December 2, 2013

NEPA Coordinator
BLM Northwest Colorado District
2815 H Road
Grand Junction, Colorado 81506

Via email blm_co_nw_sage_grouse@blm.gov

Dear NEPA Coordinator:

The following are the comments of WildEarth Guardians, Prairie Hills Audubon Society, and George Wuerthner on the Northwest Colorado Greater Sage-Grouse Draft Land Use Plan Amendment and EIS. We support a modified version of Alternative C modified to incorporate the specified points below.

We encourage the federal agencies to set aside a system of reserves, comprised of all Priority Habitats, where only activities scientifically shown to be compatible with maintaining and restoring sage grouse populations to secure population levels are permitted.

Regarding Purpose and Need for the proposed plan amendment, BLM states,

> The need is to ensure that the BLM and USFS have adequate regulatory mechanisms in its LUPs for consideration by USFWS a year in advance of its anticipated 2015 listing. USFWS identified the principal regulatory mechanisms for the BLM and the USFS as conservation measures embedded in LUPs. Changes in management of GRSG habitats are necessary to avoid the continued decline of populations that are anticipated across the species' range. These LUP amendments will focus on areas affected by threats to GRSG habitat identified by USFWS in the March 2010 listing decision.
>
> The purpose of these plan amendments is to identify and incorporate appropriate sage grouse conservation measures into the plans. DEIS at 6.

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The BLM must adopt a rigorous and scientifically sound approach to sage grouse conservation in order to meet this Purpose and Need; thus far, the Preferred Alternative does not meet these thresholds.

LEGAL STANDARDS

The following is a brief synopsis of the legal standards that apply to BLM as it works its way through the planning process. Our comments address these legal standards as they apply to the Northwest Colorado Resource Management Plan amendment.

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 "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 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. roadless areas and/or potential wilderness), 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 approve a high-impact project in

sensitive and undeveloped lands when lower-impact alternatives and mitigation measures were readily available has resulted in a project that wreaks 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 for active leks within Core Areas). The agency must also consider all measures contained within the Sage-Grouse Recovery Alternative submitted earlier in this NEPA process; it is important to note that this alternative has been considered in detail for sage grouse plan amendments elsewhere within BLM purview. The agency must consider designating as Priority Habitat all lands identified as Priority Areas for Conservation in the Conservation Objectives Team (2013) report.And the BLM must consider measures that require the elimination of surface disposal of coalbed methane wastewater.

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.

In the Northwest Colorado DEIS, BLM must take the legally required 'hard look' at the efficacy of sage grouse conservation measures, particularly those applied within Priority Habitats. We are concerned that the agency's examination of impacts to sage grouse is rudimentary in Priority Habitats and in many cases absent outside them in the DEIS. BLM also must take the legally required 'hard look' at direct or cumulative impacts to sage grouse wintering habitat under the various alternatives; since the impact of development approved under the RMP Amendment on breeding and nesting sage grouse matters little if sage grouse populations do not survive the winter.

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." In the Bighorn Basin RMP DEIS, BLM failed to apply baseline information from the Wyoming Basins Ecoregional assessment and other scientific studies and reports to inform its analysis of impacts by

alternative. BLM also failed to map and present sage grouse wintering habitat as part of the baseline information requirement. Text on Affected Environment with regard to sage grouse habitat also failed to discuss the winter habitat needs of the birds (SDEIS at 3-3), 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 by generating these data of its own accord where they are unavailable through Colorado Wildlife and Parks ("CWP") 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.

National Forest Management Act

The Northwest Colorado RMP amendment EIS includes within its authority the amendment of the Routt National Forest Land and Resource Management Plan (*see* DEIS at 15, 20), triggering the requirements of the National Forest Management Act. This Forest "has a more significant amount of GRSG habitat compared to the other Forests, as well as a historic GRSG lek." DEIS at 15. At the very least, this NEPA document must fulfill the requirements of the National Forest Management Act as regards the amendment of this Forest Plan. A total of 12,470 acres of designated sage grouse habitat is found on the Routt National Forest. DEIS at Table 1.5.

<u>The Role of Science in Planning under NFMA</u>

The NFMA planning regulations provide, "The responsible official shall use the best available scientific information to inform the planning process required by this subpart." 36 C.F.R § 219.3. Within these comments we have provided a number of referenced to peer-reviewed scientific studies, which we would ask the responsible official to consider for the purpose of informing the planning process. Furthermore, NFMA requires a number of specific steps to be taken in the use of the best available science, as follows:

> In doing so, the responsible official shall determine what information is the most accurate, reliable, and relevant to the issues being considered. The responsible official shall document how the best available scientific information was used to inform the assessment, the plan decision, and the monitoring program as required in §§ 219.6(a)(3) and 219.14(a)(4). Such documentation must: Identify what information was determined to be the best available scientific information, explain the basis for that determination, and explain how the information was applied to the issues considered.

36 C.F.R. § 219.3. With this in mind, the Forest Service is bound to render these determinations regarding incorporating the best available science on a point-by-point basis

Anthropogenic Disturbance Standards

The Preferred Alternative would apply a 5% limit on anthropogenic disturbance on the Routt National Forest for the applicable Colorado Management Zone. DEIS at C-1. An Authorized Officer may approve additional disturbance above and beyond this cap without additional

mitigation when data indicate that sage grouse populations are healthy and stable at objective levels, or are increasing within the Management Zone. The DEIS also applies a 30% disturbance cap under the Sagebrush Canopy Cover Standard including all loss of sagebrush from anthropogenic disturbance, wildfire, plowed agriculture, and vegetation treatments. *Id*.

Relevant to the issue of the 5% disturbance cap, we ask the responsible official to make a formal determination concerning which of the available scientific information is the most accurate, reliable, and relevant in determining what percentage of land area should be allowed to be disturbed in order to achieve the stated goal of the RMP Amendment. We would ask the Forest Service to consider the findings of Knick et al. (2013), which concluded in relevant part that 99% of the active leks in the study area (encompassing the entire western range of the greater sage grouse) were surround by habitat with 3% surface disturbance or less. *See* Attachment 1. We would ask the responsible official to consider the findings of Kirol (2012), which found for his study area immediately north of the planning area that surface disturbance greater than or equal to 4% of the land area had a significant negative impact on greater sage grouse brood rearing habitat. *See* Attachment 2. We would ask the responsible official to consider the findings of Copeland et al. (2013), which found that if all of the State of Wyoming sage grouse policy provisions (which include a 5% disturbance cap calculated using a Disturbance Density Calculation Tool) were implemented fully and to the letter, that a 9 to 15% decline in greater sage grouse populations would still occur statewide, including a 6 to 9% decline within designated Core Areas (where the 5% disturbance cap would be applied). We would ask the responsible official also to render the same determination regarding the accuracy, reliability, and relevance of science supporting the 3% disturbance cap proposed for implementation under Alternatives B and C. DEIS at 163, 166.

It is also notable that the 5% disturbance cap applies only to ecological sites capable of supporting 12% canopy cover of Wyoming big sagebrush or 15% canopy cover of mountain big sagebrush. DEIS at F-1. Please review the best available science and render a determination regarding whether such a disturbance cap is best supported in gross terms, across all lands, or whether scientific studies more strongly support limiting the consideration of surface disturbance to those lands with a capability of supporting 12% Wyoming big sagebrush or 15% mountain big sagebrush. It is our contention that all surface disturbance in all habitats should contribute to the cap, because scientific studies evaluating thresholds of percent surface disturbance have not been limited to potential sage grouse preferred nesting or wintering habitats but instead considered all habitats, and negative impacts resulting from disturbance above the 3% threshold (or higher thresholds) relates not only to direct habitat loss but also to cumulative disturbance of grouse, which tend to abandon habitats adjacent to disturbed areas regardless of whether the disturbance occurred within sagebrush habitat or another habitat type entirely. A determination must therefore be made based on the science whether the agency should calculate surface disturbance based on preferred potential habitats only, as under Alternative D, or across all habitats, as under Alternative B or C.

Please also make a formal determination regarding the 30% disturbance cap in the context of sagebrush canopy cover, and if 30% is not the scientifically defensible threshold, then where that threshold should be set, for the same reasons as noted above for the 3% and 5% disturbance caps.

Please review the studies listed above, and any and all additional studies that directly address the efficacy of a 30% disturbance cap, if any. Knick et al. (2013) found that almost all active leks were found in areas with less than 10% cropland (Figure 5). This study included two sage grouse populations which straddle the border between northwest Colorado and Utah (Knick et al. 2013, Figure 2), indicating that its findings are directly relevant to this northwest Colorado EIS. It is also notable that MZ II and VII, which includes the northwest Colorado RMP amendment, also overlaps with Utah. DEIS at Diagram 1-2. We are unaware of any such studies, and in their absence federal agencies should employ the precautionary principle and utilize a 3% cumulative disturbance cap for all forms of disturbance.

We would next ask the responsible official to examine the best available science and render a determination regarding whether it is more appropriate to calculate the proportion of disturbance according to a designated Colorado Management Zone, or simply on a section-by-section, per-square mile basis. Please consider the scientific studies listed above in this section, as well as any and all other relevant scientific studies that explore disturbance percentage by section, or disturbance percentage as calculated using a Management Zone <u>or any other similar geographic scale</u>. In your response to comments (or the FEIS itself), please list the scientific studies that calculate disturbance percentage as it relates to sage grouse habitat use and/or impacts, both on a per-square-mile-section basis and as calculated on a larger area such as a Colorado management Zone.

Finally, we would ask the responsible official to render a formal determination regarding any scientific support for allowing exceptions to the disturbance cap to be granted without mitigation when sage grouse populations are at or above population targets and stable. E.g., DEIS at F-5, 523. What, exactly, is the scientific basis for authorizing exceedence of the 5% disturbance cap if the exceedence would "be required offset the resulting loss of GRSG habitat?" DEIS at 523. Please cite to scientifically valid studies that provide examples of mitigation that have increased the populations of sage grouse where they have been implemented, to offset losses to sage grouse populations in developed areas. Secondarily, we would also seek a determination regarding the scientific integrity of granting exceptions to disturbance cap when populations are increasing across the Management Zone. Are there any studies that show that the impact of surface disturbance exceeding 3% or exceeding 5% have little or no impact on sage grouse populations that are at population targets and stable? Or that are increasing but below population targets? Conversely, does the science suggest that surface disturbance above 3% or above 5% could have a negative effect on sage grouse regardless of population trend? What was the population trend during scientific studies that actually examined impact of percent surface disturbance on sage grouse? Is there any information at all in the scientific literature that addresses this question? And if so, is population trend a defining feature that interacts with percent surface disturbance as a switch, significantly changing exceedence of a percent surface disturbance threshold from a negative effect on sage grouse to a positive, neutral, or less negative one?

Wellpad Density Standards

Alternatives B and C would limit surface disturbances to no more than one per section. DEIS at 163. BLM's Preferred Alternative has no limit on the density of wellpads or other surface

disturbances. *Id*. Please review the best available science and make a determination regarding whether one wellpad/disturbance per section, or no limit at all, is the most scientifically supported approach or whether no limit on wellpad density would best achieve the purpose and need of the plan amendment. Please consider the following studies which directly address the threshold of well density at which impacts to sage grouse occur: Holloran (2005), Doherty (2008), Walker et al. (2007), Taylor et al. (2012), and Copeland et al. (2013). Attachments 3, 4, 5, 6, and 7, respectively. Each of these studies find significant declines of sage grouse populations as well densities exceed one pad per square mile, and some of these studies indicate negative effects on sage grouse at lower wellpad densities.

Effectiveness of Compensatory Mitigation

The federal agencies propose to allow compensatory mitigation in lieu of compliance with disturbance density and other requirements under the Preferred Alternative. DEIS at F-4. We call upon the Forest Service to reach a determination regarding the effectiveness of each category of compensatory mitigation in Appendix F to result in no net loss of sagebrush populations for the area in question. Please document any and all scientific studies that conclude that compensatory mitigation efforts have yielded an increase in sage grouse populations for the area to which mitigation efforts apply. We are unaware of any cases in which a compensatory mitigation program has resulted in a significant increase in sage grouse compared to an untreated landscape. The fact that "compensatory mitigation" funding frequently is used to purchase conservation easements is problematic, because this is a paper transaction with legal ramifications preventing future potential losses, but can never yield population gains to offset the very real and immediate losses of sage grouse habitats and populations incurred as a result of industrial development.

