the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; . . . that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use;

43 U.S.C. § 1701(a)(8). At the same time, FLPMA directs that these uses be balanced with mineral extraction by requiring that,

> the public lands be managed in a manner which recognizes the Nation's need for domestic sources of minerals . . . from the public lands including implementation of the Mining and Minerals Policy Act of 1970 . . .

43 U.S.C. § 1701(a)(12). The key here is for BLM to balance these opposing needs.

According to the original mining regulations, "Unnecessary or undue degradation means impacts greater than those that would normally be expected from an activity being accomplished in compliance with current standards and regulations and based on sound practices, ***including use of the best reasonably available technology***." 43 C.F.R. § 3802.0-5(l) (emphasis added). In the Utah RMP EIS, BLM has failed to apply in its proposed plan amendment the recommended sage grouse protections presented to it by its own experts (the BLM National Technical Team), and as a result, development approved under the proposed plan violates the directives of BLM Sensitive Species Policy and will result in both unnecessary and undue degradation of sage grouse Priority Habitats and result in sage grouse population declines in these areas, undermining the effectiveness of the sage grouse plan amendment strategy as an adequate regulatory mechanism in the context of the decision.

The PECE Policy and Sage Grouse Protection Measures

The U.S Fish and Wildlife Service will consider the Policy for Evaluating Conservation Efforts ("PECE Policy") as the yardstick to determine the adequacy of existing regulatory mechanisms

when considering whether listing is warranted. The legality of the PECE Policy itself is questionable in light of conflicts with the black-letter wording of the Endangered Species Act. Under PECE, implementation must be certain and the proposed plan in question must be known to be effective. According to the PECE policy, "We will make this evaluation based on the certainty of implementing the conservation effort and the certainty that the effort will be effective." 68 Fed. Reg 15113. The requirements to qualify for consideration under the PECE policy are as follows:

The certainty that the conservation effort will be implemented

1. The conservation effort; the parties to the agreement or plan that will implement the effort; and the staffing, funding level, funding source, and other resources necessary to implement the effort are identified.

2. The legal authority of the parties to the agreement or plan to implement the formalized conservation effort, and the commitment to proceed with the conservation effort are described.

3. The legal procedural requirements necessary to implement the effort are described, and information is provided indicating that fulfillment of these requirements does not preclude commitment to the effort.

4. Authorizations (e.g. permits, landowner permission) necessary to implement the conservation effort are identified, and a high level of certainty is provided that the parties to the agreement or plan that will implement the effort will obtain these authorizations.

5. The type and level of voluntary participation (e.g. by private landowners) necessary to implement the conservation effort is identified, and a high level of certainty is provided that the parties to the agreement or plan that will implement the conservation effort will obtain that level of voluntary participation.

6. Regulatory mechanisms (e.g. laws, regulations, ordinances) necessary to implement the conservation effort are in place.

7. A high level of certainty is provided that the parties to the agreement or plan that will implement the conservation effort will obtain necessary funding**.**

8. An implementation schedule (including completion dates) for the conservation effort is provided.

9. The conservation agreement or plan that includes the conservation effort is approved by all parties to the agreement or plan.

The certainty of effectiveness

1. The nature and extent of threats being addressed by the conservation effort are described, and how the conservation effort reduces the threats is described.

2. Explicit incremental objectives for the conservation effort and dates for achieving them are stated.

3. The steps necessary to implement the conservation effort are identified in detail.

4. Quantifiable, scientifically valid parameters that will demonstrate achievement of objectives, and standards for these parameters by which progress will be measured, are identified.

5. Provisions for monitoring and reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the conservation effort are provided.

6. Principles of adaptive management are incorporated.

68 Fed. Reg. 15115. Importantly, the federal agencies appear to rely heavily on discretionary measures such as "avoidance" rather than "exclusion" of activities such as linear right-of-way development for pipelines and powerlines, which are known to be detrimental to sage grouse inside Priority Habitat areas, and offers exceptions to protections on a conditional basis. BLM proposed to apply RDFs ("Required Design Features") in a mandatory fashion (FEIS at 2-35). Yet elsewhere, the proposed plan grants the agency considerable discretionary latitude to grant exceptions. There is no regulatory certainty in these approaches. Elsewhere, BLM itself notes that,

> Not allowing any exceptions to lease stipulations, COAs, and T&Cs could prevent additional surface disturbing activities in Greater Sage-Grouse habitat, which temporarily reduces disturbance from roads, structures, power lines, and human activity and could allow for contiguous, uninterrupted habitat for that season the activity is proposed.

Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-276. Of course, to the extent that the lease stipulations, COAs, or T&Cs permanently prevent the location of facilities or

disturbance of the land's surface, these benefits would be permanent. To this effect, BLM further notes,

> Removing disturbance from roads, structures, power lines, drilling operations, and human disturbance from oil and gas development would remove a majority of stressors and disruptors of habitat and would allowed for continued habitat connectivity.

Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-276. Roads fragment habitats and interfere with natural movements of sensitive species. With regard to road upgrades, "Any exceptions resulting in road upgrades could further fragment habitat, cause vegetation loss, erosion, and the spread of invasive, non-native plant species." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-294. Under the proposed plan, it appears that the application of Conditions of Approval on existing leases will be left to the discretion of the leaseholder or be determined collaboratively between BLM and the leaseholder at a later point in time, which also provides no certainty and little likelihood of implementation. This is unacceptable and violates the certainty provisions of the PECE Policy.

Even more importantly, BLM in many cases adopts measures that provide inadequate protections based on the available science, which outlines thresholds at which significant impacts can be expected. The lack of sufficient regulatory mechanisms to conserve sage grouse and their habitats was identified as a primary threat leading to the USFWS warranted but precluded finding in 2010. 75 FR 13910. BLM will need to select and alternative that meets the level of protection recommended in the National Technical Team Report at minimum in order to represent effective conservation measures that have some chance of obviating the need to list the greater sage grouse in general, and this population in particular, as Threatened or Endangered.

We are concerned that BLM may not fully apply conservation measures identified in the RMP revision, using agency discretion to take advantage of loopholes in cases where project proponents find mitigation measures to be onerous. This concern is underscored by repeated references throughout the document to exceptions granted to plan standards either with or without compensatory mitigation. RMP language should be clearly articulated that standards are indeed standards and will be applied rigorously throughout the life of the Plan.

Courts have ruled that existing Wyoming BLM instruction memoranda ("IMs") implementing sage grouse core area protections need not be applied because they are not mandatory:

> Notwithstanding the stipulations, the EO expressly authorizes consideration of exceptions on a case-by-case basis where it can be shown the exception "will not cause declines in sage-grouse populations." (A.R. 19538, EO at 12.) The IM provides that, for Plans of Operations relating to locatable mineral activities, the

> BLM Authorized Officer "may notify the operator of ways that they may minimize impacts to core area habitats and request the operator to amend its notice or plan to include such measures." (IM at 18.) An operator's compliance with the requested conservation measures is not mandatory. (*Id*. at 18-19.)

Biodiversity Conservation Alliance v. BLM, Case No. 2:12-CV-252-SWS, Slip Op. at 5, emphasis added. As such, these current IMs do not constitute regulatory measures under the PECE policy. The revised Utah RMP amendment will similarly fail to implement regulatory measures and thereby remedy the inadequacy of existing measures identified by USFWS to the extent that it includes discretionary or non-binding standards to protect sage grouse. All conservation measures must therefore explicitly be mandatory.

In the Utah RMP Amendment, provisions for across-the-board exceptions and waivers are built into the proposed conservation measures in the Best Management Practices: "With regard to fluid minerals, surface stipulations could be excepted, modified, or waived by the Authorized Officer, but only as specifically identified below." *See* FEIS at H-2. Extensive opportunities for exceptions, modifications and waivers of sage grouse protective stipulations are provided in the new plan. FEIS at H-35 *et seq*. These provisions effectively render each conservation measure that would be applied under the proposed plan optional on the part of the agency, and completely negates any regulatory certainty that may otherwise have been attained through the adoption of conservation measures. In addition, a standard codifying affirmative direction for BLM to waive timing stipulations as follows: "Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with UDWR biologists." FEIS at H-37.

In addition to the far-reaching loopholes in the RDFs, there are a number of specific loopholes that undermine the regulatory certainty of conservation measures under the Preferred Alternative. These include the following:

- Within mapped PHMA and GHMA, protections would not apply on lands such as alkaline flats, rock outcrops, or woodlands that do not have sagebrush habitat potential. FEIS at 2-17. This allows siting of industrial facilities in the midst of key habitats, even though it is well-known that significant negative population-level impacts on sage grouse can extend 1.9 miles into surrounding habitats (Holloran 2005), or significantly farther.
- For timing limitation stipulations in PHMA, "Specific time and distance determinations [for seasonal restrictions] would be based on site-specific conditions and may be modified due to documented local variations…." FEIS at 2-19. Thus, both the area that would receive limited protection in the form of timing limitations, and the period when these restrictions would apply, has become completely discretionary.
- For protective lek buffers, "Justifiable departures to decrease or increase from these distances, based on local data, best available science, landscape features, and other existing protections (e.g., land use allocations, state regulations) may be appropriate for determining activity impacts." FEIS at F-1. Thus, these buffers can be modified or eliminated in PGMA at the federal agency's whim; in PHMA, they can be modified with

state agency concurrence.

- For Required Design Features, "some RDFs may not apply to some projects and/or may require slight variations." FEIS at 2-20. Thus, Required Design Features are not required at all, but instead optional at the agency's sole discretion.
- Required Design Features for Fuels Management apply unless "one of the following [conditions] can be demonstrated in the NEPA analyses associated with the project/activity." FEIS at 2-25. These include "An alternative RDF is determined to provide equal or better protection for GRSG or its habitat," rendering the implementation of these RDFs completely up to an agency decision-maker's (potentially flawed or uninformed) judgment.
- In PHMA, new communication towers that cannot avoid PHMA entirely would be co-located with existing communication sites, but only where technically feasible. FEIS at 2-31. Additional loopholes are provided for communication sites that can assert "they are necessary for public safety, administrative access, or subject to valid existing rights." Will any communication sites actually not meet one of these criteria? It seems doubtful.
- In PHMA, all Federal Highway Administration Appropriation rights-of-way would be managed as "valid existing rights," making them eligible for loopholes in the context of sage grouse protections. FEIS at 2-32.

We are also concerned that adaptive management triggers will be tied to populations and demographics. It is a well-established principle that for sage grouse, there is a time-lag for population responses to habitat impacts, taking two to ten years before population changes become measurable (Holloran 2005, Walker et al. 2007, Harju et al. 2010). As a result, the appropriate decision-point for changing management strategies would actually be 2-10 years before population declines are noted (in the best-case scenario that monitoring reliably recognizes a downturn as caused by a management problem versus population cyclicity, which is also problematic), which means that by the time that adaptive management changes are adopted it is already too late, the damage has been done, and because industrial infrastructure is rarely removed once in place the damage has become effectively irreversible. The 'hard trigger' of listing the greater sage grouse as a Candidate Species has already occurred, so federal agencies should adopt the strongest possible protections immediately rather than waiting for a later time when conditions for the sage grouse are even more dire.

Throughout the sage grouse RMP amendment process, BLM officials at the state and local levels have resisted the adoption of strong, science-driven habitat protection measures for sage grouse, and advocated for greater discretion and flexibility such that lesser levels of protection would be permissible on a case-by-case basis. By creating sage grouse protections that are optional, discretionary, and/or subject to waivers, modifications, and/or exceptions, the federal agencies place the authority to undermine or cast aside science-based sage grouse protections into the hands of officials who have been resisting such protections throughout the process. If the goal of this plan amendment is adequate sage grouse conservation measures, it is arbitrary and capricious and an abuse of discretion to empower local agency officials who may be weak-willed, sympathetic to maximizing commercial uses of the land at the expense of wildlife, or even hostile to sage grouse conservation to choose not to enforce sage grouse conservation measures. If certainty of implementation is to be achieved, then the federal agencies must adopt mandatory protection measures such that local agency personnel have no choice but to impose

scientifically appropriate sage grouse conservation measures in every case where these is a potential conflict between sage grouse conservation and other uses of the land.

The Proposed Plan does not Meet the EIS Purpose and Need

Under NEPA, in order for an alternative to be selected as the final agency action, it must first meet the Purpose and Need for the EIS. For the sage grouse plan amendment and revision process, the Notice of Intent to publish this and other sage grouse plan amendment EISs made a succinct and explicit statement regarding Purpose and Need:

> In April 2010, the U.S. Fish and Wildlife Service (FWS) published its listing decision for the greater sage-grouse indicating that listing was ''Warranted but Precluded'' due to higher listing priorities under the Endangered Species Act. The inadequacy of regulatory mechanisms to conserve the greater sage-grouse and its habitat was identified as a significant threat in the FWS finding on the petition to list the greater sage-grouse as a threatened or endangered species. The FWS has identified conservation measures to be included in the respective agencies' land use plans as the principal regulatory mechanisms to assure adequate conservation of the greater sage-grouse and its habitat on public lands. For the BLM, these land use plans are Resource Management Plans (RMP). For the FS, these are Land and Resource Management Plans (LMP). In view of the identified threats to the greater sage-grouse, and the FWS timeline for making a listing decision on this species, the BLM and FS propose to incorporate consistent objectives and conservation measures for the protection of greater sage-grouse and its habitat into relevant RMPs and LMPs by September 2014 in order to avoid a potential listing under the Endangered Species Act. These conservation measures would be incorporated into RMPs and LMPs through the plan amendment and revision processes of the respective agencies.

76 Fed. Reg. 77009. In order to remedy the inadequacy of regulatory mechanisms identified by USFWS, BLM must address the two-pronged test under the Policy on the Effectiveness of Conservation Efforts ("PECE Policy"), which requires that conservation measures be effective according to the best available science and have certainty of implementation. 68 Fed. Reg. 15115. BLM observes, "Regulatory certainty will be an important factor in the USFWS's decision on whether to list the GRSG under the ESA; however, regulatory certainty alone would not be enough for USFWS to not list the species." Oregon Greater Sage Grouse RMP Amendment DEIS at 2-15. The BLM's National Greater Sage-grouse Planning Strategy further underscores the need to provide adequate regulatory mechanisms in these plan amendments, which the agencies have not done in this case.

For this particular EIS, the Purpose and Need includes the following:

> This LUPA with associated EIS is needed to respond to the USFWS's March 2010 "warranted, but precluded" ESA listing petition decision (75 Federal Register 13910, March 23, 2010). The USFWS identified inadequacy of

> regulatory mechanisms as a significant factor in its finding on the petition to list the GRSG. In its listing decision, the USFWS noted that changes in management of GRSG habitats are necessary to avoid the continued decline of GRSG populations. Changes in land allocations and conservation measures in the BLM and Forest Service LUPs provide a means to implement regulatory mechanisms to address the inadequacy identified by the USFWS.

FEIS at ES-4. One of the biggest sources of regulatory uncertainty is the inclusion of provisions to provide exceptions, waivers, or modifications of conservation measures at the discretion of the agency in ways that are likely to undermine the intent of the protective measure in question. BLM itself has provided a sound explanation for why such exceptions should not be permitted under the plan amendments:

> Not allowing any exceptions to lease stipulations, COAs, and T&Cs could prevent additional surface disturbing activities in Greater Sage-Grouse habitat, which temporarily reduces disturbance from roads, structures, power lines, and human activity and could allow for contiguous, uninterrupted habitat for that season the activity is proposed.

Wyoming Greater Sage Grouse RMP Amendment DEIS at 4-276. Yet this is precisely the mistake that BLM makes in rendering implementation of sage grouse protections optional through provisions allowing exceptions, modifications, or waivers to sage grouse protections, either with or without the concurrence of other agencies.

BLM's track record of undermining wildlife protections through the use of exceptions, waivers, and modifications, called to light by comprehensive agency documentation from Wyoming, is sufficiently poor to render this point a very important one to the survival of sage grouse populations. *See* Attachments 91, 92.

In the case of the Lost Creek uranium project, located inside Priority Habitat, main haul roads accessing the project area could have been routed farther than 1.9 miles from active sage grouse leks in accordance with state policy, but instead alignments were chosen atop existing jeep trails located closer than 0.6 mile to active leks for both haul roads. *See* Attachment 93. The Wyoming Game and Fish Department acknowledged that the road alignments violated state policy but decided to approve them anyway on the basis of intervening topography (Attachment 94), despite the fact that the science on point (Holloran 2005) upon which the prohibition on main haul roads within 1.9 miles of leks specifically stated that negative impacts occur regardless of whether the road is visible from the lek. BLM subsequently approved the project, violation of its own Instruction Memorandum on sage grouse. Today, the populations of the affected leks have crashed despite a population rebound over the past two years elsewhere in the state. *See* Attachment 95. This direct experience with the only major project to be approved inside a Core Area thus far impeaches both the BLM's and state agencies' "expert judgment" in waiving sage grouse protections, which has resulted in lek population extirpations.

There is further evidence that state agencies may intend to abrogate sage grouse protections. Chesapeake Energy has struck a deal with the State of Wyoming to drill 92 new oil and gas wells inside the Douglas Core Area of Wyoming under exemptions from regulations on surface disturbance percentage, well density, and even timing limitation stipulations, in exchange for several million dollars in mitigation funding. *See* Attachment 96. The USFWS Cheyenne office signed off on this agreement (*See* Attachment 97), despite the likelihood that the implementation of this agreement will result in improved habitat (perhaps) in a matter of decades, for a sage grouse population that will have been driven extinct in the interim by development and concomitant disturbance and habitat degradation. At the Sage Grouse Implementation Team mapping meeting in Buffalo, Wyoming on April 28th of 2015, Chesapeake Energy representatives affirmatively confirmed that this agreement remains in place and is expected to move forward, despite protections that may be put in place under the sage grouse plan amendments (Chesapeake Energy, pers. comm.).

These examples demonstrate that poor judgment abounds in state and federal agencies across a broad spectrum of agency decisionmakers including BLM and state agencies (the two bodies that would approve exceptions and waivers of sage grouse protections under this plan amendment), and that there is a past and current record of these agencies' commitment to allowing exceptions to sage grouse protections, in some cases resulting in sage grouse extirpations. Therefore the record clearly demonstrates that there is no assurance that decision makers will protect sage grouse against conflicting resource uses, and that the inclusion of provisions for exceptions, modifications, and waivers to sage grouse protective measures can undermine adequacy of regulatory mechanisms and/or certainty of implementation.

Compensatory Mitigation Measures are Not Certain to Occur

At the outset, both the BLM and Forest Service must commit to proactively take the necessary steps to make certain that the management changes in the proposed plan amendments will actually be implemented. Certainly, these agencies must follow the adopted land use plans,[1] and implement standards, however, as the Supreme Court made clear in *Norton v. Southern Utah Wilderness Alliance,* merely including language that provides laudatory goals in a plan is not the same as the type of specific language needed to create binding commitments that the agency will carry out specific actions included in a plan.[2] *SUWA* makes clear that the agencies have the discretion to include specific, discrete language within their respective land management plans to make sage-grouse conservation actions mandatory and binding on the landscape in order to ensure that the greater sage-grouse population is restored. However, here, because the plan includes significant discretionary language (i.e., reliance on yet-to-be-implemented compensatory and/or offsite mitigation schemes in lieu of concrete, specific conservation measures) the agencies are not, in reality, meaningfully bound to meet any of the goals within the proposed plan amendments and implement all of the actions to protect the sage grouse. Vague

[1] *See, e.g.*, 16 U.S.C. § 1604(i) (all forest uses must be "consistent with land management plans."); *ONRCF v.Brong*, 492 F.3d 1120, 1025 (9th Cir. 2007) ("Once a land use plan is developed, '[a]ll future resource management authorizations and actions . . . shall conform to the approved plan.' 43 C.F.R. § 1610.5-3(a).

[2] *Norton v. Southern Utah Wilderness Alliance*, 542 U.S. 55 at 70-71 (2004) (internal citations and quotations omitted) (emphasis added).

mandates within the plans could be ignored or watered down even without new plan amendments well before the next overarching plan amendment review period 15 years from now.

Under *SUWA*, the inclusion of this discretionary language provides little assurance that the agencies will actually implement conservation measures, with the result being that there will be a general inability for the public to hold either agency accountable for actually effectively implementing the goals, objectives, standards and guidelines put forth in the DEIS. For this reason, the Preferred Alternative, as well as the other alternatives as currently proposed in the LUPA/FEIS do not meet the first criterion in the PECE Policy.

Compensatory Mitigation Measures are Not Certain to Be Effective

The Plan Amendments also do not meet the PECE Policy standards for ensuring that conservation measures are certain to be effective when implemented. First, the proposed Plan does not provide explicit incremental objectives and dates for the conservation effort, and do not describe the steps necessary for implementing the conservation effort. Unenforceable future promises to establish monitoring and mitigation frameworks provide no certainty that these frameworks will provide meaningful, measurable improvements in the conditions necessary for the survival and recovery of the species. Moreover, compensatory mitigation proposals provide no clarity on when the implementation team will be assembled, what concrete strategies they will adopt, and how mitigation strategies will ensure sage-grouse survival and recovery in conjunction with the implementation of the alternatives in this LUPA/FEIS.

Furthermore, many of the alternatives do not provide quantifiable, scientific valid parameters that will allow BLM and Forest Service to measure the success of these efforts. Generalized commitments to analyze monitoring data are not acceptable under the PECE unless targeted identified "[q]uantifiable, scientifically valid parameters by which progress will be measured."[3] Claims that effectiveness monitoring will be used to inform the BLM and USFS' adaptive management strategy, without further detailing any metrics or even measurable timelines, are not meaningful commitments or adequate regulatory mechanisms.

Finally, although the LUP Amendments mention monitoring and evaluating the success of conservation efforts, they provide no further details regarding the framework for the monitoring and evaluation process, a timeline for monitoring and evaluation, and metrics for evaluating conservation success. Thus the LUP Amendments are not certain to be effective because they lack quantifiable parameters and provisions for monitoring and evaluating the implementation status or the success of conservation efforts, without which BLM will be unable to evaluate whether the Amendments will actually conserve and restore sage-grouse populations and habitats.

The courts have clearly held that, in considering whether land use planning efforts constitute adequate regulatory mechanisms for purposes of the ESA, unenforceable promises of future mitigation, coordination, and voluntary action are insufficient. In *Rocky Mountain Wild v. U.S. Fish and Wildlife Serv.*, the court held that:

[3] 68 Fed. Reg. at 15115.

> the Service may not base its determination on future monitoring, future coordination between agencies, or voluntary actions. *Or. Natural Resources Council v. Daley*, 6 F. Supp. 2d 1139, 1154 (D. Or. 1998) ("[F]or the same reason that the Secretary may not rely on future actions, he should not be able to rely on unenforceable efforts. Absent some method of enforcing compliance, protection of a species can never be assured. Voluntary actions, like those planned in the future, are necessarily speculative."); *Ecology Ctr, Inc. v. U.S. Forest Serv.*, 192 F.3d 922, 925 (9th Cir. 1999) (holding that monitoring requirements set forth in a forest plan are not enforceable of subject to judicial review under the APA because monitoring does not constitute a final agency action). Therefore, the Service's conclusion that "[f]urther coordination between State and Federal agencies would be of benefit to this species," . . .is of little value.[4]

Absent concrete, measurable, certain-to-occur commitments, promises of future monitoring, development of mitigation frameworks, and compensatory mitigation, are, just as in *RMW v. FWS*, "of little value."

BLM Sensitive Species Policy and Sage Grouse

According to Manier et al. (2013), a variety of threats, such as urbanization, intensive energy development in and extensive infrastructure, including power lines, fences, and roads, which contribute to disturbance, increased predation, and habitat fragmentation and degradation, and livestock grazing contributes a further threat. These threats need to be managed through the amended Utah plans in order to create conservation measures of sufficient reliability that they will prevent further declines of sage grouse and indeed foster the recovery of populations across the planning area.

The Objectives of BLM's sensitive species policy includes the following: "To initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA." BLM Manual 6840.02. Under this policy, District Managers and Field Managers are tasked with "Ensuring that land use and implementation plans fully address appropriate conservation of BLM special status species." BLM Manual 6840.04(E)(6). This is defined as follows: "as applied to Bureau sensitive species, the use of programs, plans, and management practices to reduce or eliminate threats affecting the status of the species, or improve the condition of the species' habitat on BLM-administered lands." BLM Manual 6840, Glossary 2. Importantly,

> When appropriate, land use plans shall be sufficiently detailed to identify and resolve significant land use conflicts with Bureau sensitive species without deferring conflict resolution to implementation-level planning. Implementation-level planning should consider all site-specific methods and procedures needed to bring species and their habitats to the condition under which management under the Bureau sensitive species policies would no longer be necessary.

[4] No. Cv-13-42-M-DWM, 2014 U.S. Dist. LEXIS 177042, at *30-31 (D. Mt. Sept. 29, 2014).

BLM Handbook 6840.2(B). Under this policy, "Bureau sensitive species will be managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and **to minimize the likelihood and need for listing** under the ESA." BLM Manual 6840.06, emphasis added.

In implementing this policy, "the BLM shall manage Bureau sensitive species and their habitats to minimize or eliminate threats affecting the status of the species or to improve the condition of the species habitat." BLM Manual 6840.2(C). The past failures of BLM to live up to this direction are shown by the greater sage grouse moving from a BLM Sensitive Species to an ESA Candidate Species.

The BLM is responsible for "Ensuring that BLM activities affecting Bureau sensitive species are carried out in a way that is consistent with its objectives for managing those species and their habitats at the appropriate spatial scale." BLM Manual 6840.2(C)(2).

The BLM itself has been forced to admit that "New information from monitoring and studies indicate that current RMP decisions/actions may move the species toward listing…conflicts with current BLM decision to implement BLM's sensitive species policy" and "New information and science indicate 1985 RMP Decisions, as amended, may not be adequate for sage grouse."[5] Continued application of stipulations known to be ineffective in the face of strong evidence that they do not work, and continuing to drive the sage grouse toward ESA listing in violation of BLM Sensitive Species policy, is arbitrary and capricious and an abuse of discretion under the Administrative Procedures Act. The agency, through the Utah RMP Amendment, needs to provide management that will prevent this decline of sage grouse across the planning area.

BLM Sage Grouse Strategy

In 2004, BLM published its National Sage-Grouse Habitat Conservation Strategy ("Strategy").[6] According to this policy,

> "The Federal Land Policy and Management Act (1976) (FLPMA) provides the basic authority for BLM's multiple use management of all resources on the public lands. One of the BLM's many responsibilities under FLPMA is to manage public lands for the benefit of wildlife species and the ecosystems upon which they depend. … Consistency and coordination in identifying and addressing threats to sage-grouse and sagebrush habitat in context of the multitude of programs that BLM manages is required. Addressing these threats throughout the range of the sage-grouse is critical to achieving

[5] Sage grouse plan amendment land user information meeting PowerPoint, available online at http://www.blm.gov/pgdata/etc/medialib/blm/wy/information/NEPA/bfodocs/sagegrouse.Par.94571.File.dat/May28_InfoMtg.pdf. Site last visited 7/16/2008.

[6] Available online at http://www.blm.gov/pgdata/etc/medialib/blm/wo/Planning_and_Renewable_Resources/fish__wildlife_and.Par.9151.File.dat/Sage-Grouse_Strategy.pdf; site last visited 3/13/13.