Effectiveness of Timing Limitation Stipulations for Leased Fluid Minerals

In Priority Habitats, the Preferred Alternative relies on timing limitation stipulations to prevent surface disturbance within 4 miles of active leks on currently leased fluid mineral leases. DEIS at 529. This allows wells, roads, pipelines, and other infrastructure to be built close to leks and within nesting habitats as long as construction activity occurs outside the breeding/nesting seasons. The BLM has relied heavily on timing limitation stipulations to mitigate impacts to breeding and nesting sage grouse, and the developments constructed using these timing limitations have had scientifically documented track records in terms of significant impacts to sage grouse breeding and nesting populations. Please evaluate the scientific basis for the effectiveness of timing limitation stipulations as an alternative to no surface occupancy stipulations, using the scientific studies cited in these comments and any other studies that examine the changes in sage grouse populations when drilling and construction activities are allowed within 4 miles of sage grouse leks, but construction and drilling activities are prohibited during the breeding and nesting seasons.

Livestock Grazing Standard

The preferred alternative contains a grazing standard, which states that terms and conditions in

grazing permits include the following: "assure plant growth requirements are met and residual forage remains available for GRSG hiding cover." DEIS at C-3. The federal agencies must pursuant to NFMA reach a determination regarding the science that is most relevant, reliable, and accurate regarding the amount of forage that needs to remain to provide sage grouse hiding cover. Herman-Brunson et al. (2009) found that sage grouse nest survival decreased when residual grass cover was < 16 cm in height. According to Kaczor (1998: 26) grass height is positively correlated with nest success, and this researcher recommended, "Land managers should attempt to leave or maintain maximum grass heights [greater than or equal to] 26 cm, the inflection point for 50% nest success." See Attachment 8, *and see* Kaczor et al. (2011), Attachment 9. Heath et al (1997) also found that near Farson, Wyoming, nests with taller grass heights were more successful than those with shorter heights. BLM itself recognizes, "Residual cover of grasses is also important for nesting cover." DEIS at 242. The agencies should implement a standard within the plan to address a measurable stubble height that must remain throughout the nesting season in grouse nesting habitat. We recommend at minimum using the 7.1-inch residual stubble height standard as recommended by Connelly et al. (2000). Attachment 10. The Forest Service should evaluate this standard and other residual stubble height standards for nesting and other habitats to determine which approach best represents the best science.

In addition, Braun (2006) recommended a maximum 25% forage utilization standard for livestock. Please review the scientific literature and make a determination regarding what percentage of available forage should be dedicated to forage utilization for domestic livestock.

Riparian Area Protections

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). The plan must establish widths for riparian management zones, to which the management outlined in the quoted section above will apply. 36 C.F.R. § 219.8(a)(3)(ii).

This requirement has special significance with regard to sage grouse. BLM notes that "GRSG make important use of wet meadow riparian habitats particularly for late brood-rearing during the summer…. Consequently, the health of riparian areas and adherence to Standard 2 [regarding riparian health] is important to some populations and crucial to others." DEIS at K-3. The BLM notes that overgrazing in riparian areas results in "a lowering of the water table and a general diminishment of both quality and volume of GRSG habitat." *Id*.

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 Northwest Colorado RMP Amendment EIS, BLM has failed to apply in its Preferred Alternative the recommended sage grouse protections presented to it by its own experts (the BLM National Technical Team), and as a result development approved under several of the alternatives analyzed (and particularly Alternatives A and D) will result in both unnecessary and undue degradation of sage grouse Core Area habitats and result in sage grouse population declines in these Core Areas, undermining the effectiveness of the Core Area 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. 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:

<u>The certainty that the conservation effort will be implemented</u>

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 BLM appears to rely heavily on discretionary measures such as "avoidance" rather than "exclusion" of activities known to be detrimental to sage grouse inside Priority Habitat areas, and offers exceptions to protections on a conditional basis. And 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. The Preferred Alternative will need to be strengthened to meet 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 mitigation measures identified in the RMP revision, using agency discretion to create 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.

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 Northwest Colorado RMP Amendment in order to create conservation measures of sufficient reliability that they will prevent further declines of sage grouse and indeed foster the recovery of the Bighorn Basin population.

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.

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 **<u>to minimize the likelihood and need for listing</u>** 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 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."[1] 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 Bighorn Basin RMP, needs to provide management that will prevent this decline of sage grouse in the Bighorn Basin.

BLM Sage Grouse Strategy

In 2004, BLM published its National Sage-Grouse Habitat Conservation Strategy ("Strategy").[2] 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 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

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[1] 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.

[2] 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.

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. *Id*. at 11. This Wyoming Basins Ecoregional Assessment publication ("WBEA")[3] was completed in 2011, and BLM should reference the findings of this report as they apply to northwest Colorado, which falls within the Wyoming Basins Ecoregion, 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, which would have been useful to include in the Affected Environment section of the FEIS. 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 the Preferred Alternative for Priority habitat, but General Habitat gets no such buffer. 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 Core Area and non-Core 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.

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,

> Based on the identified threats to the greater sage-grouse and the USFWS's timeline for

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[3] Available online at http://sagemap.wr.usgs.gov/Docs/WBEA/wbea_book_15mb.pdf; site last visited 3/13/13.

> 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 Northwest Colorado 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 Northwest Colorado DEIS. 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 Northwest Colorado RMP Amendment.

For example, the NTT Report calls for an unambiguous requirement that closed-loop drilling with no reserve pits be required within Core Areas, not incorporated into any alternative. It is a certainty that oil and gas operators will try to claim that closed-loop drilling is infeasible in cases where it can be done, and it is equally true that if BLM prohibits reserve pits and requires closed-loop drilling, operators will use their expertise and ingenuity to find a way to get the wells in question drilled within the strictures of the requirement.

The NTT Report recommends withdrawal of Core Areas 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; BLM does not evaluate this under any alternative. *See* DEIS at 147. Under Alternatives B, C, and D, the agency would evaluate the need to bury existing power lines. *Id*. But in Alternative D, Priority Habitats would be an avoidance area, not an exclusion area. DEIS at 146. BLM itself has pointed out reductions of sage grouse use within 2.9 miles of powerlines. According to BLM (2003: 2-8),

> 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. This was attributed to increased raptor predation (Braun et al. 2002).

Ironically, in General or Priority Habitat there appear to be no specific 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). A 5.3-mile buffer should apply around leks 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 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 Montana. 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. Northwest Colorado, for example, is largely part of the Wyoming Basins Ecoregion. At a minimum, this plan should incorporate the science of the Wyoming Basins Ecoregional Analysis, and share common minimum standards to protect sage grouse with plans in Utah and Wyoming that also govern lands in the Ecoregion.

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 2005, and 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 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 is issued in 2015. It is in the BLM's 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 BLM is needlessly exposing the sage grouse to threats to its viability, even within Core Areas, which would strengthen the likelihood that the USFWS deems BLM 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.

We are concerned that Alternative D will not uphold BLM's obligation to manage Sensitive Species to "minimize or eliminate threats," either within or outside of Core Area habitats. As detailed elsewhere in these comments, mitigation measures applied under Alternative D will inevitably lead to serious impacts to sage grouse populations within Priority Habitats. This result represents an unnecessary and undue degradation of key sage grouse habitats.

The Preferred Alternative is woefully inadequate

Alternative D fails to adopt or even adapt the National Technical Team recommendations to guide sage grouse management measures. State and local agencies, as well as industrial interest groups, have thus far had their interests exert an undue level of influence over the Preferred Alternative, to the detriment of sage grouse conservation which is the Purpose and Need for this planning process. BLM should instead apply at minimum the measures recommended by the BLM's National Technical Team, and more preferably the Sage Grouse Recovery Alternative attached to these comments. *See* Attachment 11. Alternative D also fails to meet the Purpose and Need for this EIS.

The impact of the failure to apply adequate protections to Priority Habitats would likely to result in major impacts to sage grouse. Given the inadequacy of mitigation measures proposed under Alternative D to protect sage grouse in Core Areas, the consequences for making sage grouse Core habitat available to sage grouse populations are likely to be locally severe.

Importantly, the BLM has a better option: Implement the National Technical Team recommendations. The BLM therefore has the opportunity (and indeed under NEPA, FLPMA, and Manual 6840, the responsibility) to implement the science-based measures recommended in the NTT Report in order to both maintain consistency with state Core area policy <u>and</u> protect this BLM Sensitive Species with measures that satisfy the scientific integrity standards of both NEPA and NFMA, and prevent unnecessary or undue degradation to sage grouse Core habitats under FLPMA.

a. The Preferred Alternative allows too much surface disturbance in core sage grouse habitat.

Land surface disturbance in sage grouse habitat is widely known to affect the species. Disturbance thresholds are commonly applied in areas of energy development, even though there has been little science to date establishing the disturbance threshold by percentage of land area at which significant impacts to sage grouse begin to occur. Under the Preferred Alternative, the amount of cumulative disturbance allowed in sage grouse core habitat is five percent per square mile, as calculated across an entire Colorado management Zone. The Management Zone is used to establish an area for measuring the amount of disturbance that may be allowed under a project proposal. These Colorado management Zones are considerably larger than one square mile each.

The five percent disturbance threshold is not known to conserve sage grouse long-term and is only a guess by agencies and others seeking to accommodate development in sage grouse habitat. Past projects approved in Wyoming prior to implementation of the Wyoming Core Area strategies indicate that sage grouse are adversely affected at lower levels of disturbance. For example, for the Continental Divide/Wamsutter II Natural Gas Project approved in 2000, some 3,000 wells were proposed with 22,400 acres of new surface disturbance, representing 2.1

percent of the planning area (with an average well density of 4 wellsites per square mile) (BLM 2000); today, sage grouse are declining in this area. In the Atlantic Rim coalbed methane field, 2,000 wells were permitted at a density of eight wells per square mile, far above the threshold known to cause sage grouse declines. Today, sage grouse are essentially extirpated in developed portions of this field. The projected surface disturbance for this project is 15,800 acres, or 5.85 percent of the project area (BLM 2005). Recent science in the western portion of the sage grouse range found that some 99 percent of active leks were located in areas surrounded by lands with 3% or less surface disturbance from roads, powerlines, pipelines, and other features (Knick et al. 2013). Clearly, a threshold of five percent is too high to sustain sage grouse.

On existing leases, the NNT Report recommends capping the density of wellpads and other industrial sites at one per square mile. This is supported by the best available science; both Holloran (2005) and Doherty (2008) found that one wellsite per 699 acres and one wellsite per square mile, respectively, were the thresholds at which significant negative impacts to lek populations began to be recorded. *See* Attachments 3, 4. Even well densities less than one per square mile can have a negative effect on sage grouse. According to Taylor et al. (2012: 28, emphasis added),

> "Two scenarios include decisions on whether to develop a landscape from 0 to 4 wells per section (0 to 1.5 wells/km2), and then from 4 to 8 wells per section (1.5 wells/km^2 to 3.1 wells/km^2). **<u>In both cases</u>**, the total northeast Wyoming lek count decreased by ~ 37% (1-2,876/4,537 and 1-1,768/2,876, Table 3), leaving only 39% of the original number of males on leks (1,768/4,537, Table 3) when development reached 8 wells per section (80 ac spacing)."

But the BLM's Preferred Alternative does not include any well density limits, which means that it has failed to emplace adequate regulatory mechanisms to protect sage grouse in this regard. Large leks are an important index of population trends, and Taylor et al. (2012: 28) found a particular reduction in large leks with increasing well densities, even below one well per square mile:

> "A warning signal of declining populations is given by the accompanying decline in large leks, which showed a 70% decrease from no development to 160 ac spacing (1.5 wells/km2, 1- 18/60, Table 3). By 80 ac spacing (3.1 wells/km2), only 2 large leks remained on the landscape (Table 3)."

It is critically important to maintain large leks, rather than allowing impacts from energy development to degrade them into small leks. When large leks are lost and only small leks remain, extirpation via West Nile virus, fire, or other stochastic disturbances becomes likely, perhaps only a matter of time. Copeland et al. (2013, Figure 4) also found an 18% sage grouse population decline once one well per square mile had been reached.

In contrast to the Preferred Alternative, the NTT report recommends managing priority sage grouse habitat so that discrete anthropogenic disturbances cover less than three percent of any single square-mile section regardless of ownership (SGNTT 2011 at 7). This is supported by the science; Knick et al. (2013) found that 99% of the active sage grouse leks in the western half of the species' range were surrounded by habitat with 3% or less anthropogenic surface disturbance. Furthermore, once the three percent limit is reached, additional surface-disturbing projects are precluded, and in cases where the three percent limit is already exceeded, restoration must occur to meet this threshold under the NTT recommendations. Alternative D includes a 5% disturbance cap, within the range recommended by the NTT, and to make matters worse calculates disturbance based on averaging disturbance across Colorado Management Zones ("CMZs") that can be more than 100,000 acres in size. This use of the CMZs results in an inaccurate disturbance calculation that allows more than 5% per square mile on a section-by-section basis, the threshold at which negative impacts to sage grouse occur. BLM should manage Core Area habitats to prevent significant impacts to sage grouse, including from surface disturbance in excess of 3% per square mile, within Priority and General Habitats under the new RMP.

The Lost Creek Uranium In Situ Recovery Project in Wyoming exemplifies how development can exceed disturbance and density limits tolerable to sage grouse when per-square-mile limits are not adopted in favor of averaging disturbance across a larger area. The 4,254-acre Lost Creek permit area is located inside a Core Area, and it intersects the 4-mile buffers of 15 sage grouse leks.[4] A Disturbance Density Calculation Tool ("DDCT") was used for averaging surface disturbance under this project, and the DDCT area for this project is 147,060 acres, almost 230 square miles. This is potentially a similar size to a Colorado Management Zone. 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 for the Lost Creek uranium project, wellsite density will exceed 50 wells per half-section, or 100 wellsites per square mile. This extreme density will 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. We are concerned that similar situations will arise when using Colorado Management Zones (comparable in size, DEIS at Table 3.8) rather than square-mile sections to average development density, resulting in Priority Habitat landscapes where habitat function has been destroyed for sage grouse, causing population declines.

In the case of the Lost Creek project, the extra-large DDCT area was adopted to accommodate 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

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[4] 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.

disturbance, far above the limit in the state and federal Core Area strategies. 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, Wyoming Game and Fish Department (WGFD) has classified the entire 4,254-acre development area as a single "site," which, although it meets the one site per square mile requirement in the Core Area strategies, 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.

On Density and Disturbance, we support the approach as outlined in Alternatives B and C as the preferable approach to managing the density of surface disturbances. DEIS at 163, NTT #49. While using square-mile sections has its limitations, it is more rigorous than averaging the density over a larger area, and all sage grouse scientific studies have calculated wellpad density on a per-square mile basis (not using a Colorado Management Zone), so their results would be applicable to an RMP that managed density in this way. We agree with 3% as the maximum allowable density of disturbance that should be allowed in Priority Habitats. We appreciate the language requiring the well to be sited on the portion of the lease most distal from the lek.

The provision in the Northwest Colorado plan amendment to allow exceptions to the surface disturbance cap also is troubling. We are concerned that sage grouse population trends are cyclical in nature, with highs and lows on a 7 to 10 year cycle, perhaps tied to changing climate cycles. The surface disturbance thresholds will be meaningless if they can be exceeded every time the population is on an upswing. The impact of exceeding the surface disturbance threshold is long-lasting, and will continue to express itself during the next downswing in sage grouse numbers, given the 30-50 year life expectancy of producing oil and gas wells today. It is therefore inappropriate to create a situation in which the disturbance cap can be waived if the Management Zone population is on the rise at the time the waiver is granted. Similarly, waiving the disturbance cap when the sage grouse population is at or above management targets and stable also is irresponsible, because exceeding the disturbance cap is likely to cause the sage grouse population to decline, and ultimately it will pass below the population target as a result. Sage grouse are not so overabundant that federal agencies can afford to engage in land management decisions known to depress their populations, simply because populations are steady prior to approval of exceeding the disturbance cap. This is regardless of whether offsite mitigation occurs in conjunction with the cap exceedence.

b. The Preferred Alternative allows too much development density in core sage grouse habitat.

Protecting sage-grouse leks and associated nesting and brood-rearing habitat are key to conserving the species. The best available science has recorded significant negative impacts from individual producing (post-drilling) oil and gas wells drilled within 1.9 miles from active leks

(Holloran 2005), measureable impacts from coalbed methane fields extend out to 4 miles (Walker 2008), and new research has recorded effects as far away as 12.4 miles from leks (Taylor et al. 2012). WGFD, using lek buffers of 0.25 mile, 0.5 mile, 0.6 mile, 1.0 mile, and 2.0 mile, estimated lek persistence of 4, 5, 6, 10, and 28 percent, respectively (Christiansen and Bohne 2008, memorandum, Attachment 12). Energy development within 2 miles of a lek is projected to reduce the probability of lek persistence from 87% to 5% (Walker et al. 2007). Taylor et al. (2012: 27) examined sage grouse dynamics in the Powder River Basin and found, "For oil and gas development, the signal is strongest within a 12.4-mi (20-km) radius of a lek, and it is much stronger at this radius than at any smaller radii." According to Taylor et al (2012: 27),

> "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."

We appreciate the application of a 4-mile NSO buffer in Priority Habitat, but in General Habitat there appears to be no lek buffer at all. This is an inadequate level of protection for breeding and nesting habitat in General Habitats areas.

The differences between the size of NSO buffers are also important. An 0.25-mile lek buffer protects 0.2 square miles of habitat; an 0.6-mile buffer covers 1.13 square miles, a 2-mile buffer covers 12.57 square miles, a 4-mile buffer covers 50.27 square miles, and a 5.3-mile buffer covers 88.25 square miles of habitat. If one assumes that a 5.3-mile buffer covers the nesting habitat (which is not always true), then an 0.25-mile buffer covers two-tenths of one percent of the nesting habitat while an 0.6-mile buffer would encompass 1.3% of the nesting habitat surrounding a lek. Factor in the established scientific principle that impacts of a producing gas well can extend 1.9 miles from the wellpad into adjacent habitats (Holloran 2005), and the level of protection afforded by 0.25-mile and 0.6 mile buffers are negligible.

Protecting sage grouse leks and associated nesting and brood-rearing habitat are key to conserving the species. The best available science has recorded significant negative impacts from individual producing (post-drilling) oil and gas wells drilled within 1.9 miles from active leks (Holloran 2005), measureable impacts from coalbed methane fields extend out to 4 miles (Walker 2008), and new research has recorded effects as far away as 12.4 miles from leks (Taylor et al. 2012). WGFD, using lek buffers of 0.25 mile, 0.5 mile, 0.6 mile, 1.0 mile, and 2.0

mile, estimated lek persistence of 4, 5, 6, 10, and 28 percent, respectively (Christiansen and Bohne 2008, Attachment 12).

c. Protections must be emplaced to minimize impacts from roads

Limitations on how close roads can be constructed to active leks need to be a part of the Northwest Colorado RMP Amendment. At minimum, all roads need to be sited at least 0.8 miles from lekking and nesting habitat. Patricelli et al. (2012, Attachment 13) tested the impact or road and drilling noise on sage grouse, and reached the following conclusions:

> "…we recommend that interim management strategies focus not on limiting traffic noise levels, but rather on the siting of roads or the limitation of traffic volumes during crucial times of the day (6 pm to 9 am) and/or season (i.e. breeding season). We estimate that noise levels will typically drop to 30 dBA at 1.3 km (0.8 mi) and to 32 dBA at 1.1 km (0.7 mi) from the road (these levels represent 10 dB over ambient using 20 or 22 dBA ambient respectively). Therefore to avoid disruptive activity in areas crucial to mating, nesting and brood-rearing activities, we recommend that roads should be sited (or traffic should be seasonally limited) within 0.7-0.8 miles from the edge of these areas. We emphasize that we are not recommending the siting of roads 0.7-0.8 miles from the edge of the lek perimeter, but rather 0.7-0.8 miles from the edge of crucial lekking, nesting and early brood-rearing areas."

These researchers went on to elaborate,

> "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."

BLM should require that nesting habitats be delineated, and that new road construction be sited at least 0.8 mile from leks, nesting habitat, and winter concentration areas. Within these areas, jeep trails should be used for access, and seasonal closures to motor vehicles should be applied during breeding, nesting, and wintering periods.

We concur with the need to manage Priority Habitats as right-of-way exclusion areas per Alternatives B and C rather than avoidance areas per Alternative D. DEIS at 146. An exception could be allowed to the exclusion for buried powerlines, regardless of location. Similarly, Priority Habitats should be exclusion areas for wind power projects and met towers. Discretionary "avoidance" is too weak, and there is no evidence extant that compensatory

mitigation has increased sage grouse numbers anywhere. Despite tens of millions of dollars being spent on offsite mitigation in the Pinedale Field Office, the result has been a net loss of sage grouse. We further concur with the need to manage all new road rights-of-way to the minimum possible standard, as implemented with a 4-mile lek buffer in Alternative C. DEIS at 144. Keeping roads to the minimum necessary standard is consistent with direction in the Gold Book, and should be standard practice. We also concur with the need for travel management planning, elimination of unnecessary or duplicative routes, and seasonal closures, especially within 5 miles of leks during the breeding and nesting season.

d. Protections must be added to address noise levels

Noise can have a major negative impact on sage grouse, causing disturbance and displacement of birds from preferred habitat and drowning out the mating calls of males during the lekking season. Blickley and Patricelli (2012) found that low-frequency noise from oil and gas development can interfere with the audibility of male sage grouse vocalizations:

> "We found that noise produced by natural gas infrastructure was dominated by low frequencies, with substantial overlap in frequency with Greater Sage grouse acoustic displays. Such overlap predicted substantial masking, reducing the active space of detection and discrimination of all vocalization components, and particularly affecting low-frequency and low-amplitude notes. Such masking could increase the difficulty of mate assessment for lekking Greater Sage grouse."

These researchers went on to state, "Ultimately, increased difficulty in finding leks or assessing males on the leks may lead to lower female attendance on noisy leks compared with quieter locations. Males may also avoid leks with high levels of noise if they perceive that their vocalizations are masked." Noise also causes stress to sage grouse. According to Blickley et al. (2012b:1), "We found strong support for an impact of noise playback on stress levels, with 16.7% higher mean FCM [fecal corticoids, an index of stress] levels in samples from noise leks compared with samples from paired control leks. Taken together with results from a previous study finding declines in male lek attendance in response to noise playbacks, these results suggest that chronic noise pollution can cause greater sage grouse to avoid otherwise suitable habitat, and can cause elevated stress levels in the birds who remain in noisy areas." They went on to note, "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."

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."

A newly available scientific study conducted within the Lander Field Office evaluates the impacts of development-related noise on sage grouse (Patricelli et al. 2012, Attachment 13). Patricelli also recommends that noise be limited to 10 A-weighted decibels above the ambient noise level, but points out that 39 decibels is not the appropriate ambient noise level for their Lander Field Office study site (and generally), but instead that 20 to 22 decibels is the actual background noise level measured at sage grouse leks. Attachment 13 at unnumbered 2. To achieve these levels, these researchers recommend: "Therefore to avoid disruptive activity in areas crucial to mating, nesting and brood-rearing activities, we recommend that roads should be sited (or traffic should be seasonally limited) within 0.7-0.8 miles from the edge of these areas." *Id*.

Blickley et al. (2012) played back recorded continuous and intermittent anthropogenic sounds associated with natural gas drilling and roads at leks. For 3 breeding seasons, they monitored sage grouse abundance at leks with and without noise. Peak male attendance (i.e., abundance) at leks experimentally treated with noise from natural gas drilling and roads decreased 29% and 73%, respectively, relative to paired controls. Decreases in abundance at leks treated with noise occurred in the first year of the study and continued throughout the experiment. Intermittent noise had a greater effect than continuous noise. Female attendance averaged a decrease of 48%; male attendance averaged a decrease of 51%. Road noise leks decreased by 73% versus control leks; drilling noise leks decreased 29% versus control leks. There were residual effects of noise after the treatment ceased. These researchers concluded that sage grouse do not habituate to noise impacts over time.

In northwest Colorado, noise from National Guard helicopter training can create noise in excess of 100 dBA. DEIS at 398. Sage grouse Priority and General Habitats should thus be closed to low-level helicopter overflight during the breeding and nesting season for sage grouse. We recommend that noise limits be imposed in the RMP, allowing no greater than 32 dBA noise levels in sage grouse nesting and breeding habitats.

e. Additional protections should be added to address impacts by fences

Collisions with fences pose a potentially major cause of mortality for 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. Attachment 14. Christiansen (2009) found similar results in a WGFD investigation near Farson, Wyoming, but

found that marked fences also were a significant mortality cause for sage grouse. Attachment 15. Of course, eliminating fences has the effect of reducing collisions to zero. With this in mind, fences in sage grouse Preliminary Priority and General Habitats should be inventoried to identify the minimum necessary fencing required for livestock management. Fences determined to be unnecessary should be removed, especially in flat areas near leks, and remaining fences should be outfitted with reflectors or other visibility devices to reduce sage grouse collisions. No new fences should be permitted in sage grouse habitats within Priority Areas. New fences should be precluded on BLM lands within Priority Habitats, and the RMP should include language to prioritize dismantlement of existing fences and addition of visibility markers for those that remain.