> the mandate of FLPMA and threat reduction, mitigation, and elimination to sage-grouse and sagebrush habitats."

Strategy at 4. Among other commitments, this policy binds the BLM to "use the best available science and other relevant information to develop conservation efforts for sage-grouse and sagebrush habitats." Strategy at 7. With this in mind, we ask the BLM to gather each of the scientific articles referenced in the Literature Cited section of these comments, review them thoroughly and incorporate their findings into the EIS, and add them to the administrative record for this RMP revision.

This policy required BLM to complete an Ecoregional Assessment for the Wyoming Basins Ecoregion and other ecoregions involving Utah, including Northern Basin and Range and Central Basin and Range. *Id*. at 11. For example, the Wyoming Basins Ecoregional Assessment publication ("WBEA")[7] was completed in 2011, and BLM should reference the findings of this report in order for the BLM has not met its obligation to "use the best available science" including publications specifically mandated under the Strategy. This study included a complete land cover mapping exercise including analysis of human footprint. Chapter 5 of this publication (WBEA at 112) specifically addresses sage grouse avoidance of oil and gas developments and other permitted facilities. This analysis found that sage grouse density was negatively correlated with major highways, powerlines, and the presence of oil and gas wells. WBEA at 124. These researchers pointed out, "Any drilling <6.5 km [approximately 4 miles] from a sage-grouse lek could have indirect (noise disturbance) or direct (mortality) negative effects on sage-grouse populations." WBEA at 131. This finding supports the NTT recommendation of a 4.0-mile no-surface-disturbance buffer as proposed for application in Alternative C for Priority Habitat, but General Habitat gets no such buffer, which is problematic. Model results (WBEA at 134) could have been used to examine what proportion of high abundance roost sites and general use areas were encompassed by the Priority Habitat and GHMA mitigation measures applied under each alternative. These researchers concluded,

> This spatially explicit knowledge of existing sage-grouse distribution can help inform and prioritize areas for application of future conservation and management actions in the region (Aldridge et al. 2008, Meinke et al. 2009) and thus maximize the effectiveness of limited but precious conservation resources.

WBEA at 135. BLM must incorporate the findings of this study into its EIS.

The National Sage-grouse Habitat Conservation Strategy was followed in 2011 by the same agency's National Greater Sage-grouse Planning Strategy ("Planning Strategy"). This strategy recognizes that inadequacy of regulatory mechanisms (including BLM's regulatory mechanisms) contributed to the USFWS finding that the greater sage grouse warranted ESA listing, and that Resource Management Plans were the BLM's principal regulatory mechanism. According to this policy,

[7] Available online at http://sagemap.wr.usgs.gov/Docs/WBEA/wbea_book_15mb.pdf; site last visited 1/24/14.

> Based on the identified threats to the greater sage-grouse and the USFWS's timeline for making a listing decision on this species, the BLM needs to incorporate explicit objectives and adequate conservation measures into RMPs within the next three years in order to conserve greater sage-grouse and avoid a potential listing under the Endangered Species Act.

Planning Strategy at 1. The crux of these comments is the need for BLM to adopt adequate conservation measures under the Utah RMP Amendment.

According to BLM IM 2012-44, "The conservation measures developed by the NTT and contained in Attachment 3 must be considered and analyzed, as appropriate, through the land use planning process by all BLM State and Field Offices that contain occupied Greater Sage-Grouse habitat." This must be done fully in the Utah amendment. IM 2012-44 does not provide an option not to analyze these measures in at least one alternative unless a clear finding is provided that the measure is not appropriate, and BLM has provided no such findings in the context of the Utah RMP amendment.

The NTT Report recommends withdrawal of Priority Habitats from mineral entry. We concur that this is necessary; it makes no sense to protect sage grouse from excessive levels of oil and gas development, only to allow their key habitats to be strip-mined.

The NTT Report recommends that all electrical distribution lines be buried within Core Areas, period. Under the proposed plan, Priority Habitats would be an avoidance area, not an exclusion area. In other sage grouse plan amendment DEISs, BLM itself has pointed out increases in predator concentration within 4.3 miles of powerlines. Power lines may also cause changes in lek dynamics, with lower growth rates observed on leks within 0.25 miles of new power lines in the Powder River Basin of Wyoming as compared with those further from the lines, a difference attributed to increased raptor predation (Braun et al. 2002). Powerlines should be excluded from Priority Habitats.

Ironically, in General or Priority Habitat there appear to be minimal limits on powerline or right-of-way siting with regard to distance from leks, nesting habitats, or wintering habitats. Sage grouse nesting grounds are located typically in a radius of 5.3 miles of the lek (and sometimes farther). Coates et al. (2013) found that for the Mono Basin sage grouse population, 90% of habitat use occurred within 4.66 miles of a lek. The Coates et al. results are conservative relative to activity patterns found for other sage grouse populations across the West (*see, e.g.,* Fedy et al. 2012). A 5.3-mile buffer should apply around leks (after Doherty et al. 2011) within which powerlines cannot be sited and existing powerlines will be buried or removed, and this level of protection should be accorded to all designated habitats. As perch inhibitors do not fully prevent raptor perching, this measure should be amended to allow buried powerline but prohibit new overhead lines under any circumstance. Priority habitats should be exclusion areas for all powerline rights-of-way, regardless of size of the line. The proposed plan amendment applies an inadequate buffer around leks within which powerlines should not be sited. This allows new powerline construction in the heart of prime nesting habitats.

The National Technical Team fully considered the impacts of overhead powerlines, and also considered the impacts of noxious weeds, and both are discussed in detail in the NTT Report. After weighing carefully the relative harms from each threat, the NTT unambiguously recommended that electrical distribution lines be buried in all cases.

Importantly, there will be a need for consistency between RMPs that share common ecosystems and sage grouse biology. Many of the scientifically demonstrated impacts of BLM-permitted activities to sage grouse, ranging from livestock grazing to impacts of tall structures or oil and gas development, would be expected to be similar across the range of the species. There is no reason to expect, for example, that the impact of transmission towers on sage grouse habitat use would be any different in Nevada than it is in Wyoming, or on Forest Service lands versus BLM. Thus, in order to avoid the appearance of an arbitrary and capricious approach to sage grouse conservation between states or other jurisdictional boundaries that have no biological or ecological basis, BLM should have some common minimum requirements across RMPs that ensure that conservation measures that cannot be shown to support the maintenance and recovery of sage grouse populations do not crop up in regional or local RMPs due to the whims of local politics. Utah, for example, shares a common ecoregions and sage grouse Management Zone with Nevada, Colorado, Idaho, and Wyoming. At a minimum, this plan should incorporate common minimum standards to protect sage grouse with plans in Utah, Colorado, Idaho, and Wyoming that also govern lands in shared ecoregions.

BLM Sensitive Species Requirements

Instruction Memorandum (IM) 97-118 governs BLM Special Status Species management and requires that actions authorized, funded, or carried out by the BLM do not contribute to the need for any species to become listed as a candidate, or for any candidate species to become listed as threatened or endangered.

This IM recognizes that early identification of BLM sensitive species is advised in efforts to prevent species endangerment, and encourages state directors to collect information on species of concern to determine if BLM sensitive species designation and special management are needed. In addition, for special status species, including Sensitive Species, BLM must:

> Identify strategies and decisions to conserve and recover special status species. Given the legal mandate to conserve threatened or endangered species and BLM's policy to conserve all Special Status Species, land use planning strategies and decisions should result in a reasonable conservation strategy for these species. Land use plan decisions should be clear and sufficiently detailed to enhance habitat or prevent avoidable loss of habitat pending the development and implementation of implementation-level plans. This may include identifying stipulations or criteria that would be applied to implementation actions.

BLM Land Use Planning Handbook H-1601-1, Appendix C at 5. Additionally, if Sensitive Species are designated by a State Director, the protection provided by the policy for candidate species shall be used as the minimum level of protection. BLM Manual 6840.06. The policy for candidate species states that the "BLM shall carry out management, consistent with the principles of multiple use, for the conservation of candidate species and their habitats and shall ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened/endangered." BLM Manual 6840.06.

In the context of the land use planning process, each State Director is responsible for "[e]nsuring that when BLM engages in the planning process, land use plans and subsequent implementation-level plans identify appropriate outcomes, strategies, restoration opportunities, use restrictions, and management actions necessary to conserve and/or recover listed species, as well as provisions for the conservation of Bureau sensitive species." BLM Manual 6840.04(D)(5).

Under BLM Sensitive Species policy, the agency is charged with "Ensuring that BLM actions are not likely to jeopardize the continued existence of any endangered species or threatened species or destroy or adversely modify designated critical habitat." BLM Manual 6840.1(E)(3). BLM must further "Developing and implementing agency land use plans, implementation plans, and actions in a manner consistent with conservation and/or recovery of listed species." BLM Manual 6840.1(E)(5).

The greater sage grouse is listed as a BLM Sensitive Species and is also a Candidate Species under the Endangered Species Act. BLM has the following responsibility with regard to sage grouse: "As a federal agency, the BLM is obligated to develop and implement a strategy to avoid having its management activities contribute to the need to list greater sage grouse under the ESA." Lander RMP FEIS at 1282. According to BLM,

> Adverse impacts to special status species and their habitats are usually of more concern than impacts to general wildlife because of the limited nature of their numbers, habitat, or unique threats. Special status wildlife species mortality, habitat loss, fragmentation, or modification, and/or population declines can contribute to BLM sensitive species becoming listed under the ESA, and ESA-listed species becoming more imperiled.

Lander RMP FEIS at 925.

According to BLM policy, "It is in the interest of the BLM to undertake conservation actions for such species before listing is warranted." BLM Manual 6840.2. There could no more obvious example of this than the sage grouse, which is slated for a listing decision in 2015, and for which BLM has been seeking to prepare conservation measures in its RMPs range-wide that are adequate to avoid the need to list the species. The sage grouse is already well along the road to Endangered or Threatened Species listing, as the USFWS has issued in 2010 a ruling that the species is "warranted," but its listing is precluded by other priorities. Importantly, the USFWS sage grouse "not warranted" findings have been litigated and overturned in the past by the court

system, and there is every expectation that a "not warranted" finding would similarly be litigated if one were to be issued in 2015. It is in the federal agencies' strong interest to build a record that it is implementing the strongest conservation measures feasible within Priority Habitats/Core Areas. Failure to do so builds a record that agencies are needlessly exposing the sage grouse to threats to its viability, even within Priority Habitats, and is continuing along the path of inadequate regulatory mechanisms, which would strengthen the likelihood that the USFWS deems conservation measures inadequate at the administrative stage or that a court would subsequently rule them inadequate and use this as the basis for the overturn or remand of a "not warranted" finding by the USFWS.

For Sensitive Species, "On BLM-administered lands, the BLM shall manage Bureau sensitive species and their habitats to minimize or eliminate threats affecting the status of the species or to improve the condition of the species habitat," by implementing a number of measures. BLM Manual 6840.2(C). These include: "Prioritizing Bureau sensitive species and their habitats for conservation action based on considerations such as human and financial resource availability, immediacy of threats, and relationship to other BLM priority programs and activities." BLM Manual 6840.2(C)(5). For BLM Sensitive Species, BLM Field Managers are charged with furthering the conservation and/or recovery of sensitive species (BLM Manual 6840.06), which is defined "as applied to Bureau sensitive species, the use of programs, plans, and management practices to reduce or eliminate threats affecting the status of the species, or improve the condition of the species' habitat on BLM-administered lands." BLM Manual 6840, Glossary.

FEDERAL AGENCIES HAVE FAILED TO APPLY CONSERVATION MEASURES THAT REFLECT THE BEST AVAILABLE SCIENCE OR THE RECOMMENDATIONS OF THEIR OWN EXPERTS

In order to meet NEPA's scientific integrity standards, the requirements of BLM and Forest Service Sensitive Species policies, and address the "inadequacy of regulatory mechanisms identified by the USFWS in their 2010 listing rule for the greater sage grouse, federal agencies need to adopt in its plan amendments and revisions conservation measures that are biologically effective according to the best available science. Adopting conservation standards that are inconsistent with the recommendations of the agencies' own experts will reveal the final decision to be arbitrary and capricious and an abuse of discretion.

Importantly, the BLM convened a National Technical Team ("NTT") comprised of federal agency experts (including BLM, USFWS, NRCS, USGS, and state agencies) to asses the threats to greater sage grouse in the context of this planning process and recommend conservation measures that would address the threats to the species. This has been recognized by BLM in its NEPA analyses: "To ensure BLM management actions are effective and based on the best available science, the National Policy Team created the NTT in August 2011." Oregon Greater Sage-grouse RMP Amendment DEIS at ES-14. For Wyoming, the BLM expressed the same sentiment, worded slightly differently: "The National Policy Team created the NTT in August of 2011 specifically to develop conservation measures based on the best available science." Wyoming Greater Sage-grouse RMP Amendment DEIS at 1-7. The fact that the NTT report reflects the best available science and the official opinion of agency sage grouse experts has been elucidated in great detail during these NEPA processes:

> The conservation measures identified for consideration were developed by the NTT, a group of resource specialists, land use planners, and scientists from the BLM, state fish and wildlife agencies, USFWS, the Natural Resources Conservation Service, and the US Geological Survey (USGS). The report provides the latest science and best biological judgment to assist in making management decisions relating to the GRSG [greater sage grouse].

Oregon Greater Sage-grouse RMP Amendment DEIS at 1-2. According to the National Technical Team (2011:4) itself, "To ensure BLM management actions are effective and based on the best available science, the National Policy Team created a National Technical Team (NTT) in August of 2011." The National Technical Team described its purpose as follows:

> The National Greater Sage-Grouse Planning Strategy Charter charged the NTT to serve as a scientific and technical forum to:
>
> - Understand current scientific knowledge related to the greater sage-grouse.
> - Provide specialized sources of expertise not otherwise available.
> - Provide innovative scientific perspectives concerning management approaches for the greater sage-grouse.
> - Provide assurance that relevant science is considered, reasonably interpreted, and accurately presented; and that uncertainties and risks are acknowledged and documented.
> - Provide science and technical assistance to the Regional Management Team (RMT) and Regional Interdisciplinary Team (RIDT), on request.
> - Articulate conservation objectives for the greater sage-grouse in measurable terms to guide overall planning.
> - Identify science-based management considerations for the greater sage-grouse (e.g., conservation measures) that are necessary to promote sustainable sage-grouse populations, and which focus on the threats (75 FR 13910) in each of the management zones.

Id. at 4. According to the National Technical Team (2011:5), "This document provides the latest science and best biological judgment to assist in making management decisions." In short, this document represents the expert opinion of the Bureau of Land Management regarding measures necessary to address the inadequacy of regulatory mechanisms that has been identified by the USFWS, and the best available science regarding this topic. Of all of the subsequent science that has emerged since the December 2011 release of the National Technical Team's recommendations, none contradicts its findings. Manier et al. (2014) is a USGS publication that provides a more recent analysis of the available science on lek buffers, and also represents agency scientific expertise; the recommendations of the National Technical Team are consistent with this review article.

We are concerned that this failure to apply reasonable and adequate conservation measures

results in a number of legal deficiencies. We are concerned that the proposed plan revision fails to prevent unnecessary or undue degradation of sage grouse habitats and populations pursuant to FLPMA. Degradation of habitats is unnecessary because the measures outlined in certain alternatives in the EIS will allow for multiple uses while preventing this degradation. Degradation of habitats is undue because the BLM's Sensitive Species Policy, as outlined in the Sensitive Species Manual and underscored in the Land-Use Planning Handbook, directs the agency to refrain from permitting decisions that would contribute to a need to list species under the Endangered Species Act, and the weak and lax prescriptions of the agencies' proposed plan revision would certainly permit significant degradation of sage grouse habitats, even in designated Priority Habitats. By failing to apply the best available science, the proposed plan revision also violates the BLM's National Sage-Grouse Habitat Conservation Strategy.

The failure of the federal agencies to apply science-based protections consistently across the range of the greater sage grouse, when the science is consistent across the range with few conflicts and little variability across that range (with the possible exception of grass height standards, which should be taller in eastern Montana and the Dakotas), is arbitrary and capricious and an abuse of discretion.

The Utah RMP amendment as proposed also violates FLPMA's requirement to manage public lands and wildlife resources in a manner that will avoid "permanent impairment of . . . the quality of the environment." Under FLPMA, BLM is obligated to manage the public lands under the principles of multiple use, and FLPMA defines this concept as:

> [T]he management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources; . . . the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the lands *and the quality of the environment* with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.

43 U.S.C. § 1702(c) (emphasis added). *See also* 43 C.F.R. § 1601.0-5(i).

While BLM enjoys some discretion in balancing the competing uses of federal public lands, this discretion is not unbounded. Indeed, BLM's discretion is specifically cabined by the substantive requirement that BLM avoid approving any action that will "permanently impair[] . . . the quality of the environment. *Id.* The proposed Utah RMP amendment at issue here fails to adhere to this substantive requirement, because it fails to implement protective measures for sage grouse habitats called for by NTT (2011) (which will impact the resource but not permanently impair sage grouse habitats or populations) while the protections proposed by the BLM as outlined in

the sections that follow individually and taken together risk the permanent loss of sage grouse across the planning area.

Priority Habitats Must be Withdrawn from Future Mineral Leasing and Claims

Mineral development is one of the principal threats to the survival of greater sage grouse populations and the health and suitability of its habitats. The National Technical Team (2011:19) observed,

> There is strong evidence from the literature to support that surface-disturbing energy or mineral development within priority sage-grouse habitats is not consistent with a goal to maintain or increase populations or distribution. None of the published science reports a positive influence of development on sage-grouse populations or habitats.

Furthermore, "Negative responses of sage-grouse to energy development were consistent among studies regardless of whether they examined lek dynamics or demographic rates of specific cohorts within populations." *Id.* The USFWS' Conservation Objectives Team (2013: 43) recommended the following:

> "Avoid energy development in [Priority Areas for Conservation] (Doherty et al. 2010). … If avoidance is not possible within PACs due to pre-existing valid rights, adjacent development, or split estate issues, development should only occur in non-habitat areas, including all appurtenant structures, with an adequate buffer that is sufficient to preclude impacts to sage-grouse habitat from noise, and other human activities."

Federal agencies should pay attention to their own experts. According to the National Technical Team (2011: 21), "we recommend excluding mineral development and other large scale disturbances from priority habitats where possible, and where it is not limit disturbance as much as possible." In the case of unleased lands or leases that are expiring, avoidance is always possible. The National Technical Team (2011) recommended that BLM recommend Priority Habitats for withdrawn from mineral entry, closed to future leasing for fluid minerals, coal, and leasable minerals, and closed to mineral materials sales. For fluid minerals, BLM proposes to close an additional 70,900 acres of PHMA to fluid mineral leasing (FEIS at 2-36), out of almost 2.6 million acres of Priority Habitats that the agencies' own experts recommended for closure based on the best available science. For the reasons set forth above, Priority Habitats should be withdrawn from leasing for coal, fluid minerals, and non-energy leasable minerals, and other forms of mineral materials extraction.

BLM itself has extolled the virtues of not leasing for oil and gas development inside Wyoming Core Areas:

> The BLM's cautious decision-making with regards [sic] to leasing in Core Areas has materially and substantially reduced the potential for adverse effects to sage-

> grouse habitat on public lands in Core Areas, during the period that the BLM is amending or revising its RMP to ensure appropriate sage-grouse conservation measures are adopted range-wide.

Attachment 98, response to oil and gas lease protest dated August 4, 2014. Over this period, BLM has deferred substantially more than the 3.5 million acres in Wyoming alone of oil and gas leases nominated by industry that were reported as of August 6, 2014 by the Associated Press. Attachment 99. In addition, BLM announced deferral of 308,039 acres of additional nominated leases from the Wyoming November 2014 lease sale to the present in its leasing Environmental Assessments and Protest Decisions. Thus, at least 3.8 million acres inside Core Areas with demonstrated industry interest to lease and develop would be potentially re-offered for lease upon approval of the RMP amendments and revisions in Wyoming, reversing the substantial reduction in potential adverse impacts claimed by BLM, and without the "appropriate sage-grouse conservation measures" anticipated by BLM, as discussed in the sections that follow. A similar condition exists in Utah, where federal agencies have also been deferring leasing ion both PHMA and GHMA. Opening these habitats to leasing, even under terms that appear restrictive, is an unmitigated disaster for sage grouse in Utah.

The negative impacts of oil and gas development are well-known and heavily studied. Geothermal development and in situ uranium leaching involve similar types of wellfield impacts and human activities, and there is no scientific evidence that the impacts of these types of development would be any different than the impacts of oil and gas development and production. Millions of acres of prime habitat nationwide have been deferred from oil and gas leasing while the RMPs have been under revision or amendment, and opening Priority Habitats to leasing after years of de facto closure would reverse the single most successful conservation measure that the BLM has put in place to protect sage grouse. Coal mining has also been shown to cause significant sage grouse population declines (*see* Braun 1986, Remington and Braun 1991).

Impacts of oil and gas development are well-known and discussed elsewhere in these comments. For mining, even small operations, BLM's own analysis indicates significant impacts:

> Impacts on GRSG accrue over varying distances from origin depending on the type of development:
> …
> ● Site-specific disturbances such as small-scale mining and mineral material sites at 1.6 miles (2.5 kilometers) based on indirect influence distance from estimated spread of exotic plants (Bradley and Mustard 2006)

Nevada – Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605.

To address the potential for severe impacts resulting from future mineral leasing, the National Technical Team (2011: 22) recommended that BLM employ one of two options:

> *Alternative A*
> Close priority sage-grouse habitat areas to fluid mineral leasing. Upon expiration or termination of existing leases, do not accept nominations/expressions of

interest for parcels within priority areas.

…

Alternative B

Close priority sage-grouse habitat areas to fluid mineral leasing. Consider an exception:

o When there is an opportunity for the BLM to influence conservation measures where surface and/or mineral ownership is not entirely federally owned (i.e., checkerboard ownership). In this case, a plan amendment may be developed that opens the priority area for new leasing. The plan must demonstrate long-term population increases in the priority area through mitigation (prior to issuing the lease) including lease stipulations, off-site mitigation, etc., and avoid short-term losses that put the sage-grouse population at risk from stochastic events leading to extirpation.

For existing mineral leases with valid existing rights, the National Technical Team (2011: 22) recommended applying the following restrictions as Conditions of Approval:

> Do not allow new surface occupancy on federal leases within priority habitats, this includes winter concentration areas (Doherty et al. 2008, Carpenter et al. 2010) during any time of the year.
>
> Consider an exception:
>
> - If the lease is entirely within priority habitats, apply a 4-mile NSO around the lek, and limit permitted disturbances to 1 per section with no more than 3% surface disturbance in that section.
> - If the entire lease is within the 4-mile lek perimeter, limit permitted disturbances to 1 per section with no more than 3% surface disturbance in that section. Require any development to be placed at the most distal part of the lease from the lek, or, depending on topography and other habitat aspects, in an area that is less demonstrably harmful to sage-grouse.

Yet after 4 years of deferring oil and gas leases in Core Areas, the federal agencies proposes to throw open PHMAs to future mineral leasing (FEIS at ES-11), with discretionary language about the priority for leasing being outside Priority Habitats which is completely nonbinding and discretionary, under stipulations inadequate to protect sage grouse from further significant population declines in the PHMAs (and out of step with the agency's own subject-matter experts outlined above) as discussed in detail below. Lease stipulations range from NSO with no exception, modification, or waiver (Focal Areas) to NSO with the option for exceptions (Utah PHMAs) to open with 0.6-mile NSO buffers around leks and timing limitations (Wyoming PHMAs). *Id.* For Wyoming, the Forest Service adopts a completely different (and even more inadequate) management approach on the Wyoming side of the state line (FEIS at 2-55), even on the same National Forest that is located mostly in Utah. This variation in management among jurisdictions reveals the Utah plan amendment as a basket-case plan that highlights the arbitrary

and capricious decision-making based on politics, not science, that characterizes this planning effort as a whole when viewed at a rangewide scale.

The agencies' proposal to manage Focal Areas in Utah as No Surface Occupancy with no exceptions, modifications, or waivers (FEIS at 2-17, 2-36, 2-51) is the strongest management of the proposed plans, yet is still insufficient and indeed is weaker than the 'no future leasing' approach recommended by BLM's own experts (NTT 2011). This incentivizes leaseholders to line up drilling rigs and industrial infrastructure along the boundary of Priority Habitats to most easily and cheaply drill directionally to tap leased minerals underneath Priority Habitats. Science shows that the impact of a single producing well can extend for 1.9 miles (Holloran 2005) or more (as reviewed in Manier et al. 2014) into surrounding habitats. This would result in a significant loss of habitat function inside Priority Habitats on lands located within several miles of the PHMA boundary. In PHMAs and for the Anthro Mountain population area, lands would be closed to fluid mineral leasing, but exceptions would be permitted at the sole discretion of the Authorizing Officer (FEIS at 2-36, 2-50), undermining certainty of implementation. In Wyoming PHMAs, PFAs and PHMAs would be open to future leasing with even weaker protections for grouse. FEIS at 2-65. Outside PHMA, most lands would be open for lease under either standard stipulations (no sage grouse protections at all) or Controlled Surface Use Stipulations or Timing Limitations, completely inadequate to maintaining sage grouse protections and even less than the measures deemed 'inadequacy of regulatory mechanisms' by the USFWS in their 2010 Candidate Species listing for the greater sage grouse. This is an unacceptable state of affairs.

Relief requested on this issue: Close all Focal Areas, PHMAs, Winter Concentration Areas, and Connectivity Areas to future fluid mineral leasing in accordance with NTT (2011) recommendations.

Priority Habitats should be withdrawn from locatable mineral entry

BLM proposes to seek withdrawal of important sage grouse habitats from locatable mineral entry in Focal Areas only. FEIS at 2-17. PHMAs and GHMAs would be open to future hard-rock mining claims. FEIS at 2-35. Given that the BLM's position (erroneous, yet driving project approval policy) is that they have little to no authority to regulate the development of locatable mineral mining claims, withdrawal from future mineral entry offers the greatest certainty the agency can offer that threats to sage grouse (at least in the future) will be dealt with. This represents yet another example of the BLM failing to provide adequate regulatory mechanisms to address a threat to sage grouse habitats and populations in the areas where that threat is most extreme. In effect, BLM fails to address the threats of locatable mineral development in areas where that threat is greatest. This violates FLPMA as well as BLM and Forest Service Sensitive Species policy and NFMA viability requirements.

For existing mining claims, BLM proposes,

> In PHMA, to the extent consistent with the rights of a mining claimant under existing laws and regulations, limit surface disturbance from locatable mineral development and apply management to minimize and mitigate impacts. To the extent allowable by law, work with claimants to voluntarily apply the pertinent

> management for discretionary activities in PHMA identified in MA-GRSG-3 (e.g., mitigation, disturbance cap, minerals/energy density, buffers, seasonal restrictions, and RDFs) and in GHMA identified in MA-GRSG-5 (i.e., mitigation and buffers).

FEIS at 2-35. To appropriately effectuate limits on development that would amount to adequate regulatory mechanisms in the context of hard-rock mining, BLM will need to define 'unnecessary or undue degradation' formally in sage grouse plan amendments and revisions to include the following:

- Open-pit surface mining,
- Location of facilities within 4 miles of active sage grouse leks,
- Cumulative surface disturbance exceeding one industrial site or 3% surface disturbance per 640-acre section.

With respect to locatable minerals, the NTT recommends the following: withdraw sage-grouse habitat from mineral entry; on existing claims, require validity examimations or buy out where necessary; require buyout of other minerals and private lands within priority areas as a condition of operating plans. NTT p. 24. All of these measures are well within BLM's authority to protect public lands.

Withdrawal & Validity Examinations

BLM has broad powers to withdraw lands from "settlement, sale, location, or entry," under the general land laws, including the Mining Law of 1872. 43 U.S.C. §§ 1714, 1702(j). Such withdrawal must be "for the purpose of limiting activities under those laws *in order to maintain other public values in the area* or reserve the area for a particular public purpose or program." *Id*. (emphasis added). Once a withdrawal is approved, new claims cannot be located within those lands. Before finalizing a proposed withdrawal of lands, BLM may segregate the proposed lands from new mining claims for up to two years. *See id*. § 1714(b).

Once lands are withdrawn, BLM must determine the validity of existing unpatented mining claims on the withdrawn lands, before approving any submitted plan of operations. *See* 43 C.F.R. § 3809.100(a) ("BLM will not approve a plan of operations or allow notice-level operations to proceed until BLM has prepared a mineral examination report to determine whether the mining claim was valid before the withdrawal, and whether it remains valid.") This determination essentially considers whether the claims can be economically developed. *In re Pac. Coast Molbydenum Co.*, 75 IBLA 16, 32 (1983). With respect to segregated lands, BLM has discretion to determine the validity of existing unpatented mining claims before allowing mining operations to proceed. In either case, the cost of preparing the report must be charged to the operator. 43 C.F.R. § 3800.5(b). If BLM's validity examination proves the claim invalid, BLM must reject the mining permit. 43 C.F.R. § 3809.100(a). Withdrawal therefore provides an effective process for limiting all new claims, and, with respect to claims existing before withdrawal, ensuring that only valid, economic claims are developed.

Accordingly, BLM should: exercise its authority to withdraw important sage-grouse habitats from new mining claims; in the interim, segregate such lands from new claims until withdrawal

is finalized; and perform a claim validity examination for existing claims within segregated or withdrawn lands, whenever an operator applies for a mining permit. Withdrawal and closure of important sage-grouse habitats from mineral entry would clearly maintain significant public values of conserving threatened sage-grouse and sagebrush landscapes. Even if claims already exist, withdrawal status would trigger the validity examination requirement and prevent operators from pursuing invalid or uneconomic claims at the risk of despoiling irreplaceable sage-grouse habitat.

While withdrawal is necessary for ensuring that important sage-grouse habitats are protected from development of new mineral claims, if BLM fails to withdraw such lands, BLM may still determine the validity of an existing claim at any time before a patent is issued and should do so whenever a plan of operations is submitted for claims within important sage-grouse habitat. *See Cameron v. United States*, 252 U.S. 450, 460 (1920) ("so long as the legal title remains in the government it does have power, after proper notice and upon adequate hearing, to determine whether the claim is valid and, if it be found invalid, to declare it null and void"); *see also* Memorandum from Dept. of the Interior Office of the Solicitor to Secretary & BLM Director re: Legal Requirements for Determining Mining Claim Validity Before Approving a Mining Plan of Operations, M-37012 (Nov. 14 2005), p. 3 n.1 (noting BLM's "unconstrained discretion" to initiate claim validity examination). Ensuring that only valid claims are pursued within key habitats – whether within withdrawn lands or not – would be in keeping with BLM's mandate to prevent "unnecessary or undue degradation" from mining on public lands. *See* part 3 below.

If BLM will not require examinations in all such cases, BLM Instruction Memorandum No. 2010-088 l re Guidance on 43 CFR 3809.100 and its Application (March 17, 2010) provides guidance on how BLM could exercise its discretion to perform an examination, albeit with respect to claims on segregated lands. BLM could follow similar procedures for all claims within sage-grouse habitat but instead weigh the potential risk that developing the claim presents to sage-grouse in assessing whether the public interest favors an examination.

Buy-out

BLM frequently purchases land and mineral interests to "consolidate management areas to strengthen resource protection." *See* http://www.blm.gov/wo/st/en/prog/more/lands/land_tenure/purchase.print.html. The foregoing website describes various mechanisms available to BLM for acquiring land and mineral interests, including the Land and Water Conservation Fund and Federal Land Transaction Facilitation Act Funds. BLM can use such funds to purchase valid mineral claims that underlie important sage grouse habitats. The RMP should use these funds and any royalties to establish funds for the purchase of such mineral claims.

Plan of Operations conditions requiring purchase of private land and minerals

FLPMA both empowers and requires BLM to prevent "unnecessary or undue degradation" of public lands: "In managing the public lands the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b). This mandate requires BLM "to prevent, not only unnecessary degradation, but also degradation that, while necessary to mining, is undue or excessive." *Mineral Policy Ctr. v.*

Norton, 292 F. Supp. 2d 30, 43. BLM's regulation of mining pursuant to both valid and unperfected mining claims are subject to this mandate. *See id*. at 48 (noting BLM's observation to this effect).

Consistent with this mandate, BLM regulations set forth performance standards that plan of operations or notices must meet. *See* 43 C.F.R. §§ 3809.320, 3809.420. These include "applicable BLM land-use plans and activity plans," and "mitigation measures specified by BLM to protect public lands." *Id*. § 3809.420(a)(3)-(4). Mitigation measures, in turn, may include, among other things, "[a]voiding the impact altogether by not taking a certain action or parts of an action," or "[c]ompensating for the impact by replacing, or providing substitute, resources or environments." 43 CFR 3809.5.

Any impacts resulting in loss of sage-grouse or sagebrush habitat would constitute undue degradation, given the irretrievable nature of the loss, and especially if that loss could be prevented or reduced. Obviously, "avoiding the impact altogether by not taking a certain action or parts of an action" would be the preferred approach in such a case. But if BLM cannot prevent the operator from developing a valid claim (e.g., through buy-out), BLM still has broad authority to require compensatory mitigation. This could occur by conditioning a plan of operations on the operator's purchase of (1) non-federal lands that contain high-quality sage-grouse habitat and the underlying mineral rights, or (2) severed mineral rights underlying high-quality sage-grouse habitat on federal lands, either of which could then be restricted to conservation uses and transferred to BLM.

In Wyoming, as in Utah, the Forest Service apparently proposes to allow PHMAs to remain open to locatable mineral entry. FEIS at 2-66.

Relief sought on this issue: Federal agencies must seek withdrawal of all Core Areas from future locatable mineral entry. Clarify direction that sage grouse protections will apply to development of hard-rock mining claims to prevent 'unnecessary or undue degradation' to sage grouse habitats and loss of population viability pursuant to NFMA. In accord with the NTT's recommendations, BLM should withdraw all such areas from locatable mineral entry and perform a claim validity examination before issuing a mining permit to develop any claims within these areas (even if BLM ultimately decides not to withdraw these areas); consider buying-out valid mineral claims from operators who apply for a mining permit within important sage-grouse habitat; and condition mining permits on the operator's purchase of (1) non-federal lands that contain high-quality sage-grouse habitat and the underlying mineral rights, or (2) severed mineral rights underlying high-quality sage-grouse habitat on federal lands, either of which could then be restricted to conservation uses and transferred to BLM.

Priority Habitats should be closed to other forms of mineral leasing

Braun (1986) and Remington and Braun (1991) documented significant impacts from mine-related activities on sage grouse populations. The National Technical Team (2011: 24) recommended withdrawal of sage grouse Priority Habitats from mineral entry following a comprehensive review of the best available science for coal, locatable minerals, non-energy leasable minerals, and mineral materials sales.

FLPMA directs the BLM to prevent unnecessary or undue degradation to the lands (including sage grouse habitats) in the context of regulating mining plans, and the Forest Service must additionally provide for the viability of sage grouse throughout the planning area. These directives empower federal agencies to apply strong direction regarding how mineral development may proceed on existing hard-rock claims. The agencies must exercise their authority to prevent such unnecessary and undue degradation and to emplace adequate regulatory mechanisms to neutralize this threat to sage grouse and ensure its viability.

BLM's direction on future coal leasing is to defer a decision of suitability or unsuitability for coal leasing to the point at which sage grouse habitats are proposed for leasing by industry. FEIS at 2-34. Pursuant to this, leasing for underground coal mining "would be considered," with appurtenant facilities not placed in PHMA sage grouse habitats where technically feasible. FEIS at 2-34. This opens two important loopholes: (1) coal mining facilities could be placed within non-habitat inside PHMAs, and in that case coal facilities would likely contribute to disturbance, displacement, and population declines for sage grouse in adjacent habitats; and (2) in cases where shifting the location of mining facilities is not "technically feasible," mine facilities could be located right in the middle of prime sage grouse habitats. These loopholes also pose problems in the context of expanding facilities for existing coal mines located in PHMA. FEIS at 2-35. To provide the requisite certainty of implementation, the federal agencies need to clear up any ambiguity by stating in the final plan that Core Area/Priority Habitats on both BLM and Forest Service lands and/or minerals, PHMAs and wintering habitats are unsuitable for future coal leasing. In Utah, the Forest Service proposes a prohibition on surface disturbances for new underground coal mines. FEIS at 2-52. This sounds strong at first blush, but upon further investigation it does not apply to expansion of existing mines, even for unleased minerals. For existing mines, there is a loophole allowing facilities construction if there is no technically feasible alternative. *Id.* Instead, in cases like these, the Forest Service should just say "no" to the new coal proposal in order to preserve sage grouse habitat. For Wyoming, the agency applies some arcane direction that PFA and PHMA are "essential habitats" pursuant to coal leasing regulations. FEIS at 2-66. The agency should instead simply find these habitats unsuitable for coal leasing in the RMP amendment to provide certainty of implementation.

BLM proposes to close PHMAs in Utah to non-energy minerals leasing. FEIS at 2-33. This is the appropriate management for all PHMAs. In both states, the Forest Service includes vague guidance that does not suggest recommended closure. FEIS at 2-54, 2-67. For mineral materials sales in Utah, both agencies proposes to close PHMAs to mineral materials sales, but leave PHMAs open to expansion of existing pits. FEIS at 2-35, 2-54. In Wyoming, these same habitats apparently would be open to new sales of mineral materials, with certain restrictions shown to be inadequate to protect sage grouse elsewhere in this protest. FEIS at 2-67. Key sage grouse habitats would suffer degradation and destruction as a result.

Relief sought on this issue: PHMAs, Winter Concentration Areas, and Connectivity Areas should be declared unsuitable for coal mining, and unconditionally closed to non-energy leasable minerals and mineral material sales.

BLM and USFS Should Exercise Their Full Authority to Regulate Development on Existing Mineral Leases

Given the extent of sage grouse habitat already encumbered by existing mineral leases and the scientific consensus on regarding the need to protect those habitats,[8] the Plan's treatment of existing mineral leases is grossly inadequate to protect the species' habitat needs, and falls far short of the agencies' available authority to impose conditions of approval on mineral development.

Rather than fully adopting the NTT's science-based specific RMP requirements for new leases – no new surface occupancy within priority habitats, seasonal limits on exploratory drilling, limiting disturbance to 3% where drilling is permitted on existing leases, and more[9] - the BLM and Forest Service propose a plan that adopts these requirements in theory while undermining them in practice through significant loopholes. *See* Proposed LUPA/Final EIS 2-37 (Management Actions MA-MIN-17 and MA-MIN-18). Although the proposed plan adopts the general requirements of the NTT for PMHA, *see* MA-MIN-18 (place development outside PMHA, limit disturbance to 1 site per 640 acres and 3% disturbance, apply lek buffers), it creates unnecessary and unwarranted loopholes by waiving these restrictions under when they "would render the recovery of fluid minerals infeasible or uneconomic." LUPA/Final EIS 2-37. Further, it undermines these protective conditions by allowing substitution of an untested compensatory mitigation framework (Appendix D) "where development of existing leases requires that disturbance density exceeds 1 per 640, and/or 3 percent disturbance cap," *id.* at 2-37.

For leases issued subsequent to the Federal Land Policy and Management Act of 1976 (FLPMA), under statute, regulation, and case law, the BLM (and Forest Service) retain extensive authority to condition surface use of lease land based under three separate rationale: compliance with lease terms and stipulations; compliance with nondiscretionary statutory obligations; and general authority to impose reasonable measures consistent with lease terms. Under all three of these sources of authority, the agencies retain substantial authority to limit surface use. For leases with only standard stipulations, it is probable that most conditions of approval short of a total prohibition on surface occupancy would be justifiable under the MLA, FLPMA, and 43 C.F.R. § 3101.1-2. For leases issued subject to either a standard Endangered Species Act stipulation or a sage-grouse specific stipulation, even a complete prohibition of surface occupancy is arguably consistent with the lease rights and reasonable expectation of the lessee.

The Mineral Leasing Act ("MLA") of 1920 provides for the private extraction of energy-producing minerals through a lease system, which does not confer a unilateral right to acquisition by discovery, prospecting, or the like. [10] The Mineral Leasing Act governs oil, gas, shale, tar sands, and coal, although the system governing coal leases is distinct from that governing other fossil fuels, and subject to additional requirements under both the Federal Coal Leasing Amendments of 1976[11] and the Surface Mining Control and Reclamation Act of 1977. The Federal Onshore Oil and Gas Leasing Reform Act ("FOOGLRA," or sometimes the 1987 Reform Act) left the basic language and structure of the MLA in place, but imposed an initial

[8] *See* NTT Report at 22-24.

[9] NTT Report at 22-23.

[10] 30 U.S.C. §§ 181-287.

[11] 30 U.S.C. §§ 201 *et seq.*

competitive bidding requirement on all offered leases (although leases can later be sold noncompetitively if they receive no bid at auction.), as well as reserving to the Forest Service authority whether or not to consent to leasing on National Forest System lands.[12] The core statutory provision governing discretion over federal oil and gas leasing is 30 U.S.C. § 226(a), which provides simply that "[a]ll lands subject to disposition under this Act which are known or believed to contain oil or gas deposits may be leased by the Secretary."[13] The BLM is the agency responsible for leasing all lands subject to disposition under the Act, including Forest Service lands, although FOOGLRA and its implementing regulations require Forest Service consent prior to BLM leasing of National Forest System Lands.[14]

The leasing process takes place within the context of other statutes granting BLM and the Forest Service authority over the management of multiple resources, including minerals, on public lands. FLPMA directs the Secretary of the Interior, "by regulation or otherwise[, to] take any action necessary to prevent unnecessary and undue degradation of the lands,"[15] and to prepare site-specific Resource Management Plans that proscribe, *inter alia*, what lands should be available, under what conditions, for mineral development.[16] Under the Mineral Leasing Act's 1987 amendments granting the Forest Service veto power over leasing and permitting,[17] the Forest Service's governing statutes, including the Multiple-Use Sustained Yield Act and the National Forest Management Act, similarly require the Forest Service to manage surface uses, including regulating mineral development.[18]

Subject to the Forest Service consent requirement for National Forest System lands, the Secretary of the Interior has broad statutory authority under the MLA over the decision to lease and the terms and stipulations of leases that are issued.[19] A public lands mineral lease is both a contractual instrument and a (limited) property right;[20] the decision to enter into such a lease is a voluntary decision by the lessee, and bound by at least three limits: the general statutory and common law rights of mineral lessees, the specific terms of the lease agreement and stipulations attached thereto, and finally the retained rights of the managing agencies to dictate the terms and conditions of lease occupancy. A mineral lease generally confers a "right to drill, subject only to reasonable delays," i.e. a right both to extract minerals and to utilize the surface estate to the extent reasonable and necessary to extract those minerals.[21] The right to drill, however, is not self-executing; operations cannot commence until the BLM approves the lessee or operator's

[12] *See* 30 U.S.C. §§ 188, 195, 226.
[13] For the coal equivalent, *see* 30 U.S.C. § 201(b).
[14] 30 U.S.C. §226(h);43 C.F.R. §3101.7-2(b-c) ("The authorized officer shall not issue a lease and shall reject any lease offer on public lands to which the surface managing agency objects or withholds consent required by statute. In all other instances, the Secretary has the final authority and discretion to decide to issue a lease.")
[15] 43 U.S.C. § 1732(b).
[16] 43 U.S.C. § 1712(a).
[17] 30 U.S.C. § 226(g).
[18] *See, e.g.*, *Anglers of the Au Sable v. U.S. Forest Serv.*, 565 F. Supp.2d 812, 836-39 (E.D. Mich. 2008).
[19] *See* 30 U.S.C. § 226(a); *Udall v. Tallman*, 380 U.S. 1, 4 (1965); *United States ex rel. McClellan v. Wilbur*, 283 U.S. 414 (1941); *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1230 (9th Cir. 1988) ("[T]he Secretary has discretion to refuse to issue any lease at all on a given tract.")
[20] *Cf. Mobil Oil Exploration and Producing Southeast, Inc. v. United States*, 530 U.S. 604 (2000) (holding, under analogous but not identical provisions of the Outer Continental Shelf Lands Act, that United States was liable for breach of outer continental shelf mineral lease contracts).
[21] *Biodiversity Conservation Alliance v. BLM*, 608 F.3d 709, 716 (10th Cir. 2010).

Application for Permit to Drill.[22] Operations on National Forest System lands also require a prior "plan of operations" from the Forest Service.[23]

BLM regulations specify that the lessee "shall have the right to use so much of the leased lands as is necessary to explore for, drill for, mine, extract, remove and dispose of all the leased resource in a leasehold."[24] In the case of federal public land leases, however, the scope of that mineral right is limited both contractually and statutorily by the terms of the federal lease and the federal land manager's statutory rights and obligations relative to surface management. To the extent they have addressed the issue, the federal courts have uniformly acknowledged that the MLA and BLM regulations "subject that right to three reservations: '[1] stipulations attached to the lease; [2] restrictions deriving from specific, nondiscretionary statutes [such as the ESA]; and [3] reasonable measures . . . to minimize adverse impacts to other resource values' not addressed in the stipulations."[25]

Lease Stipulations

Within the minimum royalty and rental bounds of the MLA's specific terms, the courts have affirmed a broad grant of authority to the Secretary to dictate the terms and stipulations applicable to any particular lease, including a complete prohibition on surface use (the relatively common "No Surface Occupancy," or NSO" stipulation),[26] limitations on the allowable siting of wells and other facilities,[27] seasonal or other timing limitations on when particular lease-allowed activities may be conducted,[28] and both general and species-specific stipulations disclosing the potential presence of threatened, endangered, or other special status species, and retaining authority to modify or disapprove activities accordingly.[29] MLA regulations specify that stipulations become part of the lease and override inconsistent provisions of the standard lease term.[30]

The lease and its stipulation are a contractual instrument, and new stipulations cannot be unilaterally add by the United States without lessee consent.[31] Lease stipulations can be – and frequently are – "modified" or "waived" to relieve lessees from their obligation to comply.[32]

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[22] 43 C.F.R. § 3162.3-1.
[23] *See* 30 U.S.C. § 226(g).
[24] 43 C.F.R. § 3101.1-2.
[25] *Wyo. Outdoor Council v. Bosworth*, 284 F. Supp.2d 81, 91 (D.D.C. 2003).
[26] *See Bob Marshall Alliance*, 852 F.2d at 1230
[27] *See, e.g.* BLM Montana, Oil and Gas Lease Stipulation Library, Stipulations NSO 11-1 to NSO 11-59, *available at* http://www.blm.gov/mt/st/en/prog/energy/oil_and_gas/leasing/stipulations.html; *see also Yates Petroleum Corp.*, 176 IBLA 144 (2008).
[28] *See* BLM Montana Stipulation Library, Stipulations TL 13-1 to TL 13-32, *available at* http://www.blm.gov/mt/st/en/prog/energy/oil_and_gas/leasing/stipulations.html.
[29] *See* BLM, Endangered Species Act Section 7 Consultation Stipulation, *available at* http://www.blm.gov/style/medialib/blm/mt/blm_programs/energy/oil_and_gas/leasing/stipulations/blmmisc.Par.4789.File.dat/TES.16-2.pdf; *see also Wyoming Outdoor Council,* 284 F.Supp.2d at 91-92 (recognizing reservation of authority to impose species protection stipulations).
[30] 43 C.F.R. § 3101.1-3.
[31] *See Mobil*, 530 U.S. at 607.
[32] 43 C.F.R. § 3101.1-4 ("A stipulation included in an oil and gas lease shall be subject to modification or waiver only if the authorized officer determines that the factors leading to its inclusion in the lease have changed

Leases can be cancelled if improperly issued or the lessee violates law or regulations,[33] administratively prior to production, or through judicial proceedings once a well is producing.[34] At the Secretary's discretion, leases can also be "suspended," and the running of their lease terms put temporarily on hold, both "for the purpose of encouraging the greatest ultimate recovery of coal, oil, gas . . . and in the interest of conservation of natural resources."[35]

Conditions of Approval

Lease issuance alone does not automatically confer the right to utilize public land, however. The MLA does not explicitly define the precise rights granted by an oil and gas lease. The MLA does, however, direct the Secretary of the Interior to "regulate all surface-disturbing activities conducted pursuant to any lease issued under this chapter," and to "determine reclamation and other actions as required in the interest of conservation of surface resources."[36] The MLA further dictates that, "[n]o permit to drill on an oil and gas lease [on public lands]... may be granted without the analysis and approval" by the Secretary of Interior "of a plan of operations covering proposed surface-disturbing activities within the lease area."[37] The Supreme Court in 1963 acknowledged the limits of the property right conveyed by a mineral lease:

> [U]nlike a land patent, which divests the Government of title, Congress under the Mineral Leasing Act has not only reserved to the United States the fee interest in the leased lands but has also subjected the lease to exacting restrictions and continuing supervision by the Secretary.... In short, a mineral lease does not give the lessee anything approaching the full ownership of a fee patentee, nor does it convey an unencumbered estate in the minerals.[38]

The Department's current MLA regulations articulate its interpretation of the scope of these "exacting restrictions and continuing supervision:"

> A lessee shall have the right to use so much of the leased lands as is necessary to explore for, drill for, mine, extract, remove and dispose of all the leased resource in a leasehold subject to: stipulations attached to the lease; restrictions deriving from specific, nondiscretionary statutes; and such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed. To the extent consistent with lease rights granted, such reasonable measures may include, but are not limited to, modification to siting or

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sufficiently to make the protection provided by the stipulation no longer justified or if proposed operations would not cause unacceptable impacts.")

[33] *See* 30 U.S.C. § 188.

[34] *See* 43 C.F.R. § 3108.3(a), (b).

[35] 30 U.S.C. § 209. "Conservation of natural resources" can include environmental protection, not just conservation in the sense of avoiding waste of oil and gas. *See Hoyl v. Babbitt*, 129 F.3d 1377 (10th Cir. 1997); *Copper Valley Machine Works, Inc. v. Andrus*, 653 F.2d 595 (D.C. Cir. 1981).

[36] 30 U.S.C. § 226(g).

[37] 30 U.S.C. § 226(g).

[38] *Boesche v. Udall*, 373 U.S. 472, 477-78 (1963).

> design of facilities, timing of operations, and specification of interim and final reclamation measures. At a minimum, measures shall be deemed consistent with lease rights granted provided that they do not: require relocation of proposed operations by more than 200 meters; require that operations be sited off the leasehold; or prohibit new surface disturbing operations for a period in excess of 60 days in any lease year.[39]

Interpreting 43 C.F.R. § 3101.1-2, the Department of Interior's Interior Board of Land Appeals has taken the position that:

> The Secretary has general statutory authority to condition post-lease approvals in accordance with section 17(g) of the Mineral Leasing Act of 1920, as amended by section 5102(g) of the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA), 30 U.S.C. § 226(g) (2000) (determine actions required "in the interest of conservation of the surface resources"), section 302(a) of the Federal Land Policy and Management Act of 1976 (FLPMA), 43 U.S.C. § 1732(a) (2000) (manage the public lands under principles of multiple use and sustained yield, in accordance with land use plans), and section 301(b) of FLPMA, 43 U.S.C. § 1732(b) (2000) ("take any action necessary to prevent unnecessary and undue degradation of the lands").[40]

The fact that a particular lands within a planning area are already leased for oil and gas (does not prevent BLM from taking reasonable measures under the Mineral Leasing Act, FLPMA, the ESA, and the terms of those leases to protect the non-mineral resources with whose management it is charged.[41]

BLM regulations governing the surface use of BLM lands subject to a mineral lease provide that the lessee may use the leased lands "subject to: Stipulations attached to the lease; restrictions deriving from specific, nondiscretionary statutes; and such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed."[42] The federal court to address the issue in greatest detail has explained the regulation as follows in the context of species protection measures:

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[39] 43 C.F.R. § 3101.1-2; *see also* 43 C.F.R. § 3162.5-1 (providing that "[t]he operator shall conduct operations in a manner which protects the mineral resources, other natural resources, and environmental quality")

[40] *Yates Petroleum*, 176 IBLA at 155.

[41] For pre-FLPMA leases, the IBLA has acknowledged that 43 C.F.R. § 3162.1(a) and 43 C.F.R. § 3101.1-2 and onshore oil and gas orders apply and "vest [BLM] with adequate authority to protect wildlife values." *National Wildlife Federation*, 169 IBLA 146, 154 (2006). The Board has also noted the BLM's authority under the standard Section 4 of pre-FLPMA leases, which provides that production "shall be subject to control in the public interest by the Secretary of the Interior, and in the exercise of his judgment the Secretary may take into consideration, among other things, Federal laws, State laws, and regulations issued thereunder." *Id.*; *see also Colorado Environmental Coalition*, 165 IBLA 221, 229 (2005) (acknowledging Section 4 of pre-FLPMA leases, but holding that it "cannot be interpreted to authorize the imposition of an NSO restriction where there apparently is no feasible alternative to surface occupancy and drilling.")

[42] 43 C.F.R. § 3101.1-2.

> The first reservation explicitly acknowledges the species-specific and other stipulations incorporated into the lease by both the Forest Service and the BLM. 10 *Id.*; *36 C.F.R. §228.102(e)(2)*; *43 C.F.R. §§ 3101.1-3, 3101.7-2(a)*. The second reservation ensures that the BLM and the Forest Service may impose restrictions required by the ESA, a "nondiscretionary statute," including those restrictions that could "cause a portion of the leased land to be restricted from operational activities or . . . deny access to the leased area without the requirement of a lease stipulation." Defs.' Mot. Ex. 1. Such restrictions may include "reasonable and prudent alternatives" suggested by the FWS pursuant to a "jeopardy" determination, "reasonable and prudent measures" suggested by the FWS pursuant to a "no jeopardy" determination, and those FWS conservation recommendations that the defendants adopt as part of their conservation program. 16 U.S.C. § 1536(b)(3)(A), (4)(C)(ii); *43 C.F.R. § 3101.1-2*; *50 C.F.R. § 402.14(j)*. .. Finally, the third reservation allows the BLM to make modifications to the siting and timing of surface-disturbing activities to promote species protection. *43 C.F.R. § 3101.1-2*.[43]

Significantly, only the third of these reservations of authority – "such reasonable measures" – is required to be "consistent with lease rights granted." Although no court decision has specifically addressed the issue, the language in the regulation suggests an intent by Interior, under the MLA, that the lease rights granted by a lease are necessarily limited not only by the attached stipulations, but also by the obvious condition that lease rights do not trump federal agencies' statutory obligations.