Key Differences between Sage grouse Management Prescriptions in the Preferred Alternative and the NTT Report

The agencies' Preferred Alternative and the National Technical Team ("NTT") Report share some common features. However, the documents differ significantly in their management prescriptions for sage grouse. The NTT report, based on the best available science, recommends greater restrictions on land uses in priority habitat than the Preferred Alternative. There is concern that prescriptions in the Preferred Alternative, some of which lack scientific basis, are inadequate to fully recover sage grouse in northwest Colorado.

Table 1 presents some of the important differences in management prescriptions between the Wyoming State Core Area strategy, the Northwest Colorado Preferred Alternative, the NTT report, and the best available science on sage grouse ("Grouse Ecology").

Table 1.

State of Wyoming	NW Colorado Preferred Alt.	NTT Report Recommendations	Grouse Ecology
Oil and Gas Development			
No surface occupancy within 0.6 miles of occupied sage grouse leks in core areas, and "no more than" 0.25 miles from occupied leks outside core areas.	For future leases, No Surface Occupancy within Priority Habitat; 0.6-mile NSO buffer around leks in General Habitat. For existing leases, No Surface Occupancy within 4	No surface occupancy throughout priority habitat; exceptions may be considered if a 4-mile no surface occupancy buffer is applied, and if an entire lease is within	Development negatively affects breeding sage grouse 1.9 miles from occupied leks (Holloran 2005). Most sage grouse hens nest within 4 miles of leks (Moynahan 2004;

	miles of leks for Priority Habitat; no lek buffer provided in General Habitat.	priority habitat, then a limitation of one well-pad per section might be applied.	Holloran and Anderson 2005). Effects of drilling on sage grouse were noticeable out to 12.4 miles from leks (Taylor et al. 2012, and see Knick et al. 2013).
Maximum development density of 1 well per an average of 640 acres over a DDCT area.	No limitation on wellpad density.	Limit disturbance to 1 well per 640-acre section.	Maximum development density of 1 well per 640 acres to 1 well per 699 acres (Holloran 2005; Doherty 2008).
In core areas, surface disturbance limited to 5 percent of "suitable sage grouse habitat" per an average of 640 acres calculated over a DDCT area.	Limit permitted disturbances to 5% of any Colorado Management Zone; exceptions available with mitigation.	Surface disturbance may not exceed 3 percent per 640 acres on a per-section basis (exceptions may be considered in limited circumstances).	In the western half of sage grouse range, 99% of active sage grouse leks were surrounded by lands with 3% or less surface disturbance (Knick et al. 2013).
Activities permitted up to 0.6 miles from leks in core areas from July 1-March 15, and may be approved year-round in unsuitable habitat in core areas.	No surface disturbing or disruptive activities within 4 miles of sage grouse leks from March 1-July 15.	Apply seasonal restrictions on surface disturbing activities in priority habitat.	No surface disturbing or disruptive activities from March to July within 3.1 miles of sage grouse leks (Holloran 2005).
Activities restricted in sage grouse winter habitat in core areas from December 2-March	Winter Habitat Timing Limitation Stipulation (DEIS at 188) appears to be removed (DEIS at	No surface occupancy in winter habitat during any time of the year; exceptions may be	No surface disturbance in or adjacent to winter habitat any time of

13; "seasonal restrictions should also be considered" in winter habitat outside core areas.	E-6).	considered if a 4-mile no surface occupancy buffer is applied, and if an entire lease is within priority habitat, then a limitation of one wellsite per section might be applied.	year (Walker 2008).

From the standpoint of scientific supportability, the Alternative B and C measures on development density (3% cap, and per square mile section rather than averaging across a Colorado Management Zone) are scientifically sound, while other Alternatives are inconsistent with scientific findings. Similarly, the one pad per 640-acre section in Alternatives B and C is the proper limit; the Preferred Alternative appears to impose no limit on wellpad density for either unleased minerals or as a Condition of Approval ("COA") on existing leases. In Priority Habitat, the NSO Condition of Approval of 4 miles from a lek in the Preferred Alternatives will likely suffice, but the lack of any lek buffer as a COA in General Habitat will result in major impacts to active leks within the Core Areas themselves, as this proximity results in significant impacts to breeding grouse on the lek and will result in development occurring in the midst of the most prime nesting habitats that surround the affected lek. All new roads should also be located farther than 1.9 miles from active leks, preferably using the 4-mile lek buffer prescribed in Alternative C to protect both breeding and nesting habitat. Seismic activity should be limited to periods outside the breeding/nesting or winter use season, for breeding/nesting and winter concentration habitats, respectively. Allowing heliportable geophysical exploration in Priority Habitat only outside the season of use is the minimum necessary standard.

Priority Habitat protections must be applied in practice, without exception

The Northwest Colorado RMP Amendment must provide certainty that protection measures will be applied in all cases. The State of Wyoming has been reluctant to actually enforce Core Area policy measures when industrial developments run afoul of Core Area protections, and as a result is building a record of regulatory uncertainty. We call upon federal agencies in Colorado to learn from Wyoming's mistakes. BLM for its part must include in its RMP a guarantee that measures prescribed in the Plan are not subject to waiver or exception. At the outset of the State's consensus-based Core Area mapping process, the original boundaries of Core Areas were drawn to exclude sage grouse habitats that land users were interested in developing. As a result, thousands of acres of undeveloped habitat were denied protection despite their vibrant sage grouse populations and relatively undeveloped condition. The Northwest Colorado RMP has

gerrymandered Priority Habitat boundaries to exclude proposed transmission line corridors. Sage grouse Priority and General Habitats must be designated based on their importance to sage grouse, not based on the stated intent of one or more industrial entities to destroy grouse habitat in the future.

Even where defensible boundaries remain, developers have sought to site industrial projects inside Core Areas, and in Wyoming boundaries have simply been shifted to exclude the desired areas from Core Area protections that would otherwise apply. While the Northwest Colorado EIS appears to have done a credible job of identifying Priority Habitat boundaries with regard to oil and gas development, the agencies appear to have carved out lands from Priority Habitat to accommodate proposed rights-of-way for the TransWest Express and/or Gateway South transmission lines. This defeats the purpose of establishing Priority Habitats to protect the most important sage grouse habitats. We are concerned that these transmission lines, if sited as proposed, will cut through prime grouse habitats that need to be fully protected as Priority Habitats, and that the impacts of these transmission lines will radiate outward from the transmission line corridor itself to have significant impacts on grouse inside designated Priority Habitats. The agencies should reconfigure the Priority Habitat boundaries according to the biological needs of important grouse populations, irrespective of powerline corridors that have been proposed, so that all of the most prime sage grouse habitats get protection and powerlines are excluded from these areas. The powerlines can then be re-routed away from Priority Habitats.

In the Wyoming BLM-approved Lost Creek In Situ Uranium Project, wellpad densities were allowed to exceed the 1 per square mile threshold, through redefining the entire wellfield as a single pad. And roads (including main haul roads) were allowed to be sited closer than 0.6 mile from active sage grouse leks, even though the limit is 0.6 mile for secondary roads and 2.0 miles for main haul roads under the State of Wyoming and BLM policies. A court ruling on this project indicates that Core Area protections are optional on the part of the developer; this RMP revision needs to make clear so that there is no mistaking during the judicial process that Priority Habitat protections are mandatory, not discretionary on the part of agency personnel or optional on the part of operators.

Exceptions have also been and continue to be granted in Wyoming's Douglas Core Area. In comments on a Sundry Notice on Chesapeake Operating Inc.'s Smith Creek Unit, the Wyoming Game and Fish Department noted that when the DDCT calculation was made for the 23-pad project, it yielded a disturbance percentage of 15.41% within the Douglas Core Area, well above the already-too-high 5% limit under the Core Area policy, yet the agency proposed to allow the project to move forward subject to timing limitations.[5] In the case of the Douglas Core Area, percentage of land area that has been subjected to human disturbance has long exceeded the 5%

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[5] Letter from John Emmerich, WGFD Deputy Director, to Brian Heath, WEST, Inc., regarding proposed oil wells by Chesapeake, May 10, 2012.

threshold that is the standard for state policy and BLM IM WY-2012-019. Yet the BLM continues to approve APDs, road construction, and other surface-disturbing activity even though current human disturbance exceeds 15%, and may exceed 22%, today. In the BLM-approved Lost Creek In Situ Uranium Project, wellpad densities were allowed to exceed the 1 per square mile threshold, through redefining the entire wellfield as a single pad. An roads (including main haul roads) were allowed to be sited closer than 0.6 mile from active sage grouse leks, even though the limit is 0.6 mile for secondary roads and 2.0 miles for main haul roads under the State of Wyoming and BLM policies. In comments on a Sundry Notice on Chesapeake Operating Inc.'s Smith Creek Unit, the Wyoming Game and Fish Department noted that when the DDCT calculation was made for the 23-pad project, it yielded a disturbance percentage of 15.41% within the Douglas Core Area, well above the already-too-high 5% limit under the Core Area policy, yet the agency proposed to allow the project to move forward subject to timing limitations.[6]

In the Douglas Core Area, the State of Wyoming has proposed to subdivide Core Area boundaries into subunits (most of which do not get fill Core Area protections) and grant exceptions for development density criteria, timing limitations, and other Core Area protections contained in EO 2011-5 or IM 2012-019 to facilitate oil drilling and production by Chesapeake and other companies. There is no sound scientific basis for these exceptions; proposed compensatory funds cannot reliably purchase the increase of sage grouse populations elsewhere in the Core Area (or indeed anywhere), and the loss of sage grouse populations in this Core Area is not readily remediated.

The Northwest Colorado RMP Amendment should cure these problems for BLM-and Forest Service-managed lands and projects on federally managed minerals by establishing Priority and General Habitat boundaries as inviolate and permanent designations (at least throughout the life of the Plan) and by precluding exceptions or waivers of sage grouse measures within these respective habitats. BLM must ensure that all Core Area/Priority Habitat and/or ACEC protections are nondiscretionary standards, so the agency can rely on them as conservation measures that are adequate and reliable in the context of Endangered Species decisionmaking by the U.S. Fish and Wildlife Service.

The Preferred Alternative as Currently Drafted is unlikely to conserve sage grouse

The new Sage grouse Conservation Objectives Draft Report (COT),[7] an accompaniment to the NTT report prepared by a team of federal and state sage grouse scientists, recommends

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[6] Letter from John Emmerich, WGFD Deputy Director, to Brian Heath, WEST, Inc., regarding proposed oil wells by Chesapeake, May 10, 2012.

[7] Online at http://www.fws.gov/mountain-prairie/species/birds/sagegrouse/20120803conservationobjectivesteamdraftreport.pdf; site last visited 3/13/13.

conserving all sage grouse populations and avoiding anthropogenic disturbances in key sage grouse habitat (COT 2013: 32). Sage grouse populations must be maintained or restored to help support the species' long-term persistence (COT 2012, *draft*: 35). The Preferred Alternative will fail to achieve these goals. New research (Copeland et al. 2013) projects continued sage grouse population declines at 14-29 percent in Wyoming if its Core Area standards are fully enforced; the Northwest Colorado preferred alternative does not even meet this bar. The same study estimates that, even when bolstered by $250 million in targeted conservation easements on private property (a very unlikely assumption), the Core Area policies would only cut anticipated sage grouse population declines by half in Wyoming, and by two-thirds within high abundance areas. We are concerned that sage grouse in Northwest Colorado will fare even worse given that BLM's preferred alternative is less protective in many respects than the State of Wyoming Core Area policy.

The Core Area/Priority Habitat concept can be a sound strategy for conserving sage grouse, but is currently being unevenly applied and will likely fail to prevent sage grouse population declines. Impacts that are similar across the range of the grouse must trigger protections that meet the same minimum standard across the range of the grouse – that level that is scientifically shown to avoid significant impacts. Federal and state planners must implement stronger conservation measures to recover sage grouse populations to avoid listing under the Endangered Species Act. The NTT report and Sage Grouse Recovery Alternative provide bases for developing adequate regulatory mechanisms to protect sage grouse. Unless agencies implement an improved core area strategy for the species, the U.S. Fish and Wildlife Service will be compelled by the facts and law to list Greater Sage grouse under the Endangered Species Act.