Existing Stipulations

In addition to the species-specific stipulations attached to any particular leases, existing post-FLPMA leases of land that were known at the time of leasing to contain potentially threatened, endangered, or other special status species, leases generally provide that:

> Surface occupancy or use is subject to the following special operating constraints: The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation.

[43] *Wyoming Outdoor Council*, 284 F. Supp.2d at 91 (footnote omitted).

This stipulation is clear on its terms that, should the greater sage grouse ultimately be listed under the ESA, lease rights do not trump BLM's authority under the MLA, FLMPA, and the ESA to modify or disapprove activity that would cause jeopardy to the species or adverse modification of critical habitat.[44] It reference to "other special status species," under BLM definitions, plainly extends to both (a) BLM sensitive species or (b) species proposed for listing but not yet listed under the ESA. Reference to the BLM's own Special Status Species Management Manual makes it clear that the BLM explicitly includes in the term "special status species" both "species . . . proposed for listing under the Endangered Species Act" and "species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau sensitive by the State Director(s)."[45]

Sage grouse, both a BLM sensitive species and an ESA proposed species, clearly falls under the stipulation. The stipulation specifies that BLM may either "require modification" to or "disapprove" a proposed action to avoid jeopardy or adverse modification to listed species or adverse modification of critical habitat, and that it may "recommend modification" to projects in order to "avoid activity that will contribute to a need to list such a species or their habitat." Although this stipulation does not expressly confer BLM authority to disapprove a proposed activity outright for non-listed species, it nevertheless retains considerable authority to the agency to "recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat" In order to provide reliable, consistent, and range-wide science-based protection for sage grouse habitat on existing leases, the specific substance of these recommended modifications should be incorporated into the RMP, and not left up to the uncertain implementation of a vague suggestion that BLM with "work with" lessees and operators.

Specific Nondiscretionary Statutes

FLPMA imposes two obligations on BLM that are arguably both specific and nondiscretionary – avoidance of unnecessary and undue degradation, and consistency of actions with land use plans. FLPMA instructs the Secretary of the Interior to "take any action necessary to prevent unnecessary or undue degradation of the [public] lands."[46] Although there is limited authority clarifying the issue, the BLM has, at least at one time, acknowledged this obligation as a specific nondiscretionary obligation for purposes of 43 C.F.R. § 3101.1-2.[47] Unfortunately, the precise applied meaning of the obligation is not always clear, and the BLM has been less than consistent

[44] *See* 16 U.S.C. § 1536.
[45] BLM, Special Status Species Management, BLM Manual § 6840.01 (2008), *available at* http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.43545.File.dat/6840.pdf
[46] 43 U.S.C. § 1732(b)
[47] See Memorandum to All State Directors from BLM Director Cy Jamison (Dec. 3, 1991) ("Because all oil and gas activities are subject to FLPMA, mitigation required to protect public lands from unnecessary and undue degradation is consistent with the lease rights granted.")

in its interpretation.[48] The clearest guidance on the subject comes from the District Court for the District of Columbia District in *Mineral Policy Center v. Norton*, which held, in the hard rock mining context, that "FLPMA, by its plain terms, vests the Secretary of the Interior with the authority – and indeed the obligation – to disapprove of an otherwise permissible mining operation because the operation, though necessary for mining, would unduly harm or degrade the public land."[49] Despite the lack of clarity or currently valid regulations defining the precise meaning of undue degradation, BLM has at its disposal, should it choose to avail itself of it, substantial retained and nondiscretionary authority under 43 U.S.C. § 1732(b). In one case, the D.C. Circuit stated that "unnecessary" degradation consists of "'something more than the usual effects anticipated' from appropriately mitigated development."[50] If degradation that contributes to the potential extinction of a (sensitive and candidate) species does not meet that definition, then it is difficult to conceive of that term of having any meaning. Although the BLM retains discretion as to the exact measures appropriate to balance its degradation and multiple use obligations,[51] the obligation itself to prevent unnecessary and undue degradation is nondiscretionary, and therefore a source of retained authority to condition the exercise of lease rights under 43 U.S.C. § 3101.1-2.

Alternatively, the land use planning mandate of FLPMA (and NFMA for National Forest System lands), and the plan consistency regulation thereunder, render compliance with operational limits enshrined in an amended land use plan a specific nondiscretionary duty for purposes of the lease conditions rule. FLPMA provides that "[t]he Secretary shall manage the public lands under principles of multiple use and sustained yield, in accordance with the land use plans developed by him under section 1712 of this title."[52] BLM regulations provide that all site-specific actions (presumably including drilling permit issuance) correspond to those plans.[53] Similar requirements exist for National Forest System lands, requiring planning for National Forest System units, enforceable standards for activities under those plans, and consistency of permits with plans.[54] Since land use planning and plan consistency is specific and mandatory under FLPMA (and NFMA), authority to require compliance with land use plan requirements for siting and timing of facilities is therefore retained under 43 U.S.C. § 3101.1-2. *See Northern Plains Resource Council v. BLM*, 298 F.Supp.2d 1017, 1023-24 (D. Mont. 2003) (stating, "under their

[48] Exhaustive discussion of the interpretive history of "unnecessary and undue degradation" is beyond the scope of this Memorandum. For background, *see generally* Roger Flynn, *Daybreak on the Land: The Coming of Age of the Federal Land Policy and Management Act of 1976*, 29 Vermont L. Rev. 815, 832-38 (2012).

[49] 292 F.Supp.2d 30, 42 (D.D.C. 2003); *see also Theodore Roosevelt Conservation Partnership v. Salazar*, 661 F.3d 66, 78 (D.C. Cir. 2011) (stating that "unnecessary and undue degradation" standard is "interrelated and highly correlated" with principles of multiple use and sustained yield.")

[50] *Theodore Roosevelt Conservation Partnership*, 661 F.3d at 76 (*quoting Biodiversity Conservation Alliance*, 174 IBLA 1, 5-6 (2008)).

[51] *See id.* at 76-78 (upholding BLM decision to impose seasonal restrictions and buffer zones as adequate to prevent unnecessary and undue degradation).

[52] 43 U.S.C. § 1732(a).

[53] 43 C.F.R. § 1610.5-3(a) ("All future resource management authorizations and actions, as well as budget or other action proposals to higher levels in the Bureau of Land Management and Department, and subsequent more detailed or specific planning shall conform to the approved plan.").

[54] *See* 16 U.S.C. § 1604(i) ("Resource plans and permits, contracts, and other instruments for the use and occupancy of National Forest System lands shall be consistent with the land management plans. Those resource plans and permits, contracts, and other such instruments currently in existence shall be revised as soon as practicable to be made consistent with such plans. When land management plans are revised, resource plans and permits, contracts, and other instruments, when necessary, shall be revised as soon as practicable."); *see also*

very terms, the leases were subject to all laws and regulations, including 43 U.S.C. § 1732, which mandates BLM to manage public lands in accordance with land use management plans, and 43 C.F.R. § 1610.5-3, which requires all resource management actions, such as leasing, to confirm to approved land use plans.")

Other Reasonable Measures

Finally, 43 C.F.R. § 3101.1-2 authorizes the imposition of "such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed." The rule provides that certain measures (restrictions that do not require relocation of operations by more than two hundred meters, do not require that operations be sited off the leasehold, and do not prohibit new surface disturbing operations for a period in excess of sixty days in any lease year) are presumptively "deemed consistent with lease rights granted."[55] However, because the rule also provides that these measures shall "[a]t a minimum," be deemed consistent, the plain reading is that the other measures beyond this "floor" may also be "consistent."[56] The ceiling, however, is considerably higher. The Tenth Circuit has suggested that as long as lessees can drill somewhere in the leasehold (or unit), and not face "unreasonable delays" ("[m]aking lessees wait for decades in not reasonable"), lessees' rights can be satisfied.[57]

43 C.F.R. § 3101.1-2 acknowledges BLM's retained rights under the MLA, FOOGLRA, and FLPMA to impose "reasonable measures as may be required . . . to minimize adverse impacts to other resource values." In the *Yates Petroleum* case, the IBLA affirmed that these "reasonable measures" extend to species conservation measures such as establishing a three-mile buffer zone around sage-grouse leks.[58] Similarly, Colorado BLM's Little Snake Field office adopted a Resource Management Plan that imposes significant limitations on the density, siting, timing, and distribution of oil and gas development activities, for both new and existing mineral leases.[59] As noted above, there are neither federal court nor IBLA decisions explicitly defining the outer limits of lease-consistent reasonable measures (short of the suggestion that "waiting decades" is unreasonable), but *Yates* indicates that siting and timing measures (even beyond those defined in regulation as presumptively consistent) designed to conserve and recover a sensitive or candidate species are wholly reasonable, so long as the measures do not (a) deny a lessee any usable surface site on the lease (or unit, where applicable) and (b) do not delay drilling by "decades." The NTT's recommendations specifically acknowledge the need to balance conservation needs and lessee rights, calling for the incorporation of reasonable conservation measures in leased priority sage-grouse habitat, subject to consideration of "[w]hether the conservation measure is 'reasonable' (43 CFR 3101.1-2) with the valid existing rights."[60] Importantly, the NTT's recommendations are not limited to site-specific APD decisions, but call for the imposition of

[55] 43 C.F.R. § 3101.1-2.
[56] *See Yates Petroleum*, 176 IBLA at 156 (rejecting argument that 43 C.F.R. § 3101.1-2 prevents BLM imposition of reasonable conditions of approval prohibiting activities for periods in excess of sixty days).
[57] *Biodiversity Conservation Alliance*, 608 F.3d at 716.
[58] 176 IBLA at 157-58.
[59] Bureau of Land Management Colorado, Little Snake Field Office, Little Snake Record of Decision and Approved Resource Management Plan RMP-18 to RMP-21 (2011).
[60] NTT Report at 22.

conservation measures "as terms and conditions of the approved RMP."[61] These RMP-level conditions include (a) no new surface occupancy on priority habitats, with 4-mile radius lek NSO and 3% disturbance limit if the entire lease is so designated; (b) seasonal restrictions on surface disturbance; (c) completion of Master Drilling Plans in lieu of APD-by-APD processing; (d) 3% surface disturbance limitation on all existing leases; (e) requiring unitization when deemed necessary.[62] The NTT was fully cognizant of the BLM's obligations towards valid leaseholders, yet nonetheless, in the the judgment of the state and federal agencies' sage grouse experts, deemed these measures necessary and reasonable for conservation and recovery of the species.

The federal agencies are taking a wholly unacceptable approach to the management of development on currently existing mineral leases and claims. For PHMA fluid mineral leased estate on BLM lands, the proposed plan amendment provides, "Where a proposed fluid mineral development project on an existing lease could adversely affect GRSG populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, minimize, and compensate for adverse impacts on the extent compatible with lessees' rights to drill and produce fluid mineral resources. FEIS at 2-36. The Forest Service would apply a similar suite of guidelines. FEIS at 2-51, 2-65. Only on Anthro Mountain would specific protections be applied (FEIS at 2-51), and as discussed elsewhere in these comments, these measures are inadequate. The proposed plan amendment makes clear that science-based limits on development are a discretionary objective only, and if "development of existing leases requires that disturbance exceeds 1 per 640, and/or 3% disturbance cap," or lek buffers, then BLM is free to abandon these protections and apply alternate management pursuant to Appendix D. FEIS at 2-37. Appendix D is a mitigation framework that allows project proponents to pay into a mitigation fund in compensation for destroying or degrading occupied sage grouse habitat; such compensatory mitigation projects have totaled tens of millions of dollars in the Jonah Field and Pinedale Anticline of Wyoming without yielding a single documented instance where the compensatory mitigation project funded resulted in a sage grouse population increase versus untreated lands. The plan revision provides no limits on wellsite density, no cumulative limits on surface disturbance, and no limits on access road construction, location, or density. This is a completely unacceptable failure to manage existing fluid mineral leases for sage grouse conservation in the most sensitive remaining habitats.

Relief sought on this issue: Impose, as terms of the Resource Management Plan, Conditions of Approval on all existing fluid mineral leases consistent with the recommendations of the Sage-Grouse National Technical Team, including no new surface occupancy on existing federal leases (with exceptions for occupancy of no more than 3% outside a 4-mile lek buffer, if the entire leasehold is within such habitat).

A 4-mile No Surface Occupancy Buffer Around Leks is Necessary

Industrial activities directly eliminate and fragment habitat. Equally, or perhaps even more importantly, the resulting facilities are hubs for human and vehicular activity that disturb abd displace sage grouse, resulting in lower rates of survival and/or reproduction and leading to

[61] *Id.* at 43.
[62] *Id.*

population declines. As BLM itself concluded, "Human presence and vehicles may force special status species away from desired habitat to lower-quality, less desirable habitat." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-302. This, in turn, hinders the ability of sage grouse to thrive: "Moving to lower-quality sagebrush could result in lower calorie consumption and reduced health and vigor, making birds more susceptible to disease and predation." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-298. As a result, facilities and activities deleterious to sage grouse must be kept an adequate distance away from key habitats to prevent significant impacts to grouse.

The Forest Service proposes inadequate NSO buffers for leks, of 0.6 mile for the Anthro Mountain population as well as Wyoming lands, and even weaker 0.25-mile lek buffers for GHMA lands in Wyoming. FEIS at 2-51, 2-58. Holloran (2005) found that several types of oil and gas infrastructure sited within 1.9 miles of the lek site had a negative impact on populations of breeding males on the lek; these infrastructure features include both wellpads during the post-drilling, production phase and gravel trunk roads leading to five or more wellpads. It is important to note that a single wellpad or road can cause significant impacts, and these impacts occur even in cases where roads are not visible from the lek site due to intervening terrain (Holloran 2005). Drilling activities can have significant impacts when wells are sited within 3 miles of leks (*id*.). Manier et al. (2014) reviewed all available science and found that appropriate lek buffers (the "interpreted range") ranged from 3.1 to 5 miles. The best available science, synopsized here, indicates that development impacts (including individual producing wells) farther than 0.6 mile from a lek can have a significant negative impact on sage grouse lek populations with all other factors (affected by other conservation measures) held constant.

In addition to significant negative impacts on breeding populations at the lek site, industrial incursions can also have a significant negative impact on nesting females. The lek is the hub of nesting activity, with most females nesting within 4 to 6 miles of a lek site. Holloran et al. (2007) found that yearling sage grouse avoided otherwise suitable nesting habitat within 930m (almost 0.6 mile) of oil and gas-related infrastructure. This means that individual wellsites, and their access roads and other related facilities, will be surrounded by a 0.6-mile band of habitat that has substantially lost its habitat capability for use by nesting grouse. The National Technical Team (2011: 20) observed, "it should be noted that protecting even 75 to >80% of nesting hens would require a 4-mile radius buffer (Table 1). Even a 4-mile NSO buffer would not be large enough to offset all the impacts reviewed above." Importantly, a 0.6-mile lek buffer covers by area only 2% of the nesting habitat encompassed by a 4-mile lek buffer, which takes in approximately 80% of nesting grouse according to the best available science.

BLM's NEPA analysis for a recent Miles City Field Office oil and gas leasing EA provides a useful synopsis:

> "Sage grouse are offered species specific protections through a stipulation. Under Alternative B, ¼ mile NSO buffers and 2 mile timing buffers would apply where relevant. Based on research, these stipulations for sage grouse are considered ineffective to ensure that sage grouse can persist within fully developed areas. With regard to existing restrictive stipulations applied by the BLM, (Walker et al. 2007a) research has demonstrated that the 0.4-km (0.25 miles) NSO lease

> stipulation is insufficient to conserve breeding sage-grouse populations in fully developed gas fields because this buffer distance leaves 98 percent of the landscape within 3.2 km (2 miles) open to full-scale development. Full-field development of 98 percent of the landscape within 3.2 km (2 miles) of leks in a typical landscape in the Powder River Basin reduced the average probability of lek persistence from 87 percent to 5 percent (Walker et al. 2007a).
>
> Other studies also have assessed the efficacy of existing BLM stipulations for sage grouse. Impacts to leks from energy development are most severe near the lek, and remained discernable out to distances more than 6 km (3.6 miles) (Holloran 2005, Walker et al. 2007a), and have resulted in the extirpation of leks within gas fields (Holloran 2005, Walker et al. 2007a). Holloran (2005) shows that lek counts decreased with distance to the nearest active drilling rig, producing well, or main haul road, and that development influence counts of displaying males to a distance of between 4.7 and 6.2 km (2.9 and 3.9 miles). All well-supported models in Walker et al. (2007a) indicate a strong effect of energy development, estimated as proportion of development within either 0.8 km (0.5 miles) or 3.2 km (2 miles), on lek persistence. Buffer sizes of 0.25 mi., 0.5 mi., 0.6 mi. and 1.0 mi. result in an estimated lek persistence of 5 percent, 11 percent, 14 percent, and 30 percent. Lek persistence in the absence of CBNG development averages approximately 85 percent. Models with development at 6.4 km (4 miles) had considerably less support, but the regression coefficient indicated that impacts were still apparent out to 6.4 km (4 miles) (Walker et al. 2007a). Tack (2009) found impacts of energy development on lek abundances (numbers of males per lek) out to 7.6 miles."

Miles City October 2014 Oil and Gas Leasing EA, Environmental Assessment DOI-BLM-MT-C020-2014-0091-EA, May 19, 2014 at 60.

The BLM's own experts recommended for existing fluid mineral leases that a 4-mile No Surface Occupancy buffer should be applied to leks, with an exception allowed in cases where the entire lease is within 4 miles of a lek, in which case a single wellsite should be permitted in the part of the lease most distal to the lek (NTT 2011). This recommendation is reinforced by a similar recommendation from western state agency biologists, who also recommended a 4-mile No Surface Occupancy buffer (Apa et al. 2008). According to Taylor et al (2012: 27), in a study commissioned by BLM,

> Second, female sage-grouse that visit a lek use an approximately 9-mi (15-km) radius surrounding the lek for nesting; a 2-mi (3.2-km) radius encompasses only 35-50% of nests associated with the lek (Holloran and Anderson 2005, Tack 2009). While a lek provides an important center of breeding activity, and a conspicuous location at which to count birds, its size is merely an index to the population dynamics in the surrounding habitat. Thus attempting to protect a lek, without protecting the surrounding habitat, provides little protection at all.

BLM's decision to ignore the recommendations of its own experts is arbitrary and capricious and an abuse of discretion.

For tall structures, BLM would "limit the placement of tall structures" in breeding and nesting habitats; no limit is defined, rendering this action both senseless and useless. FEIS at 2-19. The Forest Service proposes for Wyoming an insufficient 2-mile buffer around leks for tall structures in Wyoming. FEIS at 2-60. The placement of tall structures should instead be precluded entirely within 4 miles of leks.

For other activities, BLM would apply a slate of different lek buffer distances, which equate with the bare minimum of the 'interpreted range' proposed by Manier et al. (2014). FEIS at 2-19. These are set at 3.1 miles for roads and energy infrastructure, 2 miles for tall structures, and 1.2 miles for low structures, and represent the lowest (least protective) end of the protection spectrum described by Manier et al. (2014). FEIS at F-1. These provisions allow construction of tall structures in the midst of prime nesting habitat found within 5.3 miles of the lek (Holloran and Anderson 2005). We are concerned that these buffer distances (and also the 1.2-mile standard for low structures) are inappropriately small because while they be adequate to protect breeding grouse while on the lek based on the best available science, they will allow these disruptive and damaging features to be located in the midst of prime nesting habitat, which extends 5.3 miles from the lek site (Holloran and Anderson 2005). Because the nesting period is equally sensitive and equally important to survival of and recruitment to sage grouse populations, larger buffers are necessary.

In the context of the Greater Sage-Grouse RMP amendment and revision effort, BLM's own Draft EIS analysis has supported 4-mile No Surface Occupancy buffers to be applied as Conditions of Approval to existing fluid mineral leases. The Wyoming Nine-Plan DEIS states, "Walker et al. (2007) recommends a buffer distance of at least 4.0 miles containing extensive stands of sagebrush habitat for breeding populations to persist." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-291. For the Buffalo RMP revision, BLM's analysis of the science states,

> "Energy development within two miles of leks is projected to reduce the average probability of lek persistence from 87% to 5% (Walker et al. 2007a). Current research suggests that impacts to leks from energy development are discernible out to a minimum of 4 miles, and that some leks within this radius have been extirpated as a direct result of energy development (Apa et al. 2008). Even with a timing limitation on construction activities, Greater Sage-Grouse avoid nesting in oil and gas fields because of the activities associated with operations and production"

Buffalo RMP Revision DEIS at 367. For Montana, BLM observes, "Impacts from energy development occur at distances between 3 and 4 miles. Impacts to leks caused by energy development would be most severe near the lek." HiLine RMP Revision DEIS at 4-135. Manier et al. (2014) undertook a comprehensive analysis of the available science on lek buffers, and concluded that the appropriate range for lek buffer protections was 3.1 to 5 miles (*see*

Attachment 100), which encompasses and buttresses BLM's earlier NTT (2011) expert recommendations.

State agencies and their wildlife experts have long pointed out the flaws in smaller lek buffers and the need for 4-mile No Surface Occupancy buffers around leks. According to the Nevada Division of Wildlife, "…the current NSO distance is 0.6 miles, which is not based on the best available science (see Coates et al. 2013 which suggests a buffer distance of 5.0 kilometers)." NDOW comments on Nevada – Northeastern California DEIS, January 14, 2014, analysis chart 1. Males use shrubs <1 km (0.6 mi) from a lek for foraging, loafing, and shelter (Rothenmeier 1979, Autenreith 1981, Emmons and Braun 1984); this does not make 0.6 mile the appropriate NSO buffer for preventing impacts even to breeding bird, much less nesting birds, and there is no scientific study that has ever demonstrated that a 0.6-mile NSO buffer prevents significant impacts to sage grouse at the breeding, nesting, or brood-rearing stage (*see* Manier et al. 2014). Apa et al. (2008, emphasis added) reviews the best available science by a team of state sage grouse biologists, and states,

> "Yearling female greater sage-grouse avoid nesting in areas within 0.6 miles of wellpads, and brood-rearing females avoid areas within 0.6 miles of producing wells. This suggests a 0.6-mile buffer around all suitable nesting and brood-rearing habitat is required to minimize impacts to females during these seasonal period." This report further clarifies, "These suggest that all areas within at least 4-miles of a lek should be considered nesting and brood-rearing habitats in the absence of mapping."

Thus, state experts in this report in effect recommended a 4.6-mile NSO buffer around active leks.

The U.S. Fish and Wildlife Service also has pointed out the inadequacy of smaller lek buffers. For the Utah RMP effort, the agency states, "There is substantial scientific information that shows that impacts of human disturbance (e.g. oil and gas drilling) to sage-grouse remain discernible out to distances > 4 miles of a lek." USFWS comments on Utah Conservation Plan 7/12/12, at 3. The agency goes on to conclude,

> "In summary, we recommend avoiding permanent structures within a 4 mile lek buffer…at all times. Exceptions may be appropriate for the placement of permanent structures on non-habitat areas within the 4 mile lek buffer if it can be determined that the location of these structures will not impact nesting sage-grouse."

USFWS comments Utah Conservation Plan, 5/8/13 at 8. In Nevada, the USFWS states, "We recommend a year-round lek buffer of 4.0 miles" (USFWS Nevada/NE California comments at 26).

BLM's own NEPA analysis indicates that proposed lek buffers are inadequate. In the Nevada – Northeastern California DEIS, BLM states,

> Impacts on GRSG accrue over varying distances from origin depending on the type of development:
> …
> ● Energy extraction such as oil and gas, geothermal, and plan of operation mining at 11.8 miles (19 kilometers) based on direct impacts of field development, including associated infrastructure, noise, lighting, and traffic (Johnson et al. 2011; Taylor et al. 2012)

Nevada – Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. BLM Wyoming Draft EIS analysis arrives at the same conclusion:

> "Buffer distances from 0.5 to two miles from oil and gas infrastructure have been shown to be inadequate to prevent declines of birds from leks (Walker et al. 2007). Studies have shown that greater distances, anywhere from two to four miles, are required for viable Greater Sage-Grouse populations to persist (Connelly et al. 2000, Holloran and Anderson 2005, Walker et al. 2007)."

Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-335. According to Apa et al. (2008), "Buffer sizes of 0.25 mi., 0.5 mi., 0.6 mi., and 1.0 mi. result in estimated lek persistence of 5%, 11%, 14%, and 30%." BLM concludes, "Studies have shown that greater distances, anywhere from two to four miles, are required for viable Greater Sage-Grouse populations to persist." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-335. For these reasons, the application of a lesser lek buffer is arbitrary and capricious, violates BLM Sensitive Species Policy and NFMA viability requirements, and will contribute to further population declines in Priority Habitats that will contribute to the need to protect the greater sage grouse under the Endangered Species Act.

Furthermore, The Forest Service's proposal to rely on 0.25-mile No Surface Occupancy buffers and 2-mile Timing Limitation Stipulations to govern oil and gas development in GHMA in Wyoming is radically insufficient to protect this BLM Sensitive Species and is a known recipe for sage grouse extirpation. Holloran (2005) undertook an empirical test of the adequacy of 0.25-mile No Surface Occupancy buffers and 2-mile Timing Limitation Stipulations, and determined that sage grouse in the Pinedale Anticline and Jonah Fields would be completely extirpated within 19 years of the study as a result of full-field development with this package of protections applied. BLM's NEPA analysis for a recent Miles City Field Office oil and gas leasing EA provides a thorough synopsis:

> "Sage grouse are offered species specific protections through a stipulation. Under Alternative B, ¼ mile NSO buffers and 2 mile timing buffers would apply where relevant. Based on research, these stipulations for sage grouse are considered ineffective to ensure that sage grouse can persist within fully developed areas. With regard to existing restrictive stipulations applied by the BLM, (Walker et al. 2007a) research has demonstrated that the 0.4-km (0.25 miles) NSO lease stipulation is insufficient to conserve breeding sage-grouse populations in fully developed gas fields because this buffer distance leaves 98 percent of the landscape within 3.2 km (2 miles) open to full-scale development. Full-field

development of 98 percent of the landscape within 3.2 km (2 miles) of leks in a typical landscape in the Powder River Basin reduced the average probability of lek persistence from 87 percent to 5 percent (Walker et al. 2007a).

Other studies also have assessed the efficacy of existing BLM stipulations for sage grouse. Impacts to leks from energy development are most severe near the lek, and remained discernable out to distances more than 6 km (3.6 miles) (Holloran 2005, Walker et al. 2007a), and have resulted in the extirpation of leks within gas fields (Holloran 2005, Walker et al. 2007a). Holloran (2005) shows that lek counts decreased with distance to the nearest active drilling rig, producing well, or main haul road, and that development influence counts of displaying males to a distance of between 4.7 and 6.2 km (2.9 and 3.9 miles). All well-supported models in Walker et al. (2007a) indicate a strong effect of energy development, estimated as proportion of development within either 0.8 km (0.5 miles) or 3.2 km (2 miles), on lek persistence. Buffer sizes of 0.25 mi., 0.5 mi., 0.6 mi. and 1.0 mi. result in an estimated lek persistence of 5 percent, 11 percent, 14 percent, and 30 percent. Lek persistence in the absence of CBNG development averages approximately 85 percent. Models with development at 6.4 km (4 miles) had considerably less support, but the regression coefficient indicated that impacts were still apparent out to 6.4 km (4 miles) (Walker et al. 2007a). Tack (2009) found impacts of energy development on lek abundances (numbers of males per lek) out to 7.6 miles."