Prescribed fire and vegetation treatments

A great many vegetation manipulation projects are being undertaken in the name of sage grouse habitat improvement. These projects are typically pursued in the name of maximizing the number of acres treated for sage grouse (and often more primarily, livestock) benefit, without regard to whether the vegetation manipulations undertaken improve sage grouse habitat in the short or long term, result in short-and/or long-term impacts to sage grouse habitats and populations, or have no effect at all. The Conservation Objectives Team report (U.S. Fish and Wildlife Service 2013: 44) recommended the following: "Avoid sagebrush removal or manipulation in sage grouse breeding or wintering habitats." We are concerned that the Northwest Colorado EIS cites to Wallmo (1980) to argue that fire causes browse plants to resprout following fire, and then argues that fire increases productivity of forage and cover for sage grouse. DEIS at 525. Almost the entire sage grouse diet is made up of sagebrush, and this shrub also provides the key structural cover. Scientific studies relevant to impacts of vegetation treatments to sage grouse have found these to have negative impacts on sage grouse. See Attachments 16, 17. But <u>sagebrush does not resprout from remaining stumps/root masses following fire</u>, and thus fire deprives sage grouse of both cover and forage over the long term, in

addition to facilitating the spread of cheatgrass as BLM notes in its impact analysis. This error in analysis needs to be corrected in the FEIS.

Haufler et al. (2007) created a framework for offsite mitigation that would actually require the immediate impacts of projects to be offset in real time, rather than having a system of tangible known impacts today with speculative promises of offsetting improvements to habitat in the future, which is the present model of offsite mitigation:

> "The fundamental concept underlying credit trading programs (indeed, underlying any mitigation effort) is that it is possible to compensate for lost "services" (or "values") at one site (the impact site) by replacing or increasing the same services at another site (the mitigation site) through purposeful management at the latter site. The challenge is to develop a consistent framework for quantifying the services lost or gained at each site, so that all parties can have confidence that the losses and gains are in fact commensurate…. It is recommended that credits accrue only when beneficial change is actually documented, rather than when a commitment to undertake conservation action is made. This recommendation addressed the risk component discussed above. More risky mitigation measures can be encouraged, but would not generate credits until they are shown to produce desired conditions…. To ensure that a temporary shortage of ecosystem services (i.e., habitat) is not created, credit units should not be released and exchanged for debit units before the actual improvements in the ecological integrity have occurred elsewhere on the landscape."

Such a system is diametrically opposed to today's model of offsite mitigation, in which impacts are immediate but offsetting habitat improvement projects offer benefits that are deferred, if they occur at all.

We are concerned that many, if not most, of these "habitat improvement" projects are actually harming sage grouse habitat in the long term and that the remainder will cause short-term impacts to sage grouse populations that contribute to the multiple serious threats to their existence. The scientific basis for many such projects (which include prescribed burns and mechanical or herbicidal thinning or removal of sagebrush) is extremely shaky, and given the lack of familiarity of the project proponents with basic sage grouse habitat requirements, such projects may unintentionally cause additional damage to sage grouse habitats. The impacts (positive and/or negative) of such projects have not been rigorously tested, and thus their results for improving (or harming) sagebrush habitats remain open to speculation.

BLM should rigorously evaluate all sagebrush habitat treatment projects to determine how exactly they will impact sage grouse populations prior to counting such projects as assets toward sage grouse recovery or threats to sage grouse persistence. The parameters of these projects should be compared to scientifically established habitat requirements for the grouse: for example, is thinning being implemented in sagebrush stands that exceed the canopy cover preferences of grouse for that type of habitat, or is canopy cover already optimal or too sparse for sage grouse habitat needs? According to one WAFWA commentor, "Some of these proposals are of questionable value, and may actually be detrimental, in terms of impact on sage grouse conservation" (WAFWA 2006b:13). We suspect that many (if not most) such habitat enhancement projects are also prescribing treatments that will harm rather than help sage grouse habitat quality, but instead of being vetted by review from independent scientists, they are proceeding forward in the absence of any critical evaluation of their end effects. Braun et al. (2005) and Rowland (2004) provide basic reviews of sage grouse habitat requirements from a vegetative perspective.

The most frequently cited "study" used to justify such projects is an unpublished report prepared for the Deseret Land and Cattle Company, which notes positive results for sage grouse but which lacks either spatial or temporal controls to determine whether sage grouse population response was the result of the treatment applied or a happy circumstance of climactic conditions that would have produced sage grouse population growth in the absence of habitat manipulation. In any case, the Deseret Ranch example is part of a very costly and intensive combination of mechanical and grazing treatments; this ranch (unlike most rangelands in the sage grouse range) is not being managed to maximize livestock production, but instead trophy elk hunting is the primary management priority (Clait Braun, pers. comm.). Furthermore, Deseret sage grouse populations have been declining similarly to other sage grouse populations in the surrounding area during recent years. Sagebrush "enhancement" projects being implemented across the range if the sage grouse are not replicating all aspects of the Deseret program.

We remain unconvinced that the proposal to maintain sagebrush canopy at 12 or 15% in the context of sagebrush treatments will provide adequate protections for sage grouse. *See* DEIS at 155. There is nothing magical about 12% canopy cover for Wyoming big sagebrush or 15% for mountain big sagebrush; scientific studies have reached widely different conclusions regarding optimal sagebrush canopy cover for sage grouse. In Montana, Eng and Schladweiler (1972) found that 82% of winter sage grouse sightings occurred in canopy cover greater than 20%, and a preference was shown for dense stands on lands with little slope. Kerley (1994:113) recommended, "Because shrub stands used during winter (category 3 stands) make up a small proportion of available habitats, these patches on south facing slopes, as well as other traditional wintering sites, should not be treated [to remove or reduce shrubs]." Connelly et al. (2000) concurred, recommending against habitat manipulation in sagebrush stands of 10-30% canopy cover heights of at least 25 cm to protect winter habitats.

Prescribed fire is commonly employed putatively to "improve" sage grouse habitat. Such projects are often supported by livestock operators, who typically are primarily concerned with eliminating sagebrush with the misguided belief that this will result in a net increase in forage for livestock. Sagebrush recovery following such fires takes decades, and can take more than 100 years, causing an immediate reduction in habitat effectiveness for sage grouse in pursuit of some eventual increase in habitat effectiveness at some point in the (distant) future.

The net result is that, under the offsite mitigation model, immediate welfare of the sage grouse today is being mortgaged for eventual habitat improvements that are speculative at best. However, unlike pheasants, sage grouse are known to respond poorly if at all to habitat enhancement projects (WGFD 2007). In the WAFWA forum participants noted,

> "It's important for people to understand that if we are doing habitat projects, it often takes a matter of 10, 20, even 30 years to restore shrub habitat. Habitat treatments that put money on the ground today are speculating on the long-term success of the treatment, and of the sage grouse response to those treatments. So we'll have to find a way to figure this much longer time frame into our calculations" (WAFWA 2006b: 13).

In the absence of rigorous scientific evidence supporting the translation of habitat enhancement projects into increased sage grouse population numbers, BLM should exclude such projects from sage grouse Priority and General habitats. It is important to note that in Northwest Colorado, approximately 10% of both Priority and General Habitats have already been converted to hayfields and other crop agriculture. DEIS at 275.

The role of fire in the sagebrush ecosystem, and how (or if) it drives the patch dynamics of the system, is poorly understood at present. 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). Large fires of high frequency can extirpate sage grouse populations (Pedersen et al. 2003). In Idaho, reduction of 57% of sagebrush canopy cover resulted in sage grouse population reductions (Connelly et al. 2000b). Thus, it is far from clear that projects which reduce sagebrush density or extent actually benefit sage grouse in the short or long term.

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). BLM notes that wildland fire was relatively infrequent and burned only a small acreage in northwest Colorado from 2000 to 2012. DEIS at 288. Please note that Tables 3.29 and 3.30 contain

mathematical errors; the overall average fire size between 1992 and 2012 should be 31.7 acres and 124.9 acres respectively based on the data presented. DEIS at 289. 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. 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). We are concerned that silver sage faces similar circumstances, although recovery times may be shorter.

The spread of cheatgrass, which thrives in the wake of fire (both natural and human-caused) further complicates post-fire sagebrush recovery. Once cheatgrass invasion begins, fires result in pure stands of cheatgrass, which tends to burn on a 2-5 year cycle, preventing the re-establishment of native vegetation. Biologists have observed, "Under current, altered fire regimes, natural re-establishment of sagebrush after burning (especially basin big sagebrush and Wyoming big sagebrush) is unlikely" (WAFWA 2006b: 66). Fires and subsequent cheatgrass invasion were a cause of major habitat loss in many of the sage grouse units in northern Nevada, and risk of large-scale habitat loss was high even in areas that had not experienced major problems in the past (Baker 2007).

Many sagebrush "control" projects are undertaken based on the perception that sagebrush stands that are dense or tall produce less forage for livestock and also are poor sage grouse habitat; these habitats are based on entrenched myths that conflict with the scientific evidence at hand (Welch and Criddle 2003). Cooper et al. (2007) found no increase of desirable forbs for sage grouse following prescribed fire, but did find a significant increase in exotic forb and grass species following burns.

Once sagebrush is eliminated from the landscape through habitat projects, its recovery can be problematic. Re-establishment of big sagebrush is particularly problematic, as drought stress is particularly acute and seedlings may only become established in unusually wet years or microhabitats. (Lysne 2005, Shaw et al. 2005).

While 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, projects have been put forward in the name of habitat improvement when canopy cover is less than this threshold, and where the proposed treatment is closer to lek sites.

The recovery of sagebrush "treatment" areas is further complicated by livestock grazing, which can hamper the establishment of native plants and spread the seeds of noxious weeds such as cheatgrass. Lambert (2005) recommended protecting re-seeded areas from livestock grazing for no less than 3 to 5 years. However, this standard is virtually never adhered to in practice in the West, where virtually every acre of public land falls within a grazing allotment.

Because the sage grouse is dependent on sagebrush, sagebrush treatments are likely to have major impacts on sage grouse population viability. Call and Maser (1985) asserted that the spraying of sage grouse nesting habitats is deleterious because it reduces nest cover from avian predators and suppresses forbs that are important in the sage grouse diet. According to Kerley (1994), "shrub stands of 20-40% cover are needed for successful nesting and this shrub coverage should be maintained on identified breeding complexes [within 3.2 km of leks]" (p. 113). Wamboldt et al. (2002) 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" (p.24).

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." According to Beck and Braun (1980:563),

> "At present we do not know the relative value of a small versus large strutting ground to the population. Therefore we should afford equal merit to all and strive to maintain the adjacent habitats, especially areas with sagebrush (*Artemesia*) suitable for nesting and brood rearing."

Hess and Beck (2012) found that neither burned nor mowed areas produced suitable sage grouse habitats. Call and Maser (1985) stated that spraying should not occur within the breeding complex (which they defined as within 2 miles of a lek), and should also be forbidden in known grouse winter ranges. Taking into account the negative effects of vegetation treatments on sage grouse nesting and lekking areas, and uncertainty in the overall extent of sage grouse nesting habitat surrounding lek sites in the Great Plains region, the BLM should prohibit vegetation treatments within ***3 miles*** of sage grouse lek sites.

BLM proposes to continue to allow the use of prescribed fire in Priority Habitats, which will cause negative impacts to sage grouse populations. BLM measures under Alternative D would

limit prescribed fire in ACECs to lands with more than 12 inches of annual precipitation, and allows use only where cheatgrass invasion is a low potential threat, which is a sound policy. Prescribed fire not only harms sage grouse by eliminating the sagebrush that is their key habitat element, but also promotes the spread of cheatgrass, which are becoming ever more widespread in northwest Colorado. Required measures for prescribed fires reduce the negative effects but do not drop them below the threshold of a significant impact to sage grouse.

We strongly concur with the need to abstain from vegetation treatments in Priority Habitats except where they are consistent with maintaining optimal sage grouse habitat, per both Alternatives B and C. DEIS at 155. There is a growing scientific consensus that burns and mechanical treatments are deleterious to sage grouse. We applaud the BLM proposal in the Preferred Alternative to assess non-native seedings and restore them to native vegetation if this is the most optimal option for sage grouse habitat. DEIS at 156. BLM and the Forest Service should also adopt the requirement for grazing exclosures and long-term monitoring following vegetation treatments in Alternative C. *Id*. It is important to rest burned areas from livestock grazing for at least 2 full seasons following disturbance. The agencies should adopt the grazing response to drought from the Idaho – Southwest Montana RMP Amendment, which requires adjusting grazing management to provide adequate food and cover for sage grouse during drought.

Fluid Mineral Leasing

According to the Northwest Colorado DEIS managed by federal agencies, of the 960,000 acres of Priority Habitats, only 10% are closed to fluid minerals leasing. *See* DEIS at Table 3.35. The rest remains open. The Priority Habitats identified in this PMP amendment should be closed to future oil and gas leasing, in order to head off future conflicts between fluid minerals development and sage grouse conservation. By sunsetting oil and gas leasing, BLM would give operators the opportunities to prove up leases that they already possess, and for those that are not developed, the lands would no longer be encumbered with valid existing rights which would allow at least limited industrial activity in some cases.

BLM should also consider a phased leasing alternative under which a third or less of the planning area is open at any given time to leasing and development. Leases that are not drilled and held by production are forfeited back to the agency after their 10-year lease term expires, except in cases of unitization. It makes the best sense for BLM to close areas that are highly sensitive to future leasing even if they are leased today; most of BLM's Wilderness Study Areas were heavily leased upon establishment, and even though operators were given the opportunity to be grandfathered in if these leases were developed, few were and today WSAs are almost entirely free of the encumbrance of oil and gas leases.

Connectivity Areas are of crucial importance to sage grouse. 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 addition, it is critically important for BLM to identify and protect winter concentration areas. These lands, once identified under the RMP supplement, should be withdrawn from future mineral leasing and entry of all kinds, with Conditions of Approval applying NSO stipulations inside and within 2 miles of these areas, disturbance limits of 3% per square mile and one wellpad per 640-acre section, exclusion of overhead powerlines, and seasonal road closures within the winter habitats.

We strongly urge the BLM that Priority Habitats should be withdrawn from future oil and gas leasing, allowing existing leases to lapse as they expire, as in Alternatives B and C. DEIS at 161. Existing leases should have all measures approved under the RMP revision applied as Conditions of Approval. However, the Preferred Alternative would not apparently close Priority Habitats to future oil and gas leasing. *Id.* BLM should close sage grouse Priority Habitats to future oil and gas leasing as a means of steering future land uses away from conflict in the future.

Alternatives B and C would apply Timing Limitation Stipulations only to exploratory wells. DEIS at 518, 519. In addition to other protections, Timing Limitations need to be applied to all drilling and other permitted industrial activities in Priority and General Habitats. Impacts from industrial projects are in no way limited to exploratory drilling, and all such activities should be restricted to non-critical seasons within Priority and General Habitats. In this regard, Timing Limitation provisions in Alternative D should be paired with the substantive restrictions on leasing, well density, surface disturbance density, and setbacks contained in Alternatives B and C.

Coal Leasing

We are concerned that future development of coal resources could have a massive impact on remaining sage grouse populations. In northwest Colorado, 21% of priority habitats are unleased for coal and also suitable for coal leasing, with 4% currently under lease. DEIS at 303. All priority habitats should be found unsuitable for coal leasing under the RMP amendment in order

to prevent direct destruction of sage grouse habitats through strip mining and indirect impacts from grouse being driven away from otherwise suitable habitats adjacent to mine sites and associated access roads and facilities by increased industrial activity. The Preferred Alternative approach of finding Priority Habitats unsuitable for surface mining for coal is the right sentiment, but exception language (*see* DEIS at 521) should be stripped away in order to provide regulatory certainty. In the end, BLM should adopt the approach outlines in Alternatives B and C. We are concerned that this uncertainty also undermines the BLM's ability to describe the magnitude of impacts under Alternative D, rendering the legally required 'hard look' impossible. *Id*.

Locatable Minerals

The Preferred Alternative offers essentially no protection from locatable minerals mining, and given the limited latitude that agencies have to regulate projects under the 1872 Mining Law, this is a particularly egregious abdication of the responsibility to protect and restore sag grouse populations. The priority habitats designated should all be withdrawn from locatable minerals entry, and the federal agencies should propose this through the RMP amendment. We lack confidence in federal agencies' abilities to restrict the level of activity and surface disturbance on mining claims filed under the 1872 mining law to accommodate sage grouse habitat needs. Therefore, the appropriate course of action is to avoid allowing claims to issue in these priority habitats.

We are particularly concerned about the potential for uranium extraction, be it underground, strip mining, or through *in situ* drilling and extraction methods. In northwest Colorado, numerous mining claims have been filed in North Park (DEIS at 311), and the Poison Basin uranium mining claims are just across the Wyoming border from the Little Snake Field Office, indicating the potential for significant deposits in this area as well. We concur with BLM's association that Alternative D would have greater impacts than Alternatives B or C (DEIS at 532), but what exactly is the forecast magnitude of impacts of the resulting mining? Will local sage grouse populations decline? The EIS is silent on this question.

Salable Minerals

Salable minerals include gravel pits, limestone quarries, and decorative rock, and sand deposits. Extraction typically entails small-scale operations that nonetheless can have significant direct and indirect impacts on sage grouse and their habitats. There are abundant opportunities for salable minerals extraction outside sage grouse habitats, and therefore all priority and general habitats should be closed to salable mineral operations in order to foster sage grouse population maintenance and recovery.

Juniper Encroachment

BLM asserts that junipers have been expanding into sagebrush habitats as a result of fire suppression over the past century. DEIS at 275. This is a somewhat dubious claim, given that sagebrush also is eliminated by natural fire, and is contradicted by the management priority of suppressing natural fires in sagebrush habitat. Although natural fire may well have modified distribution of both sagebrush and juniper in presettlement times, such fires were infrequent (as noted elsewhere in these comments). In addition, BLM's presumed management strategy of mechanical removal of junipers, while perhaps beneficial to sage grouse if done in a non-invasive way (i.e., removal of the entire tree from the site), has no natural counterpart under reference conditions. BLM asserts that 275,300 acres of sage grouse habitat are affected by juniper encroachment at this time. DEIS at 275. Instead of focusing exclusively on fire as a mediator of juniper spread, BLM should also examine the effects of radical increases in ungulate grazing that have occurred with the onset of large-scale ranching in this area, which could potentially confer competitive advantage on junipers through the removal of both grasses (cattle) and sagebrush (sheep).

Livestock Grazing

Livestock grazing can influence sage grouse habitat suitability, particularly overgrazing which can reduce understory grasses below critical thresholds and alter the density of sagebrush. In their study on sage grouse in eastern Oregon, Call and Maser (1985) made the following basic assumption: "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" (p. 3). According to Autenreith et al. (1982), heavy livestock grazing during the sage grouse nesting or brood rearing seasons is deleterious. 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." In northwest Colorado, BLM recognizes that "Across Management Zones II and VII, livestock grazing ranks just below energy development and urbanization as a threat in eastern portions of the range of GRSG (Stiver et al. 2006)." DEIS at 947.

Livestock grazing also leads 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, Attachment 18). In order to minimize the spread of cheatgrass, livestock forage removal limits need to be set under the RMP amendment, allowing no more than 25% of the available forage to be consumed each year. One must only look a short distance to the west in the vicinity of Vernal, Utah to see the devastation of rangeland (and more pertinently to this amendment, sage grouse habitat) that can be wrought

by this invasive weed. In northwest Colorado, over 3 million acres of sage grouse habitat is already infested with cheatgrass. DEIS at 279. BLM must restore degraded habitats by managing for elimination of cheatgrass from the system.

Importantly, only 53% of priority habitat and 45% of general sage grouse habitats in the Northwest Colorado planning area met rangeland health standards. DEIS at 280. Indeed, these figures may underestimate the magnitude of the problem through exclusion of KFO and WRFO areas that are known to have problems in this regard. *Id*. Please gather the data for these excluded jurisdictions and present a final and complete tally in the FEIS. Some 390,200 acres in identified sage grouse habitats are currently not meeting rangeland health standards. DEIS at 333. This broad-scale failure of federal agencies to successfully manage livestock grazing at ecologically sustainable levels is indicative of a need for strong remedial action. Existing livestock management is clearly failing across the majority of sag grouse habitats. Rangeland health standards must be met across all sage grouse habitats, and the most immediate method of achieving his is through the reduction of stocking levels for livestock. BLM also notes deficiencies in its riparian and wetland surveys across the planning area, and does not present summary statistics for acreage of sage grouse habitat that is not meeting Properly Functioning Condition criteria. DEIS at 281. Please address this deficiency in baseline information, as riparian areas are crucial to sage grouse as brood-rearing habitats, and present this information in full in the FEIS.

All livestock allotments are managed under a rotational pattern, some using herding and others using fencing. However, scientific studies are split on the effectiveness of this approach, with many studies pointing out that it is the number of Animal Unit Months, not the pattern of grazing, that is the key factor in maintaining rangeland health. Bock et al. (1993b) noted that rotational or uniform grazing pressure leads to uniform habitat types rather than a mosaic of successional stages, a result of the slow recovery of ecological succession compared to the typically rapid frequency of grazing rotation. But while optimization for livestock weight gain may maximize livestock production while maintaining net primary productivity, it may also shift the community away from late-successional dominants (which have high value to grouse) to mid- to early-successional annuals, including introduced weed species (Briske 1993). Given that fencing is a major cause of collision mortality for sage grouse, the use of fencing for rotational grazing should be discontinued, and allotments with fences within designated sage grouse habitat should have their fences removed.

BLM notes that tamarisk is increasing in riparian areas (DEIS at 284); we are concerned that this will also degrade brood-rearing habitats. What is the relationship between tamarisk invasion and livestock overgrazing in riparian habitats, and what does BLM propose to do to address the spread of this invasive tree?

The potential conflict between livestock grazing and sage grouse is intensified near water sources due to the importance of these areas to sage grouse. Heavy cattle grazing near springs, seeps, and riparian areas can remove grasses used for cover by grouse (Klebenow 1982). According to Call and Maser (1985: 17), “rapid removal of forbs by livestock on spring or summer ranges may have a substantial adverse impact on young grouse, especially where forbs are already scarce.” BLM should fence off natural springs and place livestock water sources

outside the fences rather than at the spring itself. If past actions have dried up natural springs or wetlands to create stock tanks, then remedial action should be required return some water to ground for sage grouse and vegetation, in an area protected from livestock.

Holloran (1999) documented that livestock disturbance caused a sage grouse hen to abandon her nest in one case. Call and Maser (1985: 17) noted that nest desertion is most prevalent in the vicinity of sheep bedgrounds, and reached the following conclusion: "There is no indication that livestock are a serious factor in the destruction of nests, although desertion of nests because of livestock activities is frequent under certain conditions." In addition, the presence of livestock in nesting habitats can cause problems for sage grouse. Livestock drives could also negatively impact sage grouse populations during the nesting season. According to Call and Maser (1985: 18), "Hens abandon their nests with little provocation during the egg-laying period (mid-April through early May). Yearling hens are prone to abandon their nests even when disturbed during incubation. The impact of a livestock drive could, therefore, be great because yearling hens are usually the largest reproductive age class." For allotments where sage grouse nesting is known to occur, shifting on-off dates (if necessary) could minimize the chances of impacts to nesting sage grouse, and livestock drives should be routed to avoid sage grouse leks during the strutting and nesting seasons.

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. Sage grouse require residual grass as cover as a component of nesting habitat. BLM should include residual grass requirements inside all sage grouse habitats to be applied in as amendments to Allotment Management Plans. Kaczor (2008) found that a residual stubble height of 10.2 inches best provided for the habitat needs of nesting sage grouse in South Dakota. The RMP should include at least one alternative that targets a residual summer height of 18 cm to 10.2 inches throughout sage grouse nesting habitat during the nesting season.

All allotments in Priority Habitats must be managed to meet or exceed Rangeland Health standards, and following natural fires, livestock should be excluded for at least a 2-year period.

We encourage BLM proposal to implement the following measures for grazing; these standards should be supplemented with measurable benchmarks to ensure strong rangeland health.

> Incorporate sage grouse habitat objectives and management considerations into all BLM grazing allotments through AMPs or permit renewals.
>
> Work cooperatively on integrated ranch planning so operations with deeded/State/BLM and/or USFS allotments can be planned as single units.

Prioritize completion of land health assessments and processing grazing permits in Priority Habitat. Focus this process on allotments that have the best opportunities for conserving, enhancing, or restoring habitat for sage grouse. Utilize ESDs to conduct land health assessments to determine if standards of range-land health are being met.

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. If local/state seasonal habitat objectives are not available, use sage grouse habitat recommendations from Connelly et al. 2000 and Hagen et al. 2007.