Miles City October 2014 Oil and Gas Leasing EA, Environmental Assessment DOI-BLM-MT-C020-2014-0091-EA, May 19, 2014 at 60.

For the foregoing reasons, protections applied to existing oil and gas leases both inside Priority Habitats and in General Habitats are scientifically unsound, biologically inadequate, and legally deficient in light of the Purpose and Need for this EIS as well as BLM's responsibility to prevent undue degradation to sage grouse habitats under FLPMA, the Forest Service's responsibility to maintain viable populations under NFMA, and both agencies' duties to uphold the responsibilities outlined in their respective Sensitive Species policies. The agencies' failure to apply adequate lek buffers to conserve sage grouse, both inside and outside of Priority Habitats, in the face of scientific evidence, agencies' own expert opinions, and their own NEPA analysis to the contrary, is arbitrary and capricious and an abuse of discretion.

Relief requested on this issue: Provide 4-mile No Surface Occupancy buffers for all active leks in Core Areas, Focal Areas, Connectivity Areas, and General Habitats for existing oil and gas leases, with exceptions available for mineral leases located entirely within this buffer for a wellsite of minimal size and intrusion to be placed at a location most distal from an active lek or leks.

A Limit of 3% Human Surface Disturbance pre Square-Mile Section is Necessary

Knick et al. (2013) found that 99% of active leks across the western half of the sage grouse's range were surrounded by lands with 3% or less human development. The vast majority were

surrounded by much less disturbance. There is no scientific evidence at all indicating that sage grouse can tolerate a greater percentage of surface disturbance. The appropriate metric of a 3% surface disturbance limit is applied by BLM in Utah (FEIS at 2-18), but is calculated based on the large Biologically Significant Unit' or the also-excessive project area method (FEIS at E-3, 2-59), which shares identical methodology, traits and failures with the Disturbance Density Calculation Tool (DDCT) of Wyoming. For Wyoming lands, the DDCT itself is employed. FEIS at 2-59. Even worse, the 5% cap on disturbance proposed for the RMP revision for for PHMAs in Wyoming (FEIS at ES-11) has been show to be effective by no scientific study, ever. The Forest Service has even weaker requirements, offering the 3% disturbance cap only on Anthro Mountain with no disturbance cap provided elsewhere. FEIS at 2-51.

The amount of cumulative disturbance allowed in sage-grouse core habitat at the project analysis area scale is calculated by an algorithm known as the Density Disturbance Calculation Tool ("DDCT"). The DDCT is used to establish an area for measuring the amount of disturbance that may be allowed under a project proposal. The DDCT essentially buffers a proposed project area by 4 miles, identifies all occupied leks within this area and buffers them by 4 miles, and uses the combined area as the denominator to calculate the total land area from which to derive the total percentage of land that could be disturbed by the project. This results in well densities and percentage of surface disturbance that exceed the threshold of significant impact to sage grouse populations within individual project areas. In cases where the DDCT area/project analysis area is very large, more than one well or mine site is permitted to be developed in a given square mile as long as the surrounding Priority Habitat lands are relatively free from other development disturbance. This can result in a density of wellsites that exceeds science-based thresholds at which significant impacts to sage grouse inhabiting the habitat in question begin to occur.

The Lost Creek Uranium In Situ Recovery Project exemplifies how development can exceed disturbance and density limits under the DDCT. The 4,254-acre permit area is located inside a Core Area, and it intersects the 4-mile buffers of 15 sage-grouse leks.[63] The DDCT area for this project is 147,060 acres, almost 230 square miles. If this were a hypothetical oil and gas project with the same 147,060-acre DDCT area, 229 wells would be allowed in the 4,254-acre permit area, for a density of 34.4 wellsites per square mile within the permit area. Within the actual perimeter of development, wellsite density will exceed 50 wells per half-section, or 100 wellsites per square mile. This extreme density would destroy habitat function for sage-grouse locally, even though well density for the DDCT area would still be within the one well per square-mile limit in the Core Area strategies.

In the case of the Lost Creek project, the extra-large DDCT area allowed intense development within the permit area. The project expects to disturb (i.e., bulldoze) 345 acres, which, when combined with preexisting disturbance, amounts to less than one percent for the DDCT area, but when compared to the 4,254-acre permit area, would yield 8.1 percent disturbance, far above the limit in the state and federal Core Area strategies. Note that virtually all development in this project will be along the ore trend (shown in Attachment 101), meaning that the actual density within the developed portion of the Permit Area will be much greater than 8.1%. The DDCT area

[63] Calculations derived from data presented in the Lost Creek In Situ Recovery Project Final EIS at ES-2, 4.9-8, 4.9-27, and Appendix D.

for this project, by contrast, totals 147,060 acres (*see* Attachment 101), yielding a percent disturbance of less than 1% when considering the existing and proposed disturbance. The 345-acre development area also violates the strategies' limitation on site density. The DDCT assumes individual development sites (like oil and gas wells) will only each affect 4-5 acres. But for this project, the state wildlife agency classified the entire 4,254-acre development area as a single "site," which, although it meets the one site per square mile requirement, will eliminate half of a square mile section of directly bulldozed land within the 4,254-acre project area where it is located, and certainly have deleterious effects on sage-grouse for miles around. This DDCT area is so large that 229 oil and gas wells could be permitted in the six square mile project area without exceeding the putative one wellpad per square mile limit. BLM Resource Management Plan direction must prevent this type of excessive development through scientifically sound calculation methods for site density and disturbance percentage.

In addition, BLM disturbance caps are subject to exceptions, waivers, and modification, while Forest Service disturbance caps are discretionary guidelines only. This means that these measures have no certainty of implementation. Densities of oil and gas wellpads indicate that a 3% limit is consistent with one wellpad per square mile (which equates to 2.7% surface disturbance on average), the density of wellpads beyond which significant population declines occur. The BLM's own National Technical Team (2011: 7) were particularly explicit regarding the necessity to implement the 3% disturbance threshold rigorously:

> Manage priority sage-grouse habitats so that discrete anthropogenic disturbances cover less than 3% of the total sage-grouse habitat regardless of ownership. Anthropogenic features include but are not limited to paved highways, graded gravel roads, transmission lines, substations, wind turbines, oil and gas wells, geothermal wells and associated facilities, pipelines, landfills, homes, and mines.[iii]
>
> - In priority habitats where the 3% disturbance threshold is already exceeded from any source, no further anthropogenic disturbances will be permitted by BLM until enough habitat has been restored to maintain the area under this threshold (subject to valid existing rights).
>
> - In this instance, an additional objective will be designated for the priority area to prioritize and reclaim/restore anthropogenic disturbances so that 3% or less of the total priority habitat area is disturbed within 10 years.

The 3% Disturbance Threshold Must Be Applied to All Human Disturbances

This, and all the other, sage grouse land use plan amendments qualify their imposition of surface disturbance thresholds with the clause "subject to valid existing rights." *See, e.g.*, Wyoming Greater Sage-Grouse Land Use Plan Amendment 2-59; Northwest Colorado Greater Sage-Grouse Proposed LUPA/Final EIS 2-21; Utah Greater Sage-Grouse Proposed LUPA/Final EIS 2-18. As discussed above, the valid existing rights conveyed by a federal mineral lease or mining

claim do not include an absolute right to use of the federally-managed surface, but are subject to stipulations, federal law, and conditions of approval or plans of operation pursuant to the reasonable federal regulation of surface use. For the 3% disturbance cap to be effective as a conservation measure, and certain of implementation as a regulatory mechanism under the ESA, it must be applicable to all disturbances, including those on existing leases, claims, or rights-of-way. If the clause "subject to valid existing rights" means, as certain of the FEISs imply, that existing leaseholders may create surface disturbances that exceed the cap, or where the cap has already been exceeded, then BLM cannot rely on the disturbance cap to mitigate habitat loss on lands already under lease. In order for the disturbance cap mechanism to be effective, it must apply to existing leases or claims, precluding new disturbance that would exceed the cap (or where the cap has already been exceeded), at least until such time as previously-disturbed areas have been restored to adequate habitat function.

Relief requested on this issue: Limit surface-disturbing activities to a maximum of 3% in Focal Areas, Core Areas, General Habitats, Winter Concentration Habitats, and Connectivity Areas, as calculated below.

Disturbance Density and Wellpad Density Must Be Regulated on a Per-Square-Mile-Section Basis

All scientific studies that have tested wellpad density and/or disturbance percentage per square mile have measured these densities per square-mile section or another relatively small area (Knick et al. 2013 used a 3-mile buffer around leks to measure disturbance density). Not one scientific study has ever examined the threshold of significant impacts when densities of wells or surface disturbance are calculated across an area of scores or hundreds of square miles, but presumably, the threshold of significant impacts would be different from the threshold that results from testing densities across a single square mile. Some calculation protocols, such as Wyoming's Disturbance Density Calculation Tool ("DDCT," identical to the Utah 'project analysis area,' *see* FEIS at 2-18, E-3), calculate these densities on the basis of land areas much greater than one square mile, often hundreds of square miles. In the case of tightly-packed projects, this results in densities of disturbance and/or wellpads that far exceeds the scientifically determined thresholds of one pad per square mile and 3% per section at which significant negative impacts to sage grouse populations are known to occur. Importantly, Knick et al. (2013) calculated their key threshold of 3% disturbance based on a 3-mile radius around leks. No scientific study has ever tested the DDCT to determine the disturbance percentage or site density thresholds at which significant impacts to sage grouse populations begin to occur, rendering this methodology scientifically bankrupt.

Importantly, the NTT (2011) recommended that disturbance density be calculated per square-mile section, based on their review of the best available science. This is supported by subsequent scientific study by Knick et al. (2013), who found a limit of 3% development based on a 3-mile buffer around leks was the threshold beyond which sage grouse populations were rarely able to sustain themselves. The BLM would apply a one site per square mile limit, but the Forest Service would not (except for Anthro Mountain and Wyoming). FEIS at 2-51, 52, 59.

Relief requested on this issue: The agencies should require that cumulative density of mining or energy sites be one per square mile, and overall disturbance density limits, be calculated per square mile section rather than diluting approved disturbance over a larger area.

Adequate Restrictions on Noise must be Applied

Noise can mask the breeding vocalizations of sage grouse (Blickley and Patricelli 2012), displaces grouse from leks (Blickley et al. 2012a), and causes stress to the birds that remain (Blickley et al. 2012b). According to Blickley et al. (2010), "The cumulative impacts of noise on individuals can manifest at the population level in various ways that can potentially range from population declines up to regional extinction. If species already threatened or endangered due to habitat loss avoid noisy areas and abandon otherwise suitable habitat because of a particular sensitivity to noise, their status becomes even more critical." Noise must be limited to a maximum of 10 dBA above the ambient natural noise level after the recommendations of Patricelli et al. (2012); the ambient noise level in central Wyoming was found to be 22 dBA (Patricelli et al. 2012) and in western Wyoming it was found to be 15 dBA (Ambrose and Florian 2014, 2015; Ambrose et al. 2015); a study from Utah found the same 15 dBA result (see Attachment 102). Attachment 103 provides a review of the relevant literature on noise including analysis that indicates sage grouse lek population declines once noise levels exceed the 25 dBA level. With this in mind, ambient noise levels should be defined as 15 dBA and cumulative noise should be limited to 25 dBA in occupied breeding, nesting, brood-rearing, and wintering habitats, which equates to 10 dBA above the scientifically-derived ambient threshold.

It is reasonable to suppose that if noise that mimics oil and gas truck traffic causes elevated levels of stress-related metabolites in grouse on the lek (Blickley et al. 2012b), that this physiological response would be substantially similar during other parts of this bird's life cycle. Indeed, these researchers stated, "Noise at energy development sites is less seasonal and more widespread and may thus affect birds at all life stages, with a potentially greater impact on stress levels." Patricelli et al. (2012) recognized this explicitly:

> "Second, and much more importantly, if noise levels drop down to stipulated levels at the edge of the lek, then much of the area surrounding the lek will be exposed to higher noise levels (see Figures 3 & 4). This management strategy therefore protects only a fraction of sage-grouse activities during the breeding season—mate assessment and copulation on the lek—leaving unprotected other critical activities in areas around the lek, such as foraging, roosting, nesting and brood rearing."

This failing has been incorporated by the BLM in its plan revision by specifying that noise limits will be measured within 0.6 mile of the lek instead of at the periphery of occupied seasonal habitat. In the Wyoming Basins Ecoregional Assessment, the authors pointed out, "Any drilling <6.5 km [approximately 4 miles] from a sage-grouse lek could have indirect (noise disturbance) or direct (mortality) negative effects on sage-grouse populations." WBEA at 131.

BLM and Forest Service propose a limit of 10 dBA above ambient as measured at the lek, with no ambient noise level defined in the plan. FEIS at 2-18, 2-43, 2-58. The ambient level needs to

be set at 15 dBA and maximum noise allowed should not exceed 25 dBA to prevent lek declines due to noise. In addition, by setting the noise level at the lek, BLM fails to adequately protect nesting habitats, wintering habitats, and brood-rearing habitats from significant noise impacts. The Forest Service at least provides noise protections within 3.1 miles of the lek (FEIS at 2-43, 2-58), but this leaves 40% of the nesting habitats within 4 miles of the lek unprotected by noise measures, and the Forest Service mirrors the BLM's flawed proposal to only apply noise restrictions during early morning hours, instead of round-the-clock. It is obvious that sage grouse will be stressed and potentially displaced by noise at any hour of the day, and the science reflects this. In addition, BLM provides this protection in PHMA only, which leaves open the likelihood that nopise-related impacts in PGMA can and will drive sage grouse lek populations extinct.

Relief requested on this issue: Set a limit of 10 dBA above a defined ambient noise level of 15 dBA within 4 miles of leks and in identified wintering habitats, to be applied across all occupied sage grouse habitats at all times of day and night.

Proposed management of geophysical exploration is inadequate to protect sage grouse

Geophysical exploration can result in numerous impacts to sage grouse, including crushing sagebrush, creating linear disturbances through sagebrush habitat that facilitate the movements of sage grouse predators, causing direct disturbance to birds, leading to stress and/or displacement from important habitats, and direct collision mortality. For these reasons, the National Technical Team (2011) recommended, "Allow geophysical operations only by helicopter-portable drilling methods and in accordance with seasonal timing restrictions and/or other restrictions that may apply." The proposed RMP appears to neglect to provide definable seasonal restrictions on geophysical exploration in important sage grouse habitats, and also does not prescribe that low-impact techniques (i.e., heliportable methods) be applied. *See, e.g.,* FEIS at 2-33, 2-65. Indeed, it refers back to general direction regarding surface-disturbing activities and other conservation measures for PHMA and GHMA hat have no bearing on geophysical exploration.

Relief requested on this issue: Both the Forest Service and BLM should implement the following nondiscretionary standard in both states: "Allow geophysical operations only by helicopter-portable drilling methods and in accordance with seasonal timing restrictions and/or other restrictions that may apply."

Drilling-related and Livestock Ponds Must be Prohibited in Priority Habitats, and Existing Minerals-related Ponds should be Drained

Wastewater ponds associated with coalbed methane development form breeding habitat for the *Culex tarsalis* mosquitoes that transmit West Nile virus, and have been directly linked to increases in these mosquito populations (Zou et al. 2006, Doherty 2007, Attachment 104). The National Technical Team (2011: 19) observed that "ponds created by coal bed natural gas development may increase the risk of West Nile virus mortality in late summer (Walker et al. 2004, Zou et al. 2006, Walker et al. 2007b)." Greater sage grouse have essentially no ability to develop immunity to West Nile virus (Naugle et al. 2004), and outbreaks of West Nile have led to catastrophic population losses of sage grouse in habitats developed for coalbed methane in the

past (Walker et al. 2004). Taylor et al. (2012) found that the synergy of oil, gas and coalbed methane impacts and West Nile would result in the functional extinction of the Powder River Basin sage grouse population in Wyoming as a result of the next major West Nile virus outbreak.

To mitigate the severe threat posed by West Nile virus, the sage grouse plan amendments and revisions must include a prohibition on the construction of new retention or infiltration ponds associated with coalbed methane development or livestock operations in Priority Habitats, and require that all coalbed methane wastewater be injected underground into aquifers of equal or lower quality (to prevent contamination of groundwater supplies by coalbed methane byproducts and salty wastewater).

The Forest Service includes only vague guidance prohibiting new water developments "unless beneficial to GRSG habitat." FEIS at 2-47. This applies in Utah but apparently not in Wyoming. *See* FEIS at 2-66. It further directs that reservoirs for mineral development "be constructed to reduce potential for West Nile virus." FEIS at 2-52, 2-66. This represents implicit permission to authorize construction of such reservoirs. BLM, meanwhile, offers no direction at all for mineral-related reservoirs. None of these measures provide certainty that reservoirs will be eliminated as habitat for the *Culex tarsalis* mosquitoes that carry West Nile virus.

Proposed relief on this issue: Provide as an Action (rather than/in addition to a Required Design Feature) and a Forest Service Standard a prohibition on impoundment construction for the purpose of produced water retention in the context of oil and gas development, and require existing mineral produced water reservoirs to be breached and drained, to reduce the spread of West Nile virus.

BLM Must Provide Adequate Protection From Roads and Off-Road Vehicle Impacts

Roads have multiple impacts on sage grouse, including noise and movement from vehicle traffic causing disturbance, habitat fragmentation, and dust pollution that can depress productivity of sagebrush and other plants important to the diet of sage grouse. Sage grouse avoid habitats surrounding roads (Braun 1986, Holloran 2005, Wisdom et al. 2011). According to BLM's own NEPA analysis:

> Impacts on GRSG accrue over varying distances from origin depending on the type of development:
> …
> ● Interstate highways at 4.7 miles (7.5 kilometers) and paved roads and primary and secondary routes at 1.9 miles (3 kilometers) based on indirect effects measured through road density studies (Connelly et al. 2004; Holloran 2005; Lyon 2000)

Nevada – Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605. BLM has admitted that roads fragment habitats and interfere with natural movements of sensitive species, and with regard to road upgrades, "Any exceptions resulting in road upgrades could further fragment habitat, cause vegetation loss, erosion, and the spread of invasive, non-native plant

species." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-313 and 4-294, respectively.

BLM's own National Technical Team (2011: 11) recommended that at minimum, vehicle traffic in Priority Habitats be limited to designated roads and trails, use existing roads for access, limit construction to realignments of existing routes that minimize impacts to sage grouse, prohibit road upgrades that change route category, consider seasonal road closures, and conduct travel planning within 5 years, reclaiming roads and trails not designated for vehicular use.

Road densities are also an issue, because sage grouse avoid habitats adjacent to roads. Holloran (2005) found that road densities greater than 0.7 linear miles per square mile within 2 miles of leks resulted in significant negative impacts to sage grouse populations. This road density should be applied as a maximum density in Priority and General Habitats, and in areas that already exceed this threshold, existing roads should be decommissioned and revegetated to meet this standard on a per-square-mile-section basis. The agencies' proposed plan amendments fail to provide adequate limits on road density.

Limiting road and trail networks and off-road vehicle travel also is critical in limiting the spread of invasive weeds. According to BLM's own NEPA analysis, "Roads and trails are one of the main vectors of invasive weed spread, which leads to increase in FRCC and ecosystems moving away from natural fire regimes (CEC 2012)." Nevada – Northeastern California Greater Sage-grouse RMP Amendment DEIS at 701.

Off-road vehicle travel must be adequately regulated to protect sage grouse under new plans. According to BLM's own analysis, off-road vehicles are noisy, and typically exceed the background noise levels by more than 10 dBA. Northwest Colorado Greater Sage-grouse RMP Amendment DEIS at 399. This level of noise exceedence has significant negative consequences for sage grouse, as outlined in the section of this protest addressing noise. Off-road vehicle use also results in habitat degradation and destruction, disturbance of sage grouse, and proliferation of invasive weeds (NTT 2011; *see also* Manier et al. 2011). Rangewide, BLM limits motor vehicles to existing roads in most cases, but the problem with this approach is that once one motorist illegally ventures off-road, he or she creates an "existing route" that can then legally be followed by every other motorist that follows. BLM characterized this proliferation of motorized routes thusly:

> Each year new trails are being created by a wide range of OHV users including, but not limited to, recreational users. Once a new trail becomes established it is considered by the public to be an existing route.

Wyoming Greater Sage-grouse RMP Amendment DEIS at 3-340. For sage grouse Priority Habitats, the federal agencies need to require the same "white-arrow" approach as used on many National Forests, in which motorized routes are closed to motorized use unless specifically posted as open. In addition, Special Use Permits need to be limited in Priority Habitats to activities that have neutral or beneficial impacts on sage grouse (NTT 2011).

Federal agencies' direction is to limit vehicle travel to designated routes, and to designate routes in subsequent travel planning with route designation, however no timetable is presented for designating such routes. *See, e.g.,* FEIS at 2-37, 38. Based on the best available science, BLM's own experts recommend designating routes through travel planning within 5 years of adoption of the plan amendments and revisions during subsequent travel management planning (NTT 2011). BLM proposes to use existing alignments to access valid existing rights where possible (FEIS at 2-40), which is a good idea, but BLM should require the minimum standard possible for new routes that cannot comply with this guidance. Both agencies fail to provide that new roads in Utah accessing multiple wells or housing developments be located more than 1.9 miles from leks in Core Areas (FEIS at 2-40, 2-50); this is necessary to prevent significant impacts to sage grouse based on the best available science. Guidance for Wyoming (FEIS at 2-64) approaches the correct standard, but this needs to reflect the mandatory "prohibit" rather than the discretionary "restrict." In order to bring the Utah RMP amendment up to scientific standards for road location and development, BLM must apply NTT (2011) recommendations as well as road density limits in accord with the best available science.

The Forest Service in both Utah and Wyoming proposes to restrict public access on energy roads in key sage grouse habitats. *See e.g.*, FEIS at 2-64. Vehicle traffic has a negative impact on sage grouse regardless of whether or not it has oil industry or agency decals on the doors. Both agencies should require seasonal closures of energy industry temporary roads during key habitat seasons of use by grouse for <u>all motor vehicles</u>, be they public, agency, or industry.

Relief sought on this issue: BLM and the Forest Service should adopt the following measures into the plan amendments and revisions: New primary, secondary, or high-activity roads must be excluded within 1.9 miles of leks, and all new road construction or location should be excluded within 0.6 miles of leks (with no exceptions, waivers, or modifications); limit new road construction to realignments of existing routes where realignment has minimal impact on sage grouse; limit road density to 0.7 mile per square-mile section, and require travel management planning to designate routes within Core and Focal Areas within 5 years of plan adoption.

Priority Habitats Must Be Exclusion Areas for Utility-Scale Wind and Solar Projects

Wind power development on a utility scale has the potential for multiple impacts to sage grouse, including habitat fragmentation, behavioral avoidance of tall structures, and disturbance of birds from noise and motion and/or human activity. LeBeau (2012) found that sage grouse had significantly lower nest success and chick survival in habitats in close proximity to wind turbines. The National Technical Team (2011) recommended that Priority Habitats be designated as exclusion areas for wind power development, and that General Habitats be avoidance areas for wind power development. BLM proposes that wind energy development be "excluded" from Priority Habitats, but would be allowed in GHMAs. FEIS at 2-33. This is the proper level of protection for Priority Habitats but an inadequate level of protection for General Habitats based on the best available science (NTT 2011). The importance of these habitats to the overall survival and recovery of sage grouse populations in the planning area require that adequate protections be provided.

Guy wires for met towers or other tall structures pose a collision risk for birds such as sage grouse, and are unnecessary sources of mortality given the widespread availability of unguyed met tower designs. However, the agency provides no standards to prevent the use of new guyed towers that pose a hazard to grouse; direction only addresses mitigating the impacts of existing guy wires. FEIS at 2-31. This is inadequate to prevent undue degradation to sage grouse habitats from new met towers. The record establishes that met towers can result in sage grouse population declines (*see Cotterel Mountain data reviewed in* 'Wind Power in Wyoming,' attached to Guardians' DEIS comments for this plan), and siting these tall structures in the midst of prime nesting habitat is likely to result in a significant level of habitat abandonment by grouse. Existing guy wires would need to be removed or marked with diverters (FEIS at 2-31); however, utility companies fund the extra expense of guy wires only in cases where they are necessary as part of the overall support of the structure, so it is unlikely that many guy wires will ever be removed pursuant to this Action. The 2-mile buffer for such tall structures is not supported by the science, and instead a 5.3-mile buffer (after Holloran and Anderson 2005) should be applied. In addition, this restriction should not be limited to PHMAs but should also extend to General Habitats, Winter Concentration Areas, Focal Areas, and Connectivity Areas as well.

The National Technical Team (2011) reviewed the best available science, noting the sage grouse's avoidance of tall structures, and recommended that priority habitats be "exclusion areas" for wind energy facilities. LeBeau (2012) found that sage grouse experienced significant declines in nest and brood survival in proximity to wind turbines. BLM proposes to manage these areas as exclusion areas, and also exclude wind farms from lands outside PHMA that fall within 5 miles of leks inside PHMA. FEIS at 2-33. This is the scientifically appropriate management for wind energy facilities and, at least for wind energy addresses the inadequacy of PHMA designations that do not provide appropriate buffers for leks found within PHMA. The Forest Service direction is slightly weaker, allowing renewable energy permitting on existing industrial sites for on-site power generation. FEIS at 2-45, 2-60. This exception should only be allowed in cases where there no impacts to sage grouse would result. One could image the construction of a tall structure such as one or more wind turbines on an existing low-profile industrial site that would radically increase the impacts at that site on sage grouse. For the BLM, most GHMA areas would be 'open' for wind energy development (FEIS at 2-33), rather than being "avoidance" areas as recommended by BLM's own scientific analysis (NTT 2011). The Forest Service, by not addressing this issue in its standards, indicates a similar approach. FEIS at 2-45. Because sage grouse habitats are already excluded from solar energy development under the plans (FEIS at 2-33), we are satisfied that adequate protections from solar energy facilities already exist, with no need for amendment.

Relief requested on this issue: Continue to designate sage grouse PHMAs as exclusion areas for wind energy development, and designate General Habitats as avoidance areas for wind energy development. Met towers in sage grouse habitats should exclude the use of guy wires and siting of these facilities should be excluded within 5.3 miles of active leks in all occupied habitats, and in identified wintering habitats.

Priority Habitats Must Be Exclusion Zones for Transmission Lines

Wisdom et al. (2011) found that lands within 3.1 miles of transmission lines and highways had an elevated rate of lek abandonment. Nonne et al. (2011) found that raven abundance increased along the Falcon-Gondor powerline corridor in Nevada both during the construction period, and long-term after powerline construction activities had ceased. Braun et al. (2002) reported that 40 leks with a power line within 0.25 mile of the lek site had significantly slower population growth rates than unaffected leks, which was attributed to increased raptor predation. Dinkins (2013) documented sage grouse avoidance of powerlines not just during the nesting period but also during early and late brood-rearing. LeBeau et al. (2014, Attachment 105) found that sage grouse avoided habitats within 2.9 miles of transmission lines during the brood-rearing period.

The National Technical Team (NTT 2011) recommended that Priority Habitats be exclusion areas for overhead powerlines, and that General Habitats should be avoidance areas for overheads lines. And according to BLM's own NEPA analysis,

> Impacts on GRSG accrue over varying distances from origin depending on the type of development:
>
> ● Tall structures such as power lines, wind turbines, communication towers, agricultural, and urban development based on an avian predator foraging distance of 4.3 miles (6.9 kilometers; Boarman and Heinrich 1999; Leu et al. 2008)

Nevada – Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605.