Develop specific objectives to conserve, enhance, or restore greater sage grouse Priority Habitat based on BLM ESDs and assessments (including within wetlands and riparian areas). If an effective grazing system that meets sage grouse habitat requirements is not already in place, analyze at least one alternative that conserves, restores, or enhances sage grouse habitat in the NEPA document prepared for the permit renewal.

Manage the Greater Sage grouse Core Habitat Areas as ACECs for vegetation composition and structure consistent with ecological site potential and within the reference state to achieve sage grouse seasonal habitat objectives.

During drought periods, prioritize evaluating effects of the drought in greater sage grouse Core Habitat Areas relative to their needs for food and cover. Since there is a lag in vegetation recovery following drought, ensure that post-drought management allows for vegetation recovery that meets sage grouse needs.

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. Also conserve or enhance these wet meadow complexes to maintain or increase amount of edge and cover within that edge to minimize elevated mortality during the late brood rearing period.

Where riparian areas and wet meadows meet proper functioning condition strive to attain reference state vegetation relative to the ecological site description.

Reduce hot season grazing on riparian and meadow complexes to promote recovery or maintenance of appropriate vegetation and water quality. Use fencing/herding techniques or seasonal use or livestock distribution changes to reduce pressure on riparian or wet meadow vegetation used by sage grouse in the summer.

Avoid grazing and trailing within lekking, nesting, brood-rearing, and winter habitats during periods of the year when these habitats are used by sage grouse.

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

In addition to these standards, for sage grouse Priority and General Habitats there should be a decision procedure and actions described below, depending on habitat conditions.

1. Assess which lands meet the Connelly el al. (2000) guidelines both in riparian areas and upland areas in Table 3. Include the conservation community and grazers in this assessment.

2. For those not meeting these guidelines, determine that the allotment does not meet rangeland health standards. To meet these standards, the sagebrush community must meet or exceed the height and percent canopy cover percents for sagebrush, native grasses, and forbs in Table 3 (Connelly et al. 2000).

3. Change grazing use as necessary so that upland and riparian areas have a positive 2 or better Grazing Response Index (GRI) score for allotments not meeting standards.

4. For allotments that meet standards, insure grazing practices produce a "0" or plus net GRI score.

5. In sage grouse nesting areas, do not allow grazing until after the 20th of June (Braun 2006).

6. During permit renewal, inventory the amount of forage produced in the allotment, assess the allotment ecological conditions, and document past grazing use. As a part of permit renewal, conduct a range capacity analysis to assess the stocking rate for the allotment. Stocking levels for allotments that meet standards should lead to less than 25% utilization (Braun 2006) and for allotments not meeting standards, less than 15% utilization.

7. For allotments not meeting the rangeland health standards, prohibit grazing during a severe or worse droughts as defined by the national drought monitor.

8. For allotments that meet the standards, reduce grazing use prior to a drought to utilization levels less than 10-15% utilization for forage expected during the drought.

9. In sage grouse habitats, produce an annual end-of-season report for each allotment. This report should note the planned grazing use for the season, note the grazing use that occurred, report the results of any monitoring, document precipitation/drought information, describe any projects completed, and note successes or problems encountered. These should include conservation community and grazer information and be posted on the web.

According to the Conservation Objectives Team (U.S. Fish and Wildlife Service 2013: 45), the following objective should be a guiding principle:

> Conduct grazing management for all ungulates in a manner consistent with local ecological conditions that maintains or restores healthy sagebrush shrub and native perennial grass and forb communities and conserves the essential habitat components for sage grouse (e.g. shrub cover, nesting cover).

The Northwest Colorado RMP amendment should implement its management standards such that this direction is achieved. Furthermore, we recommend that BLM should include a provision to retire livestock grazing allotments on a willing-permittee basis when they come up for renewal under all alternatives, as is included under all alternatives in the BLM's South Dakota RMP Draft EIS. The requirement that surrendered allotments become part of a grass bank is bad policy for sage grouse conservation, as grass banks will almost always be grazed. Allowing retired allotments to be purchased and taken out of service is a far preferable outcome for grouse.

Livestock Grazing and Riparian Habitats

Livestock overgrazing is one of the principal concerns when maintaining riparian areas in Properly Functioning Condition. Armour et al. (1994: 11) reported, "Problems from overgrazing are particularly acute in the West, where lush vegetation is confined to stream corridors. Livestock tend to concentrate in these areas, especially in the hot seasons, where they can overgraze and damage habitat." According to a 1988 report by the U.S. General Accounting Office, an overwhelming majority of riparian habitat in the West was in degraded condition (GAO 1988). Ohmart (1996: 257) reported, "my experiences are that almost all riparian areas are in unacceptable condition." In a study in Colorado's North Park, Schulz and Leininger (1990) found that after 29 years, a grazing exclosure held 5.5 times more woody plant cover, larger and older willows, twice as much leaf litter, and one-fourth the bare ground of the surrounding grazed riparian area.

Due to more succulent vegetation and easy access to water, cattle often concentrate in riparian areas, leading to heavy damage to these important habitats. In Oregon, Bryant (1982) found that cattle used riparian zones disproportionately, regardless of aspect, during early summer, while use of uplands increased in late summer. Armour et al. (1994: 11) summarized potential impacts of grazing in riparian areas as follows: "Damage includes (1) loss of riparian vegetation by

changing the composition and quantity of streamside vegetation and altering channel morphology, (2) lowering the groundwater table and decreasing summer stream flows, and (3) increasing summer water temperatures and winter icing." The BLM's grazing policies and practices should discourage the concentration of cattle in the riparian zone.

Numerous studies have found that livestock grazing in riparian areas reduces woody vegetation (Green and Kaufman 1995). In the Ferris Mountains of Wyoming, Hubert et al. (1985) found that abundance of riparian shrubs, overhanging vegetation, and overhanging bank cover were negatively correlated with grazing intensity. Kauffman et al. (1983) found that after herbaceous vegetation is depleted by grazing, cattle turn to browsing, which sometimes exceeded 100% of the current year's growth. Taylor (1986) found that riparian bird counts were 5-7 times higher on exclosure versus grazed transects, and 9-11 times higher than on heavily grazed and dredged transects. According to Giesen and Connelly (1993), livestock grazing in riparian areas should be managed or eliminated to minimize destruction of hardwood shrubs and trees needed for sharp-tailed grouse winter habitat. Under the amended RMPs, standards should be put in place to protect healthy woody vegetation in riparian areas, and to restore it in areas that have become degraded.

The pattern of grazing may have a significant effect on efforts to maintain riparian areas in Properly Functioning Condition. Bryant (1985) found that season-long grazing had the greatest negative impact on riparian vegetation. Late season grazing may result in less disturbance to riparian communities (Green and Kaufman 1995). Clary (1995:24) made the following recommendation for grazing in riparian areas: "If utilization guidelines are used, those rates that do not exceed 30% of the annual biomass production will likely maintain production the following year." Riparian areas should be the focus of monitoring efforts, as these areas can become ecologically impaired before upland habitats begin to show signs of damage.

Methods of Protecting Riparian Habitats

Placing salt blocks in upland areas is not an effective means of drawing cattle use away from riparian areas. Bryant (1982:784) found that salt placement and alternate water sources did not influence cattle preference for riparian habitats, and came to the following conclusion: "These cattle used the salt when convenient but did not alter behavior patterns to obtain it." Thus, the BLM should not rely on the placement of salt blocks as a means to draw livestock away from riparian habitats.

The use of riders to herd cattle away from riparian zones has been shown to be an effective method to achieve the restoration of degraded riparian zones. According to Kauffman and Kreuger (1984:435), "The most successful riparian management alternative on public lands to date has been intensive livestock management by permit holders…Herding livestock on a somewhat daily basis has been successful in limiting the number of livestock that visit streambottoms and improving utilization of upland areas." On Huff Creek, a tributary of the Thomas Fork in western Wyoming, deferring grazing until August and providing a range rider to

move cattle out of the riparian zone resulted in a 377% increase in trout population, improvement in bank stability, and 214% increase in cover (GAO 1988a). Interpreting the results of this project, the U.S. General Accounting Office concluded, “The study noted that careful control of the cattle herd by the range rider was essential for success” (*Ibid*., p.28). But Roath and Kreuger (1982) found that some cattle concentrated exclusively in riparian areas, and that cattle establish individual home ranges and herding them away from these ranges will not prevent their rapid return.

A change in grazing regime may also lead to the restoration of Properly Functioning Condition in some cases. Bryant (1985) found that while rest from grazing showed the greatest increase in riparian vegetation, short-duration grazing elicited a threefold increase in vegetation in riparian areas. Productivity was enhanced when no more than 70% of the forage was removed annually (*Ibid*.).

Rest from grazing can also result in the restoration of degraded riparian zones. According to Ohmart (1996: 270), “The best way to manage riparian habitats is not to graze them." For example, in Bone Draw, a tributary of the Big Sandy River, removal of grazing resulted in “expansion of the riparian zone, stream bank water recharge and stabilization, extension of perennial water flows, and improved sage grouse, antelope, and waterfowl habitat. Also, as a result of the project, trout weighing up to 4 pounds were making an annual spring run of up to 100 miles of the Big Sandy and Green Rivers and into Bone Draw” (GAO 1988: 56). In eastern Oregon, Case and Kaufmann (1997) found significant increases in the structure and density of riparian hardwoods after only 2 years following livestock removal. Rickard and Cushing (1982) found that a small spring stream in sagebrush steppe in eastern Washington recovered its willow vegetation within 10 years following the cessation of grazing. Brady et al. (1989) found that after a 16-year absence of grazing, the plant community achieved a rich and diverse balance, with increases in plant diversity and overall vegetation cover. For optimal riparian zone recovery, Case and Kaufman (1997) recommended complete protection from grazing for the first 5-10 years following livestock removal.

Recovery of riparian areas may be rapid following cessation of grazing. In their eastern Oregon study, Case and Kaufman (1997) found that following removal of cattle after more than a century of heavy grazing, riparian shrubs and trees recovered quickly both inside and outside game exclosures. This indicates that riparian areas can recover even while grazing by wild ungulates continues, when an area is rested from domestic livestock grazing. Clary et al. (1996) found that removal of grazing and reduction to moderate levels allowed streamside willows to recover, while heavy grazing prevented willow recovery. In this study, spring grazing regimes promoted willow recovery much more than autumn grazing.

Off-Road Vehicle Use and Recreation

We are concerned that off-road vehicle use is a threat to the viability of greater sage-grouse populations, and that it should be carefully managed to prevent impacts to grouse populations. Off-road vehices are noisy, and typically exceed the background noise levels by more than 10 dBA (DEIS at 399), thereby creating disturbance for sage grouse. In addition dust can inhibit the growth of forbs, sagebrush, and other plants important to the sage grouse diet. In northwest Colorado, 711,900 acres of Extensive Recreation Management Areas ("ERMAs") are in Priority Habitat and 686,300 acres are in general habitat. DEIS at 327. Some of these ERMAs represent concentrated motorized use, either for dirt-bikes or ATVs. DEIS at 328. For both categories of sage-grouse habitat, BLM should impose seasonal closures of these areas during the breeding and nesting season, and during winter for winter concentration areas. For Priority Habitat, BLM should also close these areas through the early- and late-brood-rearing seasons.

BLM's must limit motorized vehicles to designated (not "existing") routes, which will be identified through travel management planning across northwest Colorado. But it is not enough simply to limit vehicle use to designated routes; simply designating all or most routes for vehicle travel will result in negligible improvement of habitat conditions for sage grouse. BLM should also apply a maximum road density, no more than 0.7 linear miles per square mile within 2 miles of leks within Priority and General Habitats (after Holloran 2005). The agencies should apply restoration to roads not designated as open during travel planning.

Special Recreation Permits should be allowed only in cases where they have no negative impact of sage grouse populations and/or habitats. BLM would apparenmtly apply such management in the preferred alternative, and if so we support this action.

Wilderness Study Areas and other management designations that maintain wilderness qualities also maximize sage grouse habitat conservation effectiveness. In northwest Colorado, 116,800 acres within Priority and General Habitats have been designated as Lands with Wilderness Characteristics. DEIS at 396. To the extent that BLM has identified Lands with Wilderness Characteristics within Priority or General Habitats, these should be designated for full protection of these wilderness characteristics through the sage grouse plan amendment process, in recognition that this management provides strong protection for sage grouse habitat values.