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Nevada – Northeastern California Greater Sage-grouse RMP Amendment DEIS at 605.

The National Technical Team (2011) recommended that general habitats be managed as avoidance areas for new rights-of-way, and also recommended that overhead powerlines and other infrastructure that have fallen out of use should be removed, when they occur in Priority Habitats.

BLM cannot rely on perch inhibitors to reduce impacts to sage grouse, as these do not address the behavioral avoidance of sage grouse of tall structures, and don't even completely prevent raptor perching. Prather (2010) provided an empirical test of the effectiveness of perch inhibitors

on smaller distribution lines in Utah, and found that they had no significant effect in terms of reducing raptor perching activity. Lammers and Collopy (2007) found similar results for larger transmission lines in Nevada.

BLM proposes to manage PHMAs as right-of-way "avoidance areas" instead of exclusion areas (FEIS at 2-30, 2-31, 2-59), as recommended by their own experts. This prevents certainty of implementation by allowing new rights-of-way to be granted on a case-by-case basis. "Exclusion" is the appropriate level of management for these habitats based on the best available science, and this level of protection should also apply to Focal Areas and Winter Concentration Areas as well. Only a tiny portions of General Habitats is proposed to be managed as exclusion areas for rights-of-way based on other resource values, with the rest managed as open with no restrictions (FEIS at 2-32); the importance of protecting sage grouse habitat merits avoidance management for all General Habitats.

The FEIS does in fact propose to redesignate 44,300 acres of existing ROWs for underground use only for new projects in PHMA, but retains 17,600 acres of existing overhead ROW corridors. FEIS at 2-32. This means that the sage grouse impacts will continue to be a major threat for the 17,600 acres of existing corridors in PHMA. In addition, 74,700 acres of designated ROW corridors are proposed for retention in PGMA. FEIS at 2-33. As the Utah FEIS designates only 583,000 acres of PGMA, almost 13% of PGMA will be inside a designated ROW corridor open to overhead lines. Given that the impacts of overhead lines extend far beyond the right-of-way, it seems unlikely that PGMA will be a survivable habitat for sage grouse based on overhead lines alone. The prevalence of designated corridors is particularly dense in designated grouse habitats in Sanpete County, Uintah County, and along the Garfield-Iron county line. FEIS at Map 2-20. These examples illustrate how transmission lines alone may condemn Utah sage grouse populations to extirpation, and illustrate why no further overhead lines should be allowed in PPMA or in PGMA in Utah.

In the Final EIS, BLM changed PHMA management from 'exclusion area' proposed in the Draft EIS with designated ROW corridors, to the weaker and discretionary 'avoidance.' FEIS at 2-2. Of course, BLM commits to perch inhibitor requirements for lines that are not buried and are inside these lek buffers; this offers cold comfort given the demonstrated ineffectiveness of perch inhibitors. The Forest Service proposes a 2-mile buffer for tall structures from leks (FEIS at 2-43), but this allows tall structures in the midst of prime nesting habitat and therefore is insufficient to prevent significant impacts. The retrofitting of tall structures with perch inhibitors (FEIS at 2-44) does not adequately address the problem of raptor perching and concentration of predation impacts within key habitats. The Forest Service proposes to "restrict" issuance of new permits for many types of tall structures, but then builds in a process to allow exceptions. FEIS at 2-44. "Restrict" is not the same as "prohibit" or exclude," and therefore fails the certainty of implementation test, and the opportunity for exceptions brings in even further uncertainty.

Relief requested on this issue: Core Areas, Connectivity Areas, Focal Areas, and Winter Concentration Areas should be exclusion areas for new transmission rights-of-way and wind and solar projects, including the TransWest Express and Gateway South projects. No transmission corridors should be excepted from sage grouse protections applying to the habitats that they traverse. General Habitats should be managed as "avoidance areas" for new rights-of-way.

Priority Habitats must be Exclusion Zones for New Fences, and Existing Unnecessary Fences Must be Removed

Fences used for livestock management pose a major threat to sage grouse. Stevens et al. (2013) found that fence collisions are an important source of grouse mortality, and fences on flat areas near leks were a particularly high risk for causing sage grouse fatalities. Christiansen (2009) documented 146 sage grouse fence collisions and mortalities along a 4.7-mile length of barbed-wire fence in Wyoming over a 2½-year period, and found that marking fences reduced collisions by only 61%, such that 39% of the collision rate on unmarked fences still occurred for marked fence sections. The BLM's National Technical Team (2011) recommended that unused fences should be removed, and their rights-of-way withdrawn. BLM proposes, "To reduce outright GRSG strikes and mortality, remove, modify or mark fences in high risk areas (Stevens et al. 2012) based on proximity to lek (e.g., within 1.2 miles of a lek), lek size, and topography, or as latest science indicates" (FEIS at 2-29); this direction is far too vague to be counted upon for effectiveness or certainty of implementation.

Forest Service direction would prevent construction or reconstruction of fence within 1.2 miles of sage grouse leks, unless mitigation such as lay-down fencing or visibility markers. FEIS at 2-47, 2-61. Lay-down fencing might be adequate mitigation if the fences are reliably lain down during the period of key habitat occupation by sage grouse, but fence marking is not adequate because marked fences still experience about 1/3 the mortality of unmarked fences. In addition, a 1.2-mile buffer is inappropriate because it allows fences to be built right through the middle of nesting, brood-rearing and/or wintering habitats, each of which exposes sage grouse to elevated mortality in a sensitive seasonal habitat. This direction needs to be clarified with measurable standards that prevent new fence construction entirely in key habitat areas.

Relief requested on this issue: In PHMAs, Connectivity Areas, Focal Areas, and designated wintering habitats, new fences should be prohibited. In all designated sage grouse habitats, existing fences should be removed where possible and if not, marked for increased visibility to sage grouse. New fence construction should be avoided in general habitats, and existing fences should be dismantled were possible, and if not then marked for increased visibility to sage grouse.

Appropriate Restrictions for Livestock Grazing

Manier et al. (2013) provides a fairly comprehensive review of potential impacts of livestock grazing on sage grouse. These researchers point out that a reduction in livestock stocking rates can directly increase residual vegetation substantially, potentially assisting in meeting this target level for grasses. In their study on sage grouse in eastern Oregon, Call and Maser (1985:3) admonished land managers: "Where there are conflicts between sage grouse and livestock on public lands, it may be essential to give priority to sage grouse if they are to continue to exist on these areas." The National Technical Team (2011: 15) recommended that the BLM "Manage for vegetation composition and structure consistent with ecological site potential and within the reference state to achieve sage-grouse seasonal habitat objectives."

Drought is a regular and significant complication in the management of livestock grazing and sage grouse habitat stewardship. The National Technical Team (2011: 15) recommended,

> During drought periods, prioritize evaluating effects of the drought in priority sage-grouse habitat areas relative to their needs for food and cover. Since there is a lag in vegetation recovery following drought (Thurow and Taylor 1999, Cagney et al. 2010), ensure that post-drought management allows for vegetation recovery that meets sage-grouse needs in priority sage-grouse habitat areas.

Water developments can concentrate livestock grazing in areas important as sage grouse habitat especially during the late brood-rearing period. In considering future water developments, the National Technical Team (2011: 16) recommended,

> Authorize new water development for diversion from spring or seep source only when priority sage-grouse habitat would benefit from the development. This includes developing new water sources for livestock as part of an AMP/conservation plan to improve sage-grouse habitat.

For existing water developments, the National Technical Team prescribed the following:

> Analyze springs, seeps and associated pipelines to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within priority sage-grouse habitats. Make modifications where necessary, considering impacts to other water uses when such considerations are neutral or beneficial to sage-grouse.

The Forest Service has a discretionary guideline to prevent sheep bedgrounds, but only within 1.2 miles of leks and only as a discretionary guideline. FEIS at 2-47. In Wyoming, it's even more inadequate, a 0.6-mile buffer. FEIS at 2-61. The BLM appears to adopt no management of this activity at all. It's a race to the bottom, and the sage grouse is losing. The impacts of siting sheep bedgrounds within 4 miles of sage grouse leks during the nesting season are likely to include disruption of nesting birds, abandonment of nests, and/or reduction in nest/brood survival rates (*see* Call and Maser 1985). Both agencies should therefore include a nondiscretionary Action/Standard seasonally prohibiting bedgrounds within 4 miles of active leks during their critical period of use (March 1 – June 30) by grouse. Likewise, the Forest Service proposes a guideline to prevent new permanent livestock facilities within 1.2 miles of leks. FEIS at 2-48, 2-61. As with bedgrounds, this allows impacts to be focused inside the critical nesting habitat found within 4 miles of leks.

Forest Service management provides,

> **GRSG-LG-GL-045**
> On the Thunder Basin National Grassland, where GHMA overlaps with Management Area 8.4 (Mineral Production), Management Area 3.63 (Black-footed Ferret Reintroduction Habitat), or other designated areas for short-grass species, livestock grazing should be managed to meet the objectives for that

Management Area.

FEIS at 2-62; *see also* GRSG-FM-ST-049. These guidelines are unnecessary because the Thunder Basin National Grassland is far from the planning area for this RMP amendment. The agencies are forgiven for this cut-and-paste error; you should expect some of these from the public as well, as we have had only 30 days to protest 14 plan amendments and revisions, while federal agencies had much longer than 30 days to prepare the FEISs.

Relief sought on this issue: Require that sheep bedgrounds and permanent facilities or structures associated with livestock grazing be sited more than 4 miles from occupied leks.

A Minimum Residual Grass Height of 7 Inches in Necessary

Sage grouse inhabit wide-open habitats with abundant avian predators, are clumsy fliers, and rely primarily on hiding and camouflage to escape their predators. In this context, maintaining adequate grass cover in sagebrush habitat provides critical hiding cover, without which land managers tilt the scales toward the predators. The increased predation that follows is a direct result of excessive grazing and inadequate livestock management, not the predators themselves.

The best available science has established that at least 7 inches of residual stubble height needs to be provided in nesting and brood-rearing habitats throughout their season of use. According to Gregg et al. (1994: 165), "Land management practices that decrease tall grass and medium height shrub cover at potential nest sites may be detrimental to sage grouse populations because of increased nest predation.... Grazing of tall grasses to <18 cm would decrease their value for nest concealment.... Management activities should allow for maintenance of tall, residual grasses or, where necessary, restoration of grass cover within these stands." Connelly et al. (2000) reviewed the science of that time and recommended an 18-cm residual stubble height standard. Hagen et al. (2007) analyzed all scientific datasets up to that time and concluded that the 7-inch threshold was the threshold below which significant impacts to sage grouse occurred (*see also* Herman-Brunson et al. 2009). Prather (2010) found for Gunnison sage grouse that occupied habitats averaged more than 7 inches of grass stubble height in Utah, while unoccupied habitats averaged less than the 7-inch threshold. According to Taylor et al. (2010:4),

> "The effects of grazing management on sage-grouse have been little studied, but correlation between grass height and nest success suggest that grazing may be one of the few tools available to managers to enhance sage-grouse populations. Our analyses predict that already healthy populations may benefit from moderate changes in grazing practices. For instance, a 2 in increase in grass height could result in a 10% increase in nest success, which translates to an 8% increase in population growth rate."

Heath et al (1997) also found that near Farson, Wyoming, nests with taller grass heights were more successful than those with shorter heights. The exception to this 7-inch rule is found in the mixed-grass prairies of the Dakotas, where sparser cover from sagebrush and greater potential for tall grass have led to a recognition that a 26-cm stubble height standard is warranted (Kaczor 2008, Kaczor et al. 2011). Foster et al. (2014) found that livestock grazing could be compatible

with maintaining sage grouse populations, but notably stubble heights they observed averaged more than 18 cm during all three years of their study, and averaged more than 10.2 inches in two of the three years of the study. This finding is consistent with our conclusion based on the science that maintaining at least 7 inches of residual stubble is necessary to maintain or recover sage grouse populations. Doherty et al. (2014, Attachment 106) found a similar relationship between grass height and nest success in northeast Wyoming and south-central Montana but did prescribe a recommended grass height. Thus, all available science to date is consistent with standards that maintain at least 7 inches of stubble height rangewide, and more than 10.2 inches in the Dakotas. Stiver et al. (2015) recommended 18 cm grass height for all breeding and nesting habitats, and explicitly stated that this and other established measures should not be altered unless scientific evidence definitively indicates that the 7-inch threshold is inappropriate. This scientific evidence has never been produced in Wyoming, and therefore the 7-inch threshold should prevail.

The National Technical Team (2011:15) recommended the following:

> Conduct land health assessments that include (at a minimum) indicators and measurements of structure/condition/composition of vegetation specific to achieving sage-grouse habitat objectives (Doherty et al. 2011). If local/state seasonal habitat objectives are not available, use sage-grouse habitat recommendations from Connelly et al. 2000b and Hagen et al. 2007.

Importantly, both Connelly et al. (2000) and Hagen et al. (2007) recommended maintaining a 7-inch stubble height for grasses for hiding cover throughout the breeding and nesting seasons.

The 7-inch standard is also being applied in BLM plan amendments in other parts of the sage grouse range. It would be arbitrary and capricious for the BLM not to do the same in Utah and Wyoming. The BLM specifies that grazing allotments should should be adjusted in terms of permitted uses, including annual adjustments, to meet habitat objectives. FEIS at 2-27. However, neither BLM nor Forest Service propose grass height standards for nesting habitats, merely defining the Desired Condition as "[p]rovide overhead and lateral concealment from predators." FEIS at 2-14, 2-42, 2-56. There is no grass height objective at all in late brood-rearing habitats (FEIS at 2-15, 2-42, 2-56), a critical oversight as chicks and hens are particularly vulnerable to predation during this period and hiding cover from grass is particularly critical. The Forest Service does provide a guideline that calls for 7-inch grass height in breeding and nesting habitats within 4 miles of leks, which would be appropriate if required, but then requires only 4 inches of grass height in brood-rearing habitats (FEIS at 2-47, 2-61), exposing hens with chicks to elevated predation through providing insufficient hiding cover.

Grazing allotments should be required to "meet" rather than "make progress toward" grass heights. Grass heights are most sensitive to immediate previous grazing, meaning that the previous year's grazing will be the dominant factor affecting this important variable. "Making progress toward" a grass height standard makes little sense, either you hit the target or you don't; performance one year has limited effect on performance in following years. We are also concerned that BLM will not apply these standards until grazing permits are renewed, which could result in a delay of over 9 years for some permits, and longer if permits are renewed

automatically under the NDAA grazing rider. This delay in corrective action would result in unnecessary and undue degradation to sage grouse habitat pursuant to FLPMA, and also represents a 'certainty of implementation' problem. The revised plan must specify that livestock grazing measures will be implemented immediately across all permits once the plan revision goes into effect. Furthermore, there are no scientific studies that recommend a 6-inch grass height standard for sage grouse in the Wyoming planning area (or anywhere else in the sage grouse range). In order to provide science-based effectiveness, the grass height standard will need to come into alignment with the best available science (i.e., 7 inches grass height).

Relief requested on this issue: The Desired Conditions should be corrected to reflect a 7-inch objective for perennial grass height, and this standard should be applied to breeding, nesting, and brood-rearing habitats, not just breeding and nesting habitats. The corresponding Action/Standard should be reworded to specify (at least for grass height) that authorizations will contain terms and conditions regarding the actions "needed to meet the habitat objectives." Additional requirements triggering immediate implementation of these measures (rather than delaying implementation to permit renewal) are necessary.

Rest Following Fires and Treatments, and Grazing Adjustments During Drought are Necessary

It is critical that BLM rest from livestock grazing for several years all areas that have been subject to burns or vegetation treatments. This allows native vegetation to gain a foothold and prevents cheatgrass infestations from maximizing their expansion. According to BLM's own analysis, "Resting treated areas from livestock grazing for two years or longer after prescribed burns would allow treated areas to revegetate, soils to stabilize, and vegetation to mature to the point of withstanding livestock grazing pressure." Wyoming Greater Sage Grouse RMP Amendment DEIS at 4-267. Lambert (2005) recommended protecting re-seeded areas from livestock grazing for no less than 3 to 5 years.

For drought, BLM includes a number of vague measures that indicate that turnout dates, stocking rates, and duration of grazing might be adjusted, but commits to no particular action either during or after drought. FEIS at 2-28. This direction fails the science-based effectiveness and certainty of implementation prongs required by regulation. NTT (2011: 26), citing WGFD, recommends "Rest treated areas from grazing for two full growing seasons unless vegetation recovery dictates otherwise." BLM suggests that post-fire management "may require temporary or long-term changes in livestock grazing," but requires no measurable standards that require a rest from grazing post-fire or set forth a minimum amount of time for such rest. FEIS at 2-24.

For drought, BLM specifies that drought is a reason for removal or exclusion of wild horses and burros (FEIS at 2-30). There is no such provision for domestic livestock. This is arbitrary and capricious, as the types of impacts are similar between wild horses and burros and domestic livestock, and domestic livestock vastly outnumber wild horses. According to agency analysis, there are a total of 1,694 wild horses and 0 burros are in populations with any overlap with greater sage grouse habitat across the planning area (FEIS at Table 3.42), which yields 20,328 animal unit-months (AUMs) assuming one wild horse equaling one AUM and 12 months of use for each wild equid. By contrast, there are 579,595 AUMs of domestic livestock across the

planning area (BLM and USFS combined) in greater sage grouse habitat. FEIS at 3-167. This means that domestic livestock AUMs outnumber wild horse and burro AUMs in sage grouse habitats across the planning area by a ratio of more than 28 to 1. Much of the planning area is absent wild horses and burros but is grazed by domestic livestock. Domestic livestock therefore pose the far greater threat to sage grouse and therefore warrant the far more stringent management to prevent major impacts to the birds. The proposed direction fails the science-based effectiveness and certainty of implementation prongs required by regulation. NTT (2011: 26) recommends "Rest treated areas from grazing for two full growing seasons unless vegetation recovery dictates otherwise."

Relief requested on this issue: The current Action should be modified to rest lands affected by fire or vegetation projects for two to three years following disturbance to minimize the potential for cheatgrass spread. Direction regarding drought management plans should be modified to indicate that livestock grazing will be managed to meet sage grouse habitat objectives to the greatest extent possible during and following drought.

Strong Riparian Area Protections are Required

Riparian areas are critical late brood-rearing habitats for greater sage grouse. According to BLM's own NEPA analysis, "Livestock grazing represents one of the most significant impacts on riparian habitats within the sub-region." Nevada – Northeastern California Greater Sage Grouse RMP Amendment DEIS at 681.

Under NFMA, the Forest Service has a special duty to maintain the health of riparian areas:

> *Riparian areas.* (i) The plan must include plan components, including standards or guidelines, to maintain or restore the ecological integrity of riparian areas in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity, taking into account: … Aquatic and terrestrial habitats…."

36 C.F.R § 219.8(a)(3). In particular, we are concerned that standards to maintain adequate cover of grasses for hiding cover are absent from the proposed plan.

BLM proposes, "In PHMA manage wet meadows to maintain a component of perennial forbs with diverse species richness relative to site potential (e.g., reference state) to facilitate brood rearing." FEIS at 2-23. Yet BLM does not specify a numerical measure of species richness (which is a measurable, numerical factor) nor does the agency specify a canopy cover of perennial forbs which will be required. Perennial forb cover is required for breeding and nesting (but not brood-rearing) habitats, and is an Objective only in certain discrete local areas, not across all PHMA and PGMA as it should be. FEIS at 2-14. The Forest Service does include Properly Functioning Condition as a Desired Condition in its plan amendments, but the achievement of this objective appears to be a discretionary Guideline rather than a mandatory Standard.

Relief requested on this issue: Add an Action/Standard specifying that hiding cover (7 inches) adequate for breeding, nesting, and brood-rearing sage grouse. Extend guidance on providing adequate forb availability in brood-rearing habitats. Require that Properly Functioning Condition be met in a nondiscretionary Standard or Action in each set of amendments.

Provide the Option for Voluntary Livestock Permit Retirement

Permanent retirement of livestock grazing confers multiple benefits for sage grouse habitats and populations. In the context of the BLM's Boulder Landscape Analysis Environmental Assessment ("EA") in Wyoming, BLM assembled a credible analysis of the impacts of the removal of livestock grazing on sage grouse and their habitats:

> In addition to the elimination of the potential direct impacts of trampling of wildlife habitats, the resulting benefits from complete rest for a period of 10 years across the Boulder landscape would greatly benefit nearly all wildlife species. The amount of forage typically used by domestic livestock would become available to wildlife species both in the form of an increase in the availability of food (forage) as well as an increase in vegetative protective structures (cover).
>
> If grazing were removed from the landscape indefinitely, natural ecological processes could in the long term result in a balancing effect on the plant communities, shifting them toward the reference state resulting in an overall benefit to all wildlife species.
>
> An increase in screening cover both in the form of a greater amount of residual grass in early spring, and current year's growth throughout the summer months, as well as an increase in abundance of plants would result in higher quality nesting and early brood rearing habitat for sage-grouse and most all avian species nesting in the upland sagebrush habitats found in the Boulder landscape. The increase in vegetative biomass could also support a greater abundance of desirable insect species used by foraging insectivorous avian species as well as sage-grouse. The resulting improvement in nesting and early brood rearing habitat for these bird species could increase nests success and chick survival which in turn could play a part in an increase in population in the area. Increased screening cover could also play a positive role in prey based species' ability to evade predators.
>
> If domestic livestock grazing were not allowed on the landscape there would be no need for internal allotment fencing. Removal of this existing fencing would decrease potential raptor perching and subsequently the indirect impacts of raptors preying on grouse as and other prey species. The removal of fencing could also eliminate any direct mortality due to grouse colliding with problem fences. Removal of fences could also reduce the utility of the travel corridors used by predators found along those corridors. Vegetative structures are usually altered along fence lines and two track roads typically follow the fence on one or both sides. These parameters may allow for the persistence of predator travel corridors, however, at least until vegetation recovers in these areas. The removal of any fences in the Boulder landscape would greatly benefit the ease of Big game

> migrations and would eliminate mortality associated with entanglements that may have been occurring in those fences. In certain areas of the Boulder Landscape some amount of new fencing may need to be constructed to separate private lands from public lands. All of the impacts that would be reduced in areas where fences were removed would be increased in areas where these new fences would be placed.
>
> The elimination of congregating livestock and wildlife in the areas surrounding water sources as well as in areas surrounding artificial mineral blocks could reduce the overgrazing and trampling effects that occur in these areas. Over the long term (>10 years), these areas could recover and become more suitable for nesting and early brood rearing habitats as well.
> …
> The elimination of livestock grazing would allow plants to grow larger and unconsumed standing forage to remain on the landscape from previous years. This increase in the proportion of older forage could result in a reduction in forage palatability for wildlife. Any decreases in palatability would likely be offset by increases in forage availability and abundance.
>
> Removal of livestock water developments could result in some redistribution of wildlife use, particularly for pronghorn antelope in the summer. Deer and elk, as well as sage-grouse, use patterns should not change appreciably.

Boulder Landscape Plan Draft EA at 82-83.

For riparian areas, BLM's own NEPA analysis states, "Many riparian areas recover rapidly once stressors are reduced or eliminated," and goes on to conclude,

> Removal of annual hot season grazing would allow for re-establishment of riparian and wetland plant communities resulting in functional floodplains and for elevated water tables, conditions leading to expansions in amount and extent of riparian habitats.

Nevada – Northeast California Greater Sage Grouse RMP Amendment DEIS at 678.

The NTT (2011: 17) recommends, "Maintain retirement of grazing privileges as an option in priority sage-grouse areas when base property is transferred or the current permittee is willing to retire grazing on all or part of an allotment." The South Dakota RMP DEIS includes provisions for permit retirement in all alternatives, and this approach should be required to be included in this RMP amendment. The Forest Service's permit relinquishment language (FEIS at 2-47) appears to address the potential for reserve common allotments or closure, but does not appear to address the potential for permanent permit retirement, which would have major benefits for sage grouse habitat as discussed elsewhere in this protest, either by the agency or through a buy-out from a willing seller. Adding "for the purpose of sage grouse habitat enhancement" to "closure" would improve the reliability of this guideline and help assure that allotments closed to assist sage grouse habitat health will not simply be reopened.

The proposed plan direction does not adequately address the matter of the voluntary relinquishment of a grazing permit or lease.

The proposed plan amendment states:

> *BLM:* At the time a permittee or lessee voluntarily relinquishes a permit or lease, the BLM will consider whether the public lands where that permitted use was authorized should remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments or fire breaks. (FEIS at 2-29, MA-GRA-18).
>
> *Forest Service* (Guideline): "[i]n PHMA, GHMA, and SFA, when livestock grazing permits and/or grazing preference are voluntarily relinquished, consider closure of grazing allotments, pastures, or portions of pastures, or managing the allotment as a forage reserve where removal of livestock grazing would enhance the ability to achieve desired habitat conditions displayed in Table GRSG-GRSGH-DC-002. (FEIS at 2-61, GRSG-LG-GL-040).

Our reading of the above language leads us to conclude that the deciding officer does not have an adequate understanding of the underlying impetuses that result in the voluntary relinquishment of a federal grazing permit or lease. Such relinquishments occur only because a permittee or lessee cannot find rancher buyer to sell the permit or lease to, or because the permittee or lessee has a contract from a third-party conservation buyer to relinquish the permit. Such contracts are usually conditioned on adequate assurances that the federal land management agency will not again allow domestic livestock to graze the area covered by the terms of the permit or lease.

Under the language quoted above, as BLM will only 'consider' ending domestic livestock grazing, then any permit or lease offered for relinquishment will be conditioned upon the land management agency deciding to end livestock grazing. Otherwise, the conservation buyer won't enter into the contract and the permittee or lessee won't receive compensation unless the managing agency ends livestock grazing. If the managing agency chooses to reissue the permit or lease to some other permittee or lessee, any deal between the permittee or lessee and the third-party conservation buyer falls apart.

No conservation buyer is interested in funding reserve common allotments, because they generally prop-up inappropriate and unsustainable levels of livestock grazing in times of drought or to "rest" a heavily grazed allotment by transferring the heavy grazing to a reserve allotment. In the case of greater sage grouse, that rested common allotment will improve as habitat each year that it is rested. As soon as it is grazed, it becomes far less valuable to sage grouse.

Using relinquished allotments for "fire breaks" is absurd. First, it is absurd because there is no credible science that firebreaks effectively work. However, firebreaks do damage soil, vegetation, watershed and wildlife habitat and ineffectively expend government funds. Second, a rested allotment will have more grasses, something not sought in making a firebreak.

Relief requested on this issue: Expand and clarify language pertaining to the voluntary relinquishment of grazing permits or leases (deletions in underlined, additions in **bold**):

> At the time a permittee or lessee voluntarily relinquishes a permit or lease, the agencies will consider whether the public lands where that permitted use was authorized should **be allocated to aid the conservation and restoration of greater sage-grouse, native species and/or watershed or** remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments or fire breaks.

Alternatively:

> At the time a permittee or lessee voluntarily relinquishes a permit or lease, the agencies will consider whether the public lands where that permitted use was authorized should remain available for livestock grazing or be used for other resource management objectives, such as reserve common allotments or fire breaks **such as to aid the conservation and restoration of greater sage-grouse, other native species and/or watershed.**

The language should explicitly state that an option for processing a relinquished permit/lease is that of retirement of livestock grazing and reallocating the forage to wildlife and watershed. As written now, the option is at best can be vaguely surmised and doesn't engender confidence in a third-party conservation buyer.

In addition, agencies should request your superiors to promulgate an administrative rule in the Code of Federal Regulations that would for the long-term cessation of livestock grazing for the purposes of wildlife, vegetation and/or watershed restoration on all lands administered by your agency. While not officially within the scope of relief you can grant to resolve this protest, please do it anyway.

Modify the permit relinquishment language to specify the possibility of permanent retirement of voluntarily relinquished grazing permits in PHMAs, Connectivity Areas, and Focal Areas.

BLM's Fire Management Measures to Protect Sage Grouse are Inappropriate

Fire is a threat to sage grouse populations, and the USFWS has identified prescribed fire as a threat to sage grouse in this region. Large fires of high frequency can extirpate sage grouse populations (Pedersen et al. 2003). A landscape mosaic of burns may not meet the nesting habitat needs of sage grouse (Nelle et al. 2000), and may also fail to meet grouse habitat requirements during other seasons (Wamboldt et al 2002). Fire was an uncommon occurrence in sagebrush habitats in presettlement times, with natural fire return intervals in Wyoming big sagebrush average 100-240 years (Baker 2007). Wyoming big sagebrush recovers slowly after fires, which typically result in 100% sagebrush mortality; recovery to pre-fire canopy cover takes over 100 years (Cooper et al. 2007). Baker (2007) examined the same issue and projected that Wyoming big sagebrush recovery following fire ranges from 50 – 120 years; for mountain big sagebrush, the recovery period was estimated at 35 – 100 years.

But vegetation manipulations to create fuel breaks also can fragment and degrade sage grouse habitat, as discussed elsewhere in this protest. The appropriate management approach will be to minimize the probability of large-scale fire in sage grouse habitat, without resorting to techniques that themselves destroy or degrade sage grouse habitats.

Prescribed fire also has no place in sage grouse habitats. Prescribed fire can result in a loss of sagebrush dominance for 25-45 years, and may also result in increased erosion (Sedgwick 2004). Cooper et al. (2007) projected the full recovery of Wyoming big sagebrush canopy cover would take 625 years based on their observed recovery rates following prescribed fire (a biologically improbable outcome), and no recovery at all was recorded following prescribed fire on 17 of 24 sites. Close proximity to seed sources and moister conditions did not accelerate recovery in this study. These researchers concluded, "Wyoming big sagebrush recovery takes so long that managers considering prescriptive burns need to have a long-term view of the landscape before eliminating a sagebrush habitat that will not return for at least a century" (Cooper et al. 2007:12). Rhodes et al. (2010) found that fires resulted in loss of sagebrush cover and increases in perennial grasses and invasive forbs, while native forbs did not increase in yield or nutritional quality, and ants (a significant part of the diet of sage-grouse chicks) also decreased. Beck et al. (2011) stated, "In particular, prescribed burning leads to pronounced negative response in sagebrush cover that lasts for at least a few decades," and recommended against burning in Wyoming big sagebrush.

BLM has failed to take the legally required 'hard look' at effectiveness of proposed mitigation measures because its impact analysis ignores the primacy of cheatgrass invasion in determining patterns of rangeland fire. According to BLM's own NEPA analysis, "The positive feedback loop between fire and invasive plant species may be the greatest impact on fire management and GRSG (Abatzoglou and Kolden 2011)." Nevada – Northeastern California Greater Sage Grouse RMP Amendment DEIS at 701. BLM further elucidates,

> In Oregon 19th and early 20th century grazing practices, along with introduction and spread of invasive plant species and the practice of fire suppression in the 20th century, have all contributed to fire suppression and to increasingly destructive wildfires.

Oregon Greater Sage Grouse RMP Amendment DEIS at 4-10.

BLM's proposed plan fails to provide adequate controls on prescribed fire. Currently, there is an almost total absence of reliable protections. FEIS at 2-26. According to the best available science, prescribed fire should not be permitted in sage grouse habitats with less than 12" annual precipitation. The Forest Service does provide a standard prohibiting prescribed fire on habitats with less than 12" of annual precipitation (FEIS at 2-48, 2-62); the guidance should be changed from "restrict" to "prohibit" to reflect the best available science. This needs to be adopted by BLM as an Action under the new plan.

Relief requested on this issue: Add an Action/modified Standard specifying that prescribed fire will not be permitted in PHMA in areas with less than 12 inches annual precipitation.

Vegetation Projects that Reduce or Eliminate Sagebrush Must Be Prohibited

Baker (2007) and Bukowski and Baker (2013) have shown that natural fire return intervals (without livestock) are far less frequent than current fire return intervals in sagebrush systems (with livestock grazing everywhere), particularly in lowland systems dominated by Wyoming big sagebrush.

There is no scientific support for vegetation treatments as a means of improving grouse habitats, and to the contrary, numerous studies highlight negative impacts to sage grouse of this practice. Hess and Beck (2012) found that neither burned nor mowed areas produced suitable sage grouse habitats. Wamboldt et al. (2002:24) stated:

> "Natural or prescribed burning of sagebrush is seldom good for sage grouse. This assessment recommends that fires within sage grouse habitat be avoided in most cases, and should be allowed only after careful study of each local situation. The evidence also indicates that habitat loss due to fire may well be the most serious of all the factors contributing to the decline of sage grouse."

Heath et al. (1997:50) went even farther: "Based on our results, we recommend no reduction or control of sagebrush in areas containing between 18-30% live sagebrush canopy coverage within 4.5 km of leks." Connelly et al. (2000) recommended against habitat manipulation in sagebrush stands of 10-30% canopy cover heights of at least 25 cm to protect winter habitats. Beck and Mitchell (1997) recommended against sagebrush control projects when canopy cover is less than 20 percent, and recommend against any sagebrush control within 2 miles of leks. The Conservation Objectives Team report (COT 2013: 44) recommended the following: "Avoid sagebrush removal or manipulation in sage grouse breeding or wintering habitats."

Even in areas with less than 3.5% habitat disturbance through vegetation treatments, these vegetation treatments have been found to have a significant negative effect on sage grouse populations (Holloran and Belinda 2009). According to Beck et al. (2012:444), "The preponderance of literature indicates that habitat management programs that emphasize treating Wyoming big sagebrush are not supported with respect to positive responses by sage-grouse habitats or populations."

Sagebrush is the most critical habitat component for maintaining and recovering sage grouse populations, making up the vast majority of the species' diet year-round and providing necessary hiding cover and key nesting habitat. BLM's NEPA analysis fails to take the legally required 'hard look' at impacts that cause surface disturbance, including industrial activities and excessive livestock grazing, as well as disturbances such as fire and sagebrush manipulation projects, by underestimating the time it will take for sagebrush to recover to the point where it becomes functioning habitat as food and cover for sage grouse.

By contrast, recovery times following disturbance can be quite long. BLM's own NEPA analysis concedes, "In the absence of cheatgrass, Wyoming big sagebrush sites can take 150 years to recover." Nevada – Northeast California Greater Sage Grouse RMP Amendment DEIS at 608.

When cheatgrass is present, it can take over following disturbance, forming a monoculture characterized by unnaturally frequent fire return intervals that can effectively prevent the recovery of sagebrush and perennial grasses on a long-term if not permanent basis. For Oregon, BLM states, "In Wyoming big sagebrush sites, full recovery to pre-burn sagebrush canopy cover conditions will take over 100 years (Cooper 2007);…." Oregon Greater Sage Grouse RMP Amendment DEIS at 3-70. More generally, BLM states, "Sagebrush recovers slowly from fire; most species do not resprout but must be replenished by wind-dispersed seed from adjacent unburned stands or seeds in the soil. Depending on the species and the size of a burn, sagebrush can reestablish itself within five years, but a return to a full pre-burn community cover can take 50 to over 100 years (Baker 2011)." Oregon Greater Sage Grouse RMP Amendment DEIS at 4-10.

Federal agencies should prohibit vegetation treatments in Priority Habitats except where they are consistent with maintaining optimal sage grouse habitat (NTT 2011). For the BLM plan, "In PHMA, avoid sagebrush reduction treatments within GRSG nesting and winter habitat unless the project plan and associated NEPA document demonstrate a biological need for the treatment to maintain or improve habitat for the GRSG population." FEIS at 2-22. This measure employs the discretionary "avoid" rather than the mandatory "exclude," and provides explicit discretionary loopholes that can satisfied by the mere opinion (right or wrong) of a land manager unqualified as a sage grouse biologist. In the context of grazing, BLM would require, "In PHMA, ensure that vegetation treatments conserve, enhance or restore GRSG habitat (this includes treatments that benefit livestock)." FEIS at 2-29. This is a fine goal statement that means little in the absence of measurable definitions regarding what this means. Based on the best available science, no circumstances have been identified under which it is beneficial to reduce sagebrush canopy cover below 15%. Only in Wyoming (FEIS at 2-57) does either agency propose to even "restrict" (whatever that means) vegetation treatments in nesting and wintering habitats that reduce sagebrush canopy cover below 15% (FEIS at 2-57) but even this direction is a discretionary Guideline with no certainty of implementation. Yet the proposed plans do nothing to assure that sagebrush treatments that are allowed will maintain at least 15% sagebrush canopy cover. In these sensitive habitats, vegetation treatments that reduce or eliminate sagebrush should be prohibited entirely, statewide, based on the best available science.

Furthermore, the proposed plan requires BLM to "Use green strips and/or fuel breaks to protect GRSG habitat from fire events." FEIS at 2-25. This will achieve the scientifically proven result of fragmenting and degrading sage grouse habitat while perhaps yielding psychological benefits to local area residents ("the government is doing everything it can to fight range fires") but without a shred of evidence that these "green strips" will stop, reduce in extent, or even slow fires that are ignited in treated areas. The BLM plan does provide, "Avoid constructing fuel breaks through large areas of intact GRSG habitat, unless the associated NEPA document demonstrates a biological need for the fuel break to maintain or protect habitat for the GRSG population. FEIS at 2-25. This direction is doubly discretionary due to the use of "avoid" rather than the mandatory "exclude, and by providing specific exceptions that are dependent on the whim of an agency decisionmaker potentially unqualified in the habitat requirements of sage grouse. The Forest Service also foresees fuels treatments in sage grouse habitats, in a limited form (FEIS at 2-46); the guidance neither federal agency requires the maintenance of at least 15% sagebrush canopy cover, which is recommended in the science.

The Forest Service provides more ecologically sound guidance in this regard, stating "sagebrush removal in GRSG breeding and nesting and wintering habitats should be avoided" but couches that direction in the form of discretionary "guidelines" and adds additional discretion through the use of "should" rather than "shall" and "avoided" rather than "excluded." FEIS at 2-46. Non-discretionary direction is the scientifically correct guidance in terms of effectiveness but lacks certainty of implementation. The subsequent Forest Service guideline regarding sagebrush removal and manipulation in the context of fire management (FEIS at 2-48) allows far too much room for interpretations that would allow projects incompatible with healthy grouse habitat to move forward. This guideline should become a Standard modified to prohibit such manipulation "unless it maintains or improves sage grouse habitat."

Relief requested on this issue: Vegetation treatments in Core Areas should be prohibited except where they are consistent with maintaining optimal sage grouse habitat as described elsewhere in this protest. Vegetation treatments that reduce sagebrush canopy cover below 15% should be prohibited.

The Use of Herbicides and Insecticides should be Prohibited within a Mile of Priority Habitats

Insecticide application could not only sicken or kill grouse directly (Blus et al. 1989), but it could also deprive them of an important food source. Neither the BLM nor Forest Service plan amendments have any measurable or enforceable standards that prevent these types of impacts. These harmful chemicals need to be kept out of key sage grouse habitats during their season of use. This language needs some serious tightening before it can be relied upon to prevent heavy impacts to sage grouse at the hands of BLM-approved herbicide and/or pesticide treatment.

Relief requested on this issue: Application of insecticides or herbicides, or aerial spraying of same within one mile, must be prohibited in sage grouse breeding, nesting, brood-rearing, and wintering habitats during their season of use and occupation by sage grouse, period.

Stronger Protections are Needed for General Habitats

While the National Technical Team did not fully explore conservation planning for sage grouse outside designated Priority habitats, these areas are also important to sage grouse, and will be critical if populations are to expand back to healthy levels. According to the National Technical Team (2011: 5),

> The conservation measures described in this report are not an end point but, rather, a starting point to be used in the BLM's planning processes. Due to time constraints, they are focused primarily on priority sage-grouse habitat areas. General habitat conservation areas were not thoroughly discussed or vetted through the NTT, and the concept of connectivity between priority sage-grouse habitat areas will need more development through the BLM planning process.

According to Taylor et al. (2012: 32), "Genetic connectivity is the glue that holds populations together, and remaining core areas, though impacted, may help maintain connectivity among populations…." The Conservation Objectives Team (2013: 36) stated,

> Sage-grouse habitats outside of PACs may also be essential, by providing connectivity between PACs (genetic and habitat linkages), habitat restoration and population expansion opportunities, and flexibility for managing habitat changes that may result from climate change. There may also be seasonal habitats outside of PACs essential to meeting the year-round needs of sage-grouse within PACs but that have not yet been identified.

Connectivity Areas need to be established to connect Priority Habitats.

In the Utah plan, BLM changed management in GHMAs from inadequate but mandatory lek buffers and timing limitations to reversion to the "no action" alternative with the addition of mitigation requirements that assert "no conservation gain" without any means to deliver this. FEIS at 2-2. This is completely unacceptable. The Forest service prescribes inadequate conservation measures as discussed in detail elsewhere in this protest.

Relief requested for this issue: In General Habitats, disturbance density should be limited to 3% cumulative surface disturbance and one industrial site per square mile, with a No Surface Occupancy buffer not less than 2 miles around active leks and timing limitation stipulations extending not less than 4 miles from the lek. In addition, General Habitats should be avoidance areas for renewable energy projects, as well as overhead transmission lines and other tall structures. Existing impacts that negatively affect sage grouse, such as fences or powerlines, should be removed where possible in General Habitats.

Protections Must be Applied to Wintering Habitats as Well

Priority Habitats were largely designated on the basis of buffers around active lek sites, which encompass the breeding and nesting habitats used by grouse during spring and summer. But protecting wintering habitats is equally important to assuring the continued existence and ultimate recovery of the species, and these wintering habitats are frequently located outside the protective boundaries of designated Priority Habitats. Very little sage grouse wintering habitat has been identified, and that which has been mapped falls outside (FEIS at Map 1-1). Therefore, wintering sage grouse will not receive adequate protections from the BLM-approved activities that threaten their persistence. If sage grouse are unable to survive the winter season due to impacts to their wintering habitats, there will be no sage grouse in Core Areas or outside them in the planning area.

BLM's NEPA analysis provides an explanation of why these habitats are important to protect: "Doherty et al. (2008) demonstrated that Greater Sage-Grouse in the Powder River Basin avoided otherwise suitable wintering habitats once they have been developed for energy production, even after timing and lek buffer stipulations had been applied." Buffalo RMP Revision DEIS at 367. In addition, Carpenter et al. (2010) found that wintering sage grouse avoided otherwise suitable habitats within a 1.2-mile radius of wellsites. Dzialek et al. (2012: 12,

Attachment 107) confirmed these relationships for wintering sage grouse in Wyoming, and concluded:

> First, we can say with increasing confidence that the winter pattern of occurrence among sage-grouse shows consistency throughout disparate portions of its distribution. Second, avoidance of human activity appears to be a general feature of winter occurrence among sage-grouse.

This indicates a broad consistency in sage grouse sensitivity to human development in wintering habitats throughout the species' range.

Attachment 108 provides a literature review of scientific studies on sage grouse winter habitat use, and concludes that distance from development and density of development are key factors. Recently, Holloran et al. (2015, Attachment 109) determined that increasing wellpad density had a negative impact on sage grouse winter habitat use regardless of whether liquid gathering systems were used to reduce human activity levels or not, and also found a negative impact of distance to wellsites (within 2.8 km or 1.75 miles) and distance to roads. In accordance with this review of the best available science, BLM should apply the following restrictions on development in designated winter habitats: (1) close all lands within 1.2 miles of winter habitats to future oil and gas leasing, coal location, non-energy minerals leasing, mineral materials sales, and seek withdrawal of these lands from locatable mineral entry; (2) for valid existing lease rights, apply a limit of 3% surface disturbance and one energy or mining site per square-mile section.

For Utah, both agencies appear to provide little to no direction to prevent the degradation of wintering habitat. For Wyoming, the Forest Service proposes that sagebrush removal in wintering habitat "should be restricted" (FEIS at 2-57), which is twice-discretionary and therefore may amount to little more than a suggestion. In addition timing limitations are proposed by the Forest Servicer (in Wyoming only, FEIS at 2-58, 59), which allows full industrialization of wintering habitats with the courtesy to sage grouse of not performing the construction in wintertime. That courtesy reduces impacts to sage grouse for one construction season but consigns the wintering habitat to destruction for every season that follows. The agencies' proposed stipulations fail utterly to address the threat of habitat destruction, habitat fragmentation, displacement of and stress to sage grouse resulting from vehicle traffic, noise, and human activity along roads and at industrial sites, displacement of grouse and increased predation resulting from overhead powerlines and tall structures, construction of wind farms, and other human intrusions know to disturb, displace, and causer population declines of sage grouse. For these reasons, winter concentration areas should receive at least the level of protection from permitted industrial activities as recommended by NTT (2011) for priority habitats.

Relief sought on this issue: Identified winter habitats, whether inside or outside of Core Areas, should be closed to future mineral leasing and materials sales and withdrawn from locatable minerals entry. For valid existing rights BLM should impose a 3% surface disturbance limit and one pad both calculated per square mile section, No Surface Occupancy within 1.75 miles of the edge of wintering habitats, and no high-volume roads within 1.9 miles of wintering habitats.

Wintering habitats should be seasonally closed to all vehicular access between November 30 and March 15.

The BLM Has Not Adequately Analyzed the Impacts of the Alternatives on Sage Grouse

NEPA requires that agencies take a 'hard look' at the direct impacts of activities approved under projects and plans, the efficacy of mitigation measures, and cumulative impacts considering other reasonably foreseeable impacts that will occur to the resource in question. BLM Resource Management Plans historically have had lifespans exceeding 20 to 30 years, and thus it is critical that the Sage-grouse Plan Amendments strike the proper level of protection for this species. For no alternative does BLM provide any analysis of whether the proposed management is likely to result in an increase, maintenance, or further decrease of sage grouse populations, or describe the relative magnitude of projected increases or decreases, or what effect management alternatives will have on population persistence projections (Garton et al. 2015). This type of analysis has been performed for some or all of Wyoming under various scenarios in the scientific literature (e.g., Holloran 2005, Copeland et al. 2013, Taylor et al. 2012).

Inadequate NEPA Analysis with Regard to the Impacts of Cheatgrass Infestations

BLM has systematically ignored key aspects of the direct impacts of livestock grazing on the spread of cheatgrass infestations, the indirect role of livestock grazing in amplifying the size and intensity of rangeland fires as a result of spreading cheatgrass, and the lack of ability of livestock grazing to address either cheatgrass invasion or wildfire. Wyoming big sagebrush habitat, which dominates the planning area, is particularly sensitive to overgrazing. Because Wyoming big sagebrush occupies drier soils and poorer sites, these communities are especially vulnerable to grazing impacts. As a result, these communities are dominated by exotic annual grasses and are severely degraded (Young and Evans 1989). Livestock grazing leads directly to cheatgrass invasion, as overgrazing eliminates native bunchgrasses and degrades biological soil crusts, both of which represent the ecosystem's natural defenses against this invasive weed (Reisner et al. 2013).

Livestock grazing, particularly by cattle, directly causes the spread of cheatgrass through suppressing native perennial grasses creating disturbed, bare soil ideal for cheatgrass invasion, and by distributing cheatgrass seeds (or "cheats") lodged in their curly pelage. According to BLM's NEPA analysis, "Weeds are present primarily in areas of disturbance, including along roads, in areas of oil and gas development, and in heavily grazed areas." Wyoming Greater Sage Grouse RMP Amendment DEIS at 3-375. BLM further concedes that "large scale removal of livestock could reduce one of the vectors of invasive weed establishment and spread." Nevada – Northeastern California Greater Sage Grouse RMP Amendment DEIS at 656.

Cheatgrass invasions, spread by livestock overgrazing, increase fire frequency to unnatural levels (D'Antonio and Vitousek 1992). By itself, livestock grazing doubles to triples the spread of cheatgrass, and fire alone increases by two to six times the spread of cheatgrass; but for any fire that occurs in an area that is grazed by domestic livestock, the spread of cheatgrass is multiplied, to 10 to 20 times the rate in an ungrazed natural system in the absence of fire (Chambers et al. 2007). Once established, cheatgrass accelerates fire in sagebrush habitats to unnaturally frequent

levels (Balch et al. 2013), wiping out the sagebrush that sage grouse depend on for their survival, and laying the groundwork for a cheatgrass monoculture where wildlife habitat values are completely destroyed. Thus, livestock grazing plays a key role in the spread of cheatgrass, both pre-fire in the sagebrush understory, and post-fire leading to conversion to annual grasslands. Yeo (2005) demonstrated that cessation of livestock grazing leads to recovery of grass cover in sagebrush ecosystems, and restoration of rangeland health

Wyoming big sagebrush sites are particularly vulnerable to the impacts of livestock grazing that lead to increased cheatgrass infestations according to BLM's own NEPA analysis:

> Because Wyoming big sagebrush occupied drier soils and poorer sites, these communities are especially vulnerable to grazing impacts. Many have lost a substantial portion of the native perennial grass understory. A cheatgrass understory is highly susceptible to fire, and greatly shorten the fire interval. As a result, these communities are dominated by exotic annual grasses and are severely degraded (Young and Evans 1989).

Nevada – Northeastern California Greater Sage Grouse RMP Amendment DEIS at 431.

In the proposed plan, BLM erroneously prescribes livestock grazing as a means to reduce or control cheatgrass infestations. This method fails NEPA's scientific integrity and 'hard look' requirements, because livestock grazing cannot be effective at controlling cheatgrass, and indeed exacerbates the problem. According to BLM's own NEPA analysis,

> Intensive livestock grazing is often suggested for controlling cheatgrass competition. Although targeted grazing may have some applications for fuels management, <u>it is not effective in reducing cheatgrass competition</u> (Hempy-Mayer and Pyke 2008). During the short time when cheatgrass is highly palatable in the spring, a sufficient number of livestock cannot be concentrated on a small enough area to reduce the cheatgrass seed significantly or reduce cheatgrass seed lying on the soil surface. In addition, <u>this type of grazing can be detrimental to remaining perennial grasses, opening the site up for further cheatgrass expansion in the future</u>.

Idaho – Southwest Montana Greater Sage-grouse RMP Amendment DEIS at 3-64, emphasis added.

Across each planning area, BLM reports that a significant acreage of active grazing allotments is not meeting the agency's rangeland health standards. This can have serious impacts on sage grouse and their habitats. According to BLM, "Impacts from standards not being met include habitat loss or degradation, reduction of forage or cover, and spread of invasive species, which could cause Greater Sage-Grouse to abandon an area." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-258. On the other hand, maintaining lands in healthy conditions can increase resiliency in the face of natural disturbance: "Managing lands to be in the good or better ecological condition could prevent the introduction of spread of invasive, non-native plant species prior to or following catastrophic fire events." Wyoming Greater Sage-grouse RMP Amendment DEIS at 4-304.

BLM's Geographically Inconsistent Approach to Implementing the Science of Sage Grouse Conservation is Arbitrary and Capricious

BLM must be careful to ensure that its conservation measures across the range of the greater sage grouse, and particularly within individual Management Zones sharing essentially identical ecosystems, consistently reflects the best available science. BLM has not made a showing through its collective NEPA analyses that sage grouse respond differently to the impacts of permitted activities in different ecological regions or Management Zones based on what is known based on the science, with the exception that post-grazing stubble height recommendations are 26 cm in the mixed-grass prairies of the Dakotas and eastern Montana and 18 cm across the remaining range of the sage grouse based on scientific studies. Indeed, the science shows that responses of sage grouse to human-induced habitat alternations are remarkably similar across the species' range. Given that the science does not differ significantly across the species' range regarding the impacts of human activities on sage grouse, does not find different thresholds at which human impacts become significant, and is highlighted by similar (or indeed, identical) conservation measures recommended by expert bodies reviewing the literature or in the peer-reviewed scientific literature itself, different approaches to sage grouse conservation in different geographies are indicative of a failure to address the conservation needs of the species in one planning area or another. This geographic inconsistency reveals an arbitrary and capricious approach by federal agencies to the conservation of this Sensitive Species, and the resulting plan amendment decisions are properly classified as demonstrating an abuse of agency discretion.

BLM itself has recognized the need for consistent, science-based conservation measures across the range of the sage grouse: "A goal of all such RMPAs [RMP Amendments] is to ensure management consistency across the sub-region, as well as across the range of the GRSG by establishing GRSG conservation measures." Oregon Greater Sage Grouse RMP Amendment DEIS at ES-2. Because science-based thresholds of impact and population and habitat response do not differ between Wyoming and other states for most types of impacts, the appropriate, science-based sage grouse protections also do not differ. The proposed plan amendments in the Utah FEIS do not match up with sage grouse conservation measures in other plan amendments that share common Management Zones, nor do these Utah amendments match up with each other between agencies, or even within agencies between states. This is arbitrary and capricious and an abuse of discretion.

Failure to Designate Adequate Core Areas/Priority Habitats

The U.S. Fish and Wildlife Service designated Priority Areas for Conservation (PACs) to identify the lands most critical for the protection and recovery of sage grouse (COT 2013). The Utah RMP amendment does not provide all of these areas with appropriate protection. All PACs should have been designated as PHMA, but this did not occur. The existence of PAC lands outside of PHMAs is acknowledge by the specific (and biologically inadequate) direction the agency provides for lands "[o]utside of PHMA, but within…PACs." See, e.g., FEIS at 2-21.

In its initial designation of PHMAs in Utah, the BLM makes several serious errors that undermine its overall sage grouse conservation strategy. First of all, it fails to designate all lands

within 5.3 miles of leks within PHMA as PHMA habitats. While it may be true that woodlands on steep slopes are not sage grouse habitat, it is demonstrably not true that industrial development (such as wind farms or oil and gas facilities) on these slopes, when located adjacent to occupied sage grouse habitats, has no effect on sage grouse in these adjacent occupied habitats. Impacts from industrial development extend for 1.9 miles or more from the industrial site into surrounding habitats (Holloran 2005, and see literature review of farther distances elsewhere in this protest). Indeed, the best available science indicates that development in non-habitat should be expected to have exactly the same impact on occupied habitats located the same distances from the development. Some studies explicitly have tested the hypotheses that intervening topography can shield occupied habitats from disruptive influences from energy infrastructure (in this case, roads), and found that there was no difference in impact between roads that were visible or not visible from the lek; both types of roads had a significant negative impact on lek populations and that negative impact is indistinguishable based on whether the impact is shielded by intervening topography or not (Holloran 2005). This for of designation error is particularly egregious for PHMA in the Uintah, Carbon, Emory, Panguich, Bald Hills, and Hamlin Valley population areas. *See* FEIS at Maps 1-2, 2-1.