Problems with the EIS's NEPA Analysis

We are concerned that the federal agencies are not fulfilling NEPA's baseline information requirements with regard to the analysis of alternatives. Specifically, data on the size of sage grouse populations within the Colorado River Valley Field Office is based on lek counts from 2004. DEIS at 244. These data are almost a full decade old, and cannot be expected to reflect current population sizes in light of the massive increase in natural gas development in sage grouse habitat in this area since 2004. Lek counts are performed by Colorado Parks and Wildlife every spring, and we would expect at minimum that current population estimates in the DEIS be based on 2012 data, while FEIS baseline information can and should incorporate Spring 2013 data. We are also concerned that the direct and cumulative impact analyses in the Draft EIS offer only a laundry list of conservation measures, without evaluating their efficacy and overall impact on sage grouse under each alternative. Area sage grouse populations expected to increase or

decrease under each alternative in 10 years, 50 years, and 100 years? What would be the magnitude of population changes for each alternative? Copeland et al. (2013) evaluated just this question for Wyoming using a modeling approach, and we call upon the federal agencies to adopt such a modeling approach to come up with projections for sage grouse population trends under each alternative.

Additional Recommendations

The National Technical Team Report prescribes a number of conservation measures for sage grouse General Habitat, the lands outside priority habitat. These include avoidance for the purposes of rights-of-way and enhanced riparian area protections, for example. The Bighorn Basin DEIS supplement, and the Draft EIS to which it is related, do not appear to consider alternatives to provide enhanced protections for sage grouse General Habitats of the type recommended in the National Technical Team report. Under current BLM policy, the agency must fully consider implementing the recommendations of the National Technical Team in at least one alternative, and this direction applies to General Habitats. This shortcoming should be addressed in the Final EIS, and General Habitats should be accorded the protections necessary to maintain viable populations of this BLM Sensitive Species.

We are concerned that the BLM has not fully considered the Sage-grouse Recovery Alternative or the National Technical Team recommendations in full, and has not provided sufficient explanation for why this has occurred. In particular, measures to protect sage grouse wintering habitat are almost entirely absent from all alternatives, and there is no impacts analysis for permitted activities on wintering sage grouse and their habitats. There is a notable absence of baseline information in the DEIS on wintering habitats, and the lack of impacts analysis leaves open the question of how heavily wintering sage grouse will be affected by permitted activities under the new RMP, and what effect this will have on the viability of sage grouse populations both inside and outside Priority Habitats.

The BLM has also not considered protections for sage grouse for lands outside Priority Habitats, and has not fully considered NTT or Sage-grouse Recovery Alternative measures proposed for sage grouse general habitats. What will be the impact of permitted activities on grouse populations that fall outside the Priority Habitats/ACEC boundaries under this plan? The DEIS is silent on this matter.

The DEIS does not provide sufficient detail in its analysis to determine the impacts of permitted activities on sage grouse under either alternative. Will either alternative maintain or recover current sage grouse populations inside Priority Habitats, and if not, how steep will be the declines? Similarly, what will be the impact of permitted activities on sage grouse populations outside Priority Habitats? And how do these two population trend series interact to affect the overall viability of sage grouse in the Bighorn Basin? Will loss of sage grouse populations outside Priority Habitats affect population trends inside Priority Habitats? Will sage grouse be

displaced from lands outside Priority Habitats and into Priority Habitats by development, and what will be the survival rate of these displaced birds? Would the resulting competition with resident sage grouse decrease their ability to survive inside Priority Habitats? These questions need to be addressed so that BLM can make an informed choice among alternatives.

The mining withdrawal is a key component of sage grouse Priority Habitat protection. It makes absolutely no sense to limit powerlines and oilfields if a major mining operation is allowed to move in and strip-mine the habitat. Also, we concur with the need to withdraw Priority Habitats from non-energy mineral leasing and salable mineral extraction as in Alternatives B and C, for the same reason. DEIS at 175, 176.

Minimizing the use of herbicides inside sage grouse habitats, and using them as a last resort, is also a good approach for sage grouse Priority Habitats. We are concerned that aerial applications of herbicides are reasonably foreseeable on the Routt National Forest. FEIS at 282. Aerial herbicide and pesticide applications should be precluded within one mile of sage grouse habitats to avoid inadvertent poisoning of sage grouse.Although the use of Plateau in heavily cheatgrass-infested areas might be allowed in cases where sage grouse are not using the treated habitats, aerial spraying of herbicides and insectivides over or within one mile of sage grouse habitats should not be allowed. Hand spraying might be accomplished by deliberately driving grouse off by teams on foot prior to treatment, and by treating from backpack units rather than aerial or truck/ATV application.

There are a number of additional improvements in sage grouse habitat management in Alternative D that we would like to recognize and affirm. We applaud BLM's proposal in Alternative D to limit vehicle use to existing roads, with designation determinations through travel management planning within 5 years of the ROD for this plan. DEIS at 143. We also agree with the need to designate seasonal closures to protect key sage grouse habitat in all designated habitat. *Id.* In northwest Colorado, there are more than 3,500 miles of cataloged roads that cross, bisect, and fragment sage grouse habitat. DEIS at 317. There is a need to reduce road density in sage grouse habitat to the minimum network necessary. In addition, vast areas are open to off-road vehicle use. DEIS at 318. Limiting route construction activities to routes that will not adversely affect sage grouse populations (DEIS at 143) is a good step, but the word "populations" should be eliminated because BLM and the Forest Service lack the fine-grained information to distinguish between impacts to individuals and impacts to populations. Areas "open" to off-road travel should not occur within sage grouse habitat. With these factors in mind, we support the management under Alternative C, but expanded to all designated habitat.

We cannot support, however, the Alternative D guidance regarding NTT No. 5 (DEIS at 144), for two reasons. First, the phrase "construct new roads to the appropriate Gold Book standard" is so ambiguous as to be meaningless. BLM commonly requires high-impact crown-and-ditch gravel roads for wellfield access and justifies this on the basis of Gold Book standards, even though the Gold Book itself indicates that jeep trails are perfectly appropriate for wellfield access

in many cases. Some greater detail is required in this area so that the public and the agency itself can understand the requirements and management under Alternative D. We also cannot accept exceedences of a 5% disturbance cap. The 5% disturbance cap is already too high, and not consistent with either the published science (Knick et al. 2013) or the opinions of the agency's own experts in the NTT Report. There is no scientifically acceptable basis for approving exception in the absence of compensatory mitigation. And in the absence of hard evidence that compensatory mitigation actually increases sage grouse populations to compensate for habitat and population losses elsewhere, there is no scientific basis for approving exceptions when they are paired with compensatory mitigation, either.

We also agree with the proposal in Preferred Alternative to approve Special Recreation Use permits only if they maintain or improve sage grouse habitat.

We recommend the adoption of the following measures which are proposed for adoption in the Preferred Alternative of other BLM plan revisions or sage grouse amendments. Many of these are similar to the provisions of Alternatives B and/or C.

For Priority Habitats:

> Use existing roads, or realignments as described above to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary. Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road. (North Dakota RMP Amendment).
>
> New road construction would be limited to realignments of existing roads, if that realignment has a minimal impact on greater sage-grouse habitat, eliminates the need to construct a new road, or is necessary for public safety. Incorporate BMPs. Existing roads used to access valid existing rights; if unavailable, construct to minimum standard necessary. (HiLine RMP revision, North Dakota RMP Amendments).
>
> Prohibit or bury powerlines within 0.6 miles of leks unless no SG declines can be demonstrated. Prohibit overhead transmission except within 0.5 mile of existing lines, corridor a maximum of 1 mile wide. Bury lines where possible. (Buffalo RMP revision).
>
> High-profile structures exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact sage grouse. Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to sage grouse. (North Dakota RMP Amendment).

Priority Habitat would be a priority in consideration of land acquisitions. Retain public ownership of PH. Consider exceptions where: There is mixed ownership, and land exchanges would allow for additional or more contiguous federal ownership patterns within the priority sage-grouse habitat area; Under priority sage-grouse habitat areas with minority federal ownership, include an additional, effective mitigation agreement for any disposal of federal land. As a final preservation measure consideration would be given to pursuing a permanent conservation easement. (North Dakota Plan Amendments).

No Surface Occupancy stipulations required for any new fluid minerals leasing, with no option for exceptions or modifications. (California-Nevada RMP Amendment).

Close Priority Habitats to energy and non-energy leasable minerals leasing. (HiLine RMP revision, California-Nevada RMP Amendment).

Priority Habitats are exclusion areas for new renewable energy ROW permitting. (North Dakota, California-Nevada, and Idaho-Southwest Montana RMP Amendments; HiLine, Buffalo, and South Dakota RMP revisions).

Maximum 25% forage utilization for livestock grazing in each grazing allotment. (North Dakota RMP Amendments).

Employ herd management to minimize livestock impacts on sage grouse nesting habitat during spring. Hot season grazing does not occur on an annual basis. Adjust AUMs where sage grouse habitat objectives are not being met. Incorporate terms and conditions into grazing permits to meet SG habitat objectives. (California-Nevada RMP Amendment).

Avoid all new structural range developments and location of supplements (salt or protein blocks) unless independent peer-reviewed studies show that the range improvement structure or nutrient supplement placement benefits GRSG. Design any new structural range improvements and location of supplements to conserve, enhance, or restore SG habitat through an improved grazing management system relative to SG objectives. Evaluate existing range improvements and location of supplements during AMP renewal process to make sure they conserve, enhance or restore SG habitat. (North Dakota RMP Amendments).

Grazing allotments not meeting rangeland health standards and not making progress toward this goal will be closed. (Miles City RMP revision).

Permanent retirement of grazing allotments will be considered on a willing-permittee basis. (Bighorn Basin RMP revision, Miles City RMP revision).

General Sage Grouse Habitats

Limit motorized use to existing roads and trails pending travel management planning. Complete planning within 5 years of ROD. (California-Nevada RMP Amendment, North Dakota RMP Amendment).

Conduct restoration of roads, primitive roads and trails not designated in travel management plans. (North Dakota RMP Amendment).

Site and/or minimize linear ROW to reduce disturbance to sagebrush habitats. Maximize placement of power lines and transportation routes in existing ROWs. Power lines would be buried, eliminated, designed or sited in a manner which does not impact SG. ROWs would be allowed with appropriate mitigation and conservation measures identified within the terms of the authorization to minimize surface disturbing and disruptive activities. Co-locate new ROWs within existing ROWs where possible. (North Dakota RMP Amendments).

Exclusion area for renewable energy rights of way; allowable if co-located on industrial facilities for on-site generation. (California-Nevada RMP Amendment).

Allow new routes/realignments during site-specific travel planning if it improves GRSG habitat and resource conditions. Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road. (North Dakota RMP Amendments).

Only allow geophysical operations by heliportable drilling methods and in accordance with seasonal timing restrictions. (North Dakota RMP Amendments).

High-profile structures exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact sage grouse. Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to greater sage grouse. (North Dakota RMP Amendments).

Noise limited to no more than 10 dBA above ambient, where technologically feasible. (Buffalo RMP revision).

Employ herd management to minimize livestock impacts on sage grouse nesting habitat during spring. Hot season grazing does not occur on an annual basis. Adjust AUMs where sage grouse habitat objectives are not being met. Incorporate terms and conditions into grazing permits to meet SG habitat objectives. (California-Nevada RMP Amendment).

Bury new distribution lines within 1 mile of leks. (HiLine RMP revision).

Where riparian and wetland areas are already meeting standards they would be maintained in that condition or better. Where a site's capability is less than PFC, BLM would manage to achieve or move toward capability. 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. (North Dakota RMP Amendments).

Avoid all new structural range developments and location of supplements (salt or protein blocks) unless independent peer-reviewed studies show that the range improvement structure or nutrient supplement placement benefits sage grouse. (North Dakota RMP Amendments).

Do not use fire in precipitation zones < 12", except as last resort and where conditions allow and cheatgrass is a very minor component. (Northwest Colorado RMP Amendments).

By employing these measures, in addition to our recommendations contained elsewhere in these comments, BLM can best balance competing resource uses in the northwest Colorado planning area, while satisfying the agency's need to emplace adequate regulatory mechanisms to conserve greater sage grouse.

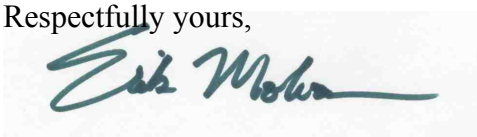
Conclusions

We appreciate the BLM's effort to improve sage grouse conservation through the Northwest Colorado RMP Amendment process. Protection measures remain unacceptably weak for oil and gas development in priority sage grouse habitats, particularly the 0.6-mile