The second serious mistake is that the Utah proposed plan amendment excludes many of the state's important sage grouse breeding and nesting habitats from PHMA designations. The cruel irony is that the areas that have been excluded are those that have the most serious threats from energy development; the end result is that the BLM is protecting only those areas that face no imminent threats. In areas such as the Bald Hills population area (FEIS at Map 1-2), significant amounts of lands designated as PACs in the COT (2013) report were designated not as PHMAs, which the best available science demands, but as GHMAs. FEIS at Map 2-1. In the Panguitch population area (Map 1-2), lands designated as PACs in the COT (2013) report were not designated at all (FEIS at Map 2-1), leaving remaining designated PHMAs badly fragmented. In the Parker Mountain and Emery population areas (FEIS at Map 1-2), where the COT report recommend the designation of PACs that provided connectivity along the length of these population areas, the BLM designates instead a few isolated islands of sage grouse habitat (FEIS at Map 2-1), which will result in the further fragmentation and degradation of sage grouse habitats in these population areas and ultimately result in the extirpation of their grouse populations. In the western Rich population area and the west-central portion of the Carbon population area (FEIS at Map 1-2), the BLM designates as PHMA significantly less habitat than was designated as PAC by COT (2013), designating some PAC lands as GHMA and some as no sage grouse designation at all. FEIS at Map 2-1, *and as shown on map*, Attachment 110.

We find particularly troubling that the Anthro Mountain sage grouse population, which is widely recognized as important, has not only not been designated as PHMA. FEIS at 2-16. This area should be designated as PHMA as well in the plan amendments.

Relief sought on this issue: Ensure that PHMA encompasses all PACs mapped by COT (2013), redesignated Anthro Mountain as a PHMA area.

Failure to Designate Sage Grouse ACECs violates FLPMA

FLPMA requires that the BLM give priority to designating Areas of Critical Environmental Concern ("ACECs") in the land use planning process. 43 U.S.C. §§ 1701(a)(11), 1712(c). The priority afforded ACECs reflects Congress' intent to elevate the designation and protection of ACECs over BLM's default management for "multiple use." *Rags Over the Arkansas River, Inc. v. Bureau of Land Mgmt.*, No. 12-CV-0265-WJM, 2015 WL 59471, at *10 (D. Colo. Jan. 2, 2015) (citing 43 U.S.C. § 1732(a)). Indeed, the legal definition of priority is "[t]he status of being earlier in time or higher in degree or rank; precedence." Black's Law Dictionary, 1001 (8th ed.).

Consistent with Congress's intent and with this legal definition, courts have generally held that where something holds a "priority," it comes first. *See e.g. Bramwell v. U.S. Fidelity & Guaranty Co.*, 269 U.S. 483, 490 (1926); *Western Watersheds Project v. Bennett*, 392 F.Supp.2d 1217, 1227-28 (D. Idaho 2005). Courts have also held that no priority has been afforded where a particular use has been given equal status to other uses. *See e.g. Oregon Natural Resources Council v. Brong*, 492 F.3d 1120, 1125-26 (9th Cir. 2007); *Cloud Foundation v. U.S. Bureau of Land Management*, 802 F.Supp.2d 1192, 1203-04 (D. Nev. 2011). In order to properly give "priority" to ACECs, the District of Utah has held that an agency must explain why it has not designated any ACECs it deems to meet the criteria for designation,[64] explain how the relevant and important values that make them potential ACECs will be protected without such designation, and apply the correct criteria in making the determination not to designate them. *Southern Utah Wilderness Alliance v. Burke*, 981 F.Supp.2d 1099 (D. Utah 2013).

The BLM has not complied with FLPMA's mandate that it give priority to designating ACECs here. Although BLM considered designating certain areas as ACECs, found some of them eligible, and acknowledged that ACEC designation would best protect their relevant and important values, BLM determined not to designate them. Instead, BLM created a completely new, less-restrictive designation called Sagebrush Focal Areas. BLM failed to provide an adequate explanation of its decision not to designate these areas as ACECs, including an explanation of how their relevant and important values will be protected absent such designation. Where BLM has acknowledged areas meet the criteria for ACEC designation and would be best protected as ACECs—yet has instead developed a new, less-restrictive designation for them—BLM has failed to put designation of ACECs first, in violation of FLPMA.

BLM has further failed to give priority to designating ACECs because it has failed to give all Priority Habitats ACEC status. Properly applying the ACEC criteria, the BLM should have found that all Priority Habitat qualified as potential ACECs because it harbors a significant wildlife resource which is so important to the species' survival as to merit heightened restrictions

[64] BLM's regulations implementing FLPMA states that areas that have both relevance and importance are potential ACECs. 43 C.F.R. § 1610.7-2(a). Relevance means "[t]here shall be present a significant historic, cultural, or scenic value; a fish or wildlife resource or other natural system or process; or natural hazard." *Id*. Importance means that the value establishing relevance "generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern. A natural hazard can be important if it is a significant threat to human life or property." *Id*.

on its use and development. By failing to designate all Priority Habitat as ACECs, BLM both failed to give priority to designation of ACECs and failed to properly apply the ACEC criteria.

Sage grouse priority habitats or Core Areas meet the ACEC relevance and importance criteria because sensitive sage grouse habitats are a wildlife resource (satisfying relevance), and a BLM Sensitive Species on the brink of an ESA listing could not more compellingly satisfy the 'importance' prong. BLM itself states, "Core areas could be considered for protection through designations of Areas of Critical Environmental Concern (ACEC) and the LUP Amendments should consider ACECs to protect Greater Sage-Grouse." Wyoming Greater Sage-grouse RMP Amendments FEIS at 1-19. Designation of sage grouse ACECs was not implemented in the proposed plan. FEIS at 2-40. This violates FLPMA's direction to prioritize the designation of ACECs during the land-use planning process. This is an important shortcoming because ACEC designation brings lands so designated into the National Landscape Conservation System, making them eligible for federal funding programs that could be used for sage grouse conservation. BLM's failure to give priority to designating ACECs in the land-use planning process is arbitrary and capricious and violates FLPMA.

Relief requested on this issue: Designate all Core Areas/Priority Habitats as ACECs under the plan amendment.

Conclusions

Utah has many small, isolated and fragmented sage grouse populations, a fact that puts sage grouse at further risk of local extirpation across much of this state. Overall, the proposed plan amendments fail in many respects to apply adequate sage grouse conservation measures based on the best available science, and deviate from the agency's own expert recommendations in ways that are logically and scientifically indefensible. The resulting plan amendments squander the opportunity to emplace protections that reliably and definitively neutralize the multiple threats to this species and its habitats as identified by the U.S. Fish and Wildlife Service in its 2010 'warranted, but precluded' finding for the greater sage grouse. Now is the time for federal agencies to step into the morass of widely inconsistent and inadequate plans in various states and apply consistent, science-based standards that meet the threshold of 'adequate regulatory mechanisms.' Do not fail the greater sage grouse, the sagebrush ecosystems upon which it depends, or the American people who expect and support strong sage grouse protections.

Respectfully yours,

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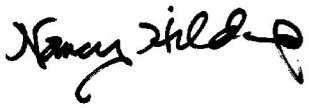

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List of Attachments:

87. Draft EIS comments of WildEarth Guardians et al
88. Sage-Grouse Recovery Alternative
89. Garton et al. 2015
90. Scientists' recommendations to Secs. Jewell and Vilsack to redress RMP flaws
91. Summary of exceptions granted, Pinedale Field Office, Wyoming
92. Summary of exceptions granted, Rawlins Field Office, Wyoming
93. Lost Creek project area map showing leks and roads
94. WGFD letter approving Lost Creek exceptions to sage grouse Executive Order
95. Lek count data, Lost Creek are and Douglas Core Area
96. Chesapeake Energy Douglas Core Area plan of development
97. USFWS letter endorsing Chesapeake Douglas Core drilling plan
98. Excerpt from Wyoming BLM response to lease protest
99. AP news article on Wyoming lease deferrals
100. Manier et al. 2014
101. Lost Creek DDCT analysis
102. Ambrose 2015 Greens Hollow Noise Report
103. Ambrose et al. noise impacts literature review

104. Doherty 2007
105. LeBeau et al. 2014
106. Doherty et al. 2014
107. Dzialek et al. 2012
108. Holloran et al. sage grouse winter habitat literature review
109. Holloran et al. 2015
110. Map comparing COT PACs with FEIS PHMAs

Literature Cited

Ambrose, S. 2015. Review of Greens Hollow Sound Study by Tetra Tech (2008), and Summary of Sound Level Measurements at Wildcat Knolls Lek, March 29-31, 2015. Unpublished report, 11 pp.

Ambrose, S., and C. Florian. 2014. Sound levels at greater sage-grouse leks, Pinedale Anticline Project Area, Wyoming, April 2013. Unpublished report prepared for the Wyoming Game and Fish Department, 133 pp. Available online at http://www.wy.blm.gov/jio-papo/papo/wildlife/reports/sage-grouse/2013GSGacoustic-rpt.pdf.

Ambrose, S., C. Florian, and J. MacDonald. 2014. Sound levels at greater sage-grouse leks in the Pinedale Anticline Project Area, WY, April 2013-2014. Unpublished report prepared for the Wyoming Game and Fish Department, 79 pp.

Apa, T., J. Bohne, T. Christiansen, J. Herbert, B. James, R. Northrup, D. Olsen, A. Robinson, P. Schnurr, T.O. Smith, and B. Walker. 2008. Using the Best Available Science to Coordinate Conservation Actions that Benefit Greater Sage-grouse Across States Affected by Oil & Gas Development in Management Zones I-II (Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming). Unpublished multi-state report of game and fish agencies, 10 pp. Online at http://www.ourpubliclands.org/files/upload/ti-State_ScienceGroupDocument_FINAL_01-28-08.pdf.

Autenrieth, R.E. 1981. Sage-grouse management in Idaho. Id. Dept. Fish and Game Wildl. Bull. 9.

Baker, W.L. 2007. Fire and restoration of sagebrush ecosystems. Wildl. Soc. Bull. 34: 177-185.

Balch, J.K., B.A. Bradley, C.M. D'Antonio, and J. Gómez-Dans. 2013. Introduced annual grass increases regional fire activity across the arid western USA (1980–2009). Global Change Biology 19: 173–183.

Beck, J.L., and D. Mitchell. 1997. Brief guidelines for maintaining and enhancing sage grouse habitat on private lands in Utah. Utah Division of Wildlife Resources, April 16, 1997. http://wildlife.utah.gov/uplandgame/sage-grouse/utguidef.htm, site last visited 5/6/08.

Beck, J.L. K. P. Reese, J. W. Connelly, and M. B. Lucia. 2006. Movements and survival of juvenile greater sage-grouse in southeastern Idaho. Wildlife Society Bulletin 34:1070-1078.

Beck, J.L., J.G. Klein, J. Wright, and K.P. Wolfley. 2011. Potential and pitfalls of prescribed burning big sagebrush habitat to enhance nesting and early brood-rearing habitats for greater sage-grouse. Nat. Res. Envtl. Issues 16:39.

Beck, J.L., J.W. Connelly, and C.L. Wamboldt. 2012. Consequences of treating Wyoming big sagebrush to enhance wildlife habitats. Rangeland Ecol. Manage. 65:444-455.

Blickley, J. L. and Patricelli, G. L. 2010. Impacts of Anthropogenic Noise on Wildlife: Research Priorities for the Development of Standards and Mitigation. Journal of International Wildlife Law & Policy, 13: 4, 274 — 292. http://dx.doi.org/10.1080/13880292.2010.524564.

Blickley, J.L., and G.L. Patricelli. 2012. Potential acoustic masking of greater sage-grouse (*Centrocercus urophasianus*) display components by chronic industrial noise. Ornith. Monogr. 74: 23-35.

Blickley, J.L., D. Blackwood, and G.L. Patricelli. 2012a. Experimental Evidence for the Effects of Chronic Anthropogenic Noise on Abundance of Greater Sage-Grouse at Leks. Conserv. Biol. 26:461-471.

Blickley J.L., Word K.R., Krakauer A.H., Phillips J.L., Sells S.N., et al. 2012b. Experimental Chronic Noise Is Related to Elevated Fecal Corticosteroid Metabolites in Lekking Male Greater Sage-Grouse (*Centrocercus urophasianus*). PLoS ONE 7(11): e50462. doi:10.1371/journal.pone.0050462.

Blus, L.J., C.S. Staley, C.J. Henny, G.J. Pendleton, T.H. Craig, E.H. Craig, and D.K. Halford. 1989. Effects of organophosphorus insecticides on sage grouse in southeastern Idaho. J. Wildl. Manage. 53:1139-1146.

Braun, C.E. 1986. Changes in sage grouse lek counts with advent of surface coal mining. Proc. Issues and Technology in the Management of Impacted Western Wildlife, Thorne Ecol. Inst. 2:227-231.

Braun, C.E., O.O. Oedekoven, and C.L. Aldridge. 2002. Oil and gas development in western North America: effects on sagebrush steppe avifauna with particular emphasis on sage grouse. In Transactions North American Wildlife and Natural Resources Conference 67:337-349.

Bukowsi, B.E. and W.L. Baker. 2013. Historical fire in sagebrush landscapes of trhe Gunnison sage-grouse range from land-survey records. J. Arid Env. 98:1-9.

Call, M.W., and C. Maser. 1985. Wildlife habitat in managed rangelands--The Great Basin of southeastern Oregon: Sage grouse. USDA Gen. Tech. Rept. PNW-187, 29 pp.

Carpenter, J., C. Aldridge, and M.S. Boyce. 2010. Sage-grouse habitat selection during winter in Alberta. Journal of Wildlife Management 74:1806-1814.

Christiansen, T. 2009. Fence Marking to Reduce Greater Sage-grouse (*Centrocercus urophasianus*) Collisions and Mortality near Farson, Wyoming – Summary of Interim Results. Wyoming game and Fish Department Report, 2 pp. Online at

http://wgfd.wyo.gov/web2011/Departments/Wildlife/pdfs/SG_FENCEMARKING0000671.pdf.

Coates, P.S., M.L. Casazza, E.J. Blomberg, S.C. Gardner, S.P. Espinosa, J.L. Yee, L. Wiechman, and B.J. Halstead. 2013. Evaluating greater sage-grouse seasonal space use relative to leks: Implications for surface use designations in sagebrush ecosystems. J. Wildl. Manage. 77: 1598-1609. Doi: 10.1002/jwmg.618.

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

Cooper, S.V., P. Lesica, and G. M. Kudray. 2007. Post-fire recovery of Wyoming big sagebrush shrub-steppe in central and southeast Montana. Report to the United States Department of the Interior, Bureau of Land Management, State Office. Montana Natural Heritage Program, Helena, Montana. 16 pp. plus appendices. Online at http://mtnhp.org/reports/Sage_Succ_Veg.pdf.

(COT) Conservation Objectives Team, Abele, S., Budd, R., Budeau, D., Connelly, J., Deibert, P.A., Delevan, J., Espinosa, S., Gardner, S.C., Griffin, K., Harja, J., Northrup, R., Robinson, A., Schroeder, M., and Souza, P, 2013, Sage-grouse conservation objectives report: Denver, Colo., U.S. Fish and Wildlife Service, 62 p., appendix, available at *http://www.fws.gov/mountain-prairie/species/birds/sagegrouse/.*

D'Antonio, C.M., and P.M. Vitousek. 1992. Biological invasions by exotic grasses, the grass/fire cycle, and global change. Annual Review of Ecology and Systematics 23: 63–87.

Dinkins, J. B., 2013. Common raven density and greater sage-grouse nesting success in southern Wyoming: Potential conservation and management implications. PhD Dissertation, Utah State Univ. http://digitalcommons.usu.edu/etd/1700.

Doherty, M.K. 2007. Mosquito populations in the Powder River Basin, Wyoming: A comparison of natural, agricultural and effluent coalbed natural gas aquatic habitats. M.S. Thesis, Montana State Univ., 95 pp.

Doherty, K.E., D.E. Naugle, H. Copeland, A. Pocewicz, and J. M. Kiesecker. 2011. Energy development and conservation tradeoffs: Systematic planning for sage-grouse in their eastern range. Pages 505-516 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 No. 38. Cooper Ornithological Society. University of California Press. Berkeley and Los Angeles, CA.

Doherty, K.E., D.E. Naugle, J.D. Tack, B.L. Walker, J.M. Graham, and J.L Beck. 2014. Linking conservation actions to demography: Grass height explains variation in greater sage-grouse nest survival. Wildlife Biology 20:320-325.

Dzialak, M. R., C. V. Olson, S. M. Harju, S. L. Webb, and J. B. Winstead. 2012. Temporal and hierarchical spatial components of animal occurrence: conserving seasonal habitat for greater sage-grouse. Ecosphere 3:30.

Emmons, S. R. and C. E. Braun. 1984. Lek attendance of male sage-grouse. J. Wildl. Manage. 48:1023-1028.

Foster, M.A., J.T. Ensign, W.N. Davis, and D.C. Tribby. 2014. Greater sage-grouse in the southeast Montana core area. Unpublished report, Montana Fish, Wildlife, and Parks, 108 pp.

Garton, E.O., A.G. Wells, J.A. Baumgardt, and J.W. Connelly. 2015. Greater sage-grouse population dynamics and probability of persistence. Final Report to Pew Charitable Trusts, 90 pp.

Gibson, D., E. Blomberg, and J. Sedinger. 2013. Dynamics of greater sage-grouse (*Centrocercus urophasianus*) populations in response to transmission lines in central Nevada. Final Progress Report, Dept. of Natural Resources and Environmental Sciences, Univ. Nevada-Reno, 68 pp.

Gregg, M.A., J.A. Crawford, M.S. Drut, and A.K. DeLong. 1994. Vegetational cover and predation of sage grouse nests in Oregon. J. Wildl. Manage. 58:162-166.

Hagen, C.A., J.W. Connelly, and M.A. Schroeder. 2007. A meta-analysis of greater sage-grouse *Centrocercus urophasianus* nesting and brood-rearing habitats. Wildlife Biology 13:42–50.

Harju, S.M., M.R. Dzialak, R.C. Taylor, L.D. Hayden-Wing, and J.B. Winstead. 2010. Thresholds and time lags in the effects of energy development on greater sage-grouse populations. Journal of Wildlife Management 74: 437–448.

Heath, B.J., R. Straw, S.H. Anderson, and J. Lawson. 1997. Sage grouse productivity, survival, and seasonal habitat use near Farson, Wyoming. Unpublished completion report to the Wyoming Game and Fish Department.

Herman-Brunson, K.M., K.C. Jensen, N.W. Kaczor, C.C. Swanson, M.A. Rumble, and R.W. Klaver. 2009. Nesting ecology of greater sage-grouse *Centrocercus urophasianus* at the eastern edge of their historic distribution. Wildl. Biol. 15: 395-404.

Hess, J.E., and J.L. Beck. 2012. Burning and Mowing Wyoming Big Sagebrush: Do Treated Sites Meet Minimum Guidelines for Greater Sage-Grouse Breeding Habitats? Wildlife Society Bulletin 36: 85-93.

Holloran, M. J. 2005. Greater sage-grouse (*Centrocercus urophasianus*) population response to natural gas field development in western Wyoming. PhD Dissertation. University of Wyoming. Laramie, Wyoming.

Holloran, M. J. and S. H. Anderson. 2005. Spatial distribution of Greater Sage-grouse nests in relatively contiguous sagebrush habitats. Condor 107(4): 742-752.

Holloran, M., and K. Belinda. 2009. Bighorn Basin greater sage-grouse habitat effectiveness modeling. Unpublished completion report for Biodiversity Conservation Alliance, Laramie, WY, 24 pp.

Holloran, M.J., R. C. Kaiser, and W. A. Hubert. 2007. Population response of yearling greater sage-grouse to the infrastructure of natural gas fields in southwestern Wyoming. Completion report. Wyoming Cooperative Fish and Wildlife Research Unit, Laramie, WY, USA.

Holloran, M.J., B.C. Fedy, and J. Dahlke. 2015. Winter habitat use of greater sage-grouse relative to activity levels at natural gas well pads. J. Wildl. Manage. 79:630-640.

Kaczor, N. 2008. Nesting and brood-rearing success and resource selection of greater sage-grouse in northwestern South Dakota. M.S. Thesis, South Dakota State Univ., 85 pp.

Kaczor, N. W., K. C. Jensen, R. W. Klaver, M. A. Rumble, K. M. Herman-Brunson, and C. C. Swanson. 2011. Nesting success and resource selection of greater sage-grouse. Pp. 107–118 *in* B. K. Sandercock, K. Martin, and G. Segelbacher (editors). Ecology, conservation, and management of grouse. Studies in Avian Biology (no. 39), University of California Press, Berkeley, CA.

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, USA. Ecology and Evolution 3: 1539-1551.

Lambert, S.M. 2005. Seeding considerations in restoring big sagebrush habitat. Pp. 75-80 *in* Sage-grouse habitat restoration symposium proceedings, June 4-7 2001, Boise, ID. USDA Gen. Tech. Rept. RMRS-P-38.

Lammers, W.M., and M.W. Collopy. 2007. Effectiveness of avian predator perch deterrents on electric transmission lines. J. Wildl. Manage. 71: 2752-2758.

LeBeau, C.W. 2012. Evaluation of greater sage-grouse reproductive habitat and response to wind energy development in south-central Wyoming. M.S. Thesis, Univ. of Wyoming, 120 pp.

LeBeau, C. W., J. L. Beck, G. D. Johnson, R. M. Nielson, and M. J. Holloran. 2012. Evaluation of Greater Sage-grouse Reproductive Habitat and Response to Wind Energy Development in South-central, Wyoming. Department of Ecosystem Science and Management, University of Wyoming, Laramie.

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/.

Manier, D.J., Bowen, Z.H., Brooks, M.L., Casazza, M.L., Coates, P.S., Deibert, P.A., Hanser, S.E., and Johnson, D.H. 2014. Conservation buffer distance estimates for Greater Sage-Grouse—A review: U.S. Geological Survey Open-File Report 2014–1239, 14 p., *http://dx.doi.org/10.3133/ofr20141239*.

Neilson, R.P., J.M. Lenihan, D. Bachelet, and R.J. Drapek. 2005. Climate change implications for sagebrush ecosystems. Trams. N. Am. Wildl. Nat. Res. Conf. 70: 145-159.

Nelle, P. J., K. P. Reese, and J. W. Connelly. 2000. Long-term effects of fire on sage grouse habitat. Journal of Range Management 53:586–591.

Nonne, D., E. Blomberg, and J. Sedinger. 2011. Dynamics of greater sage-grouse (*Centrocercus urophasianus*) populations in response to transmission lines in central Nevada. Progress Report: Year 9. Unpublished report, 55 pp.

(NTT) Sage-grouse National Technical Team. 2011. A Report on National Greater Sage-grouse Conservation Measures. Available at www.blm.gov/pgdata/etc/medialib/blm/co/programs/wildlife.Par.73607.File.dat/GrSG%20Tech%20Team%20Report.pdf.

Patricelli, G.L., J.L. Blickley, and S.L. Hooper. 2012. The impacts of noise on greater sage-grouse: A discussion of current management strategies in Wyoming with recommendations for further research and interim protections. Unpubl. Report prepared for: The Bureau of Land Management, Lander Field Office and Wyoming State Office, Cheyenne and Wyoming Game and Fish Department, 25 pp.

Pedersen, E. K., J. W. Connelly, J. R. Hendrickson, and W. E. Grant. 2003. Effect of sheep grazing and fire on sage grouse populations in southeastern Idaho. Ecological Modelling 165:23–47.

Prather, P.R. 2010. Factors affecting Gunnison sage-grouse (*Centrocercus minimus*) conservation in San Juan County, Utah. PhD Dissertation, Utah State Univ., 134 pp.

Reisner, M.D., J.B. Grace, D.A. Pyke, and P.S. Doescher. 2013. Conditions favouring *Bromus tectorum* dominance of endangered sagebrush steppe ecosystems. J. Appl. Ecol. 50:1039-1049.

Remington, T.E., and C.E. Braun. 1991. How surface coal mining affects sage grouse, North Park, Colorado. Proc. Issues and Technologies in the Management of Impacted Western Wildlife, Thorne Ecol. Inst. 5:128-132.

Rhodes, E.C., J.D. Bates, R.N. Sharp, and K.W. Davies. 2010. Fire effects on cover and dietary resources of sage-grouse habitat. J. Wildl. Manage. 74: 755-764.

Rothenmaier, D. 1979. Sage-grouse reproductive ecology: breeding season movements, strutting ground attendance and site characteristics, and nesting. M.S. Thesis, Univ. Wyoming, Laramie.

Sedgwick, J.A. 2004. Habitat Restoration for Gunnison and Greater Sage-Grouse—A Literature Review. Report Prepared for the U.S. Department of Interior. Bureau of Land Management, Gunnison Field Office.

Stevens, B.S., D.E. Naugle, B. Dennis, J.W. Connelly, T. Griffiths, and K.P. Reese. 2013. Mapping sage-grouse fence collision risk: Spatially explicit models for targeting conservation implementation. Wildl. Soc. Bull. 37: 409-415.

Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl, eds. 2015. Sage-Grouse Habitat Assessment Framework: A Multiscale Assessment Tool. Technical Reference 6710-1. Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver, Colorado.

Taylor, R. L., D. E. Naugle, L. S. Mills. 2010. Viability analysis for conservation of sage-grouse populations: Miles City Field Office, Montana. BLM Contract 09-3225-0012; Number G09AC00013. Final Report. Prepared for Bureau of Land Management, Miles City Field Office. Miles City, MT.

Taylor, R. L., D. E. Naugle, L. S. Mills. 2012. Viability analysis for conservation of sage-grouse populations: Buffalo Field Office, Wyoming. BLM Contract 09-3225-0012; Number G09AC00013. Final Report. Prepared for Bureau of Land Management, Buffalo Field Office. Buffalo, WY.

Walker, B. L. 2008. Greater Sage-grouse Response to Coal-bed Natural Gas Development and West Nile virus in the Powder River Basin, Montana and Wyoming, USA. Ph.D. Dissertation, Univ. Montana. Missoula, MT.

Walker, B.L., D.E. Naugle, and K.E. Doherty. 2007. Greater sage-grouse population response to energy development and habitat loss. Journal of Wildlife Management 71(8):2644-2654.

Walker, B.L., D.E. Naugle, K.E. Dougherty, and T.E. Cornish. 2007b. West Nile virus and greater sage-grouse: Estimating infection rate in a wild bird population. Avian Diseases 51:691-696.

Wambolt, C. L., A. J. Harp, B. L. Welch, N. Shaw, J. W. Connelly, K. P. Reese, C. E. Braun, D. A. Klebenow, E. D. McArthur, J. G. Thompson, L. A. Torell, and J. A. Tanaka. 2002. Conservation of greater sage-grouse on public lands in the western U.S.: implications of recovery and management policies. Policy Analysis Center for Western Public Lands, Caldwell, Idaho, USA.

Yeo, J.J. 2005. Effects of grazing exclusions on rangeland vegetation and soils, east central Idaho. Western North American Naturalist 65: 91–102.
Young , J. A. , and R. A. Evans. 1989 . Dispersal and germination of big sagebrush (*Artemisia tridentata*) seeds. Weed Science 37:201–206 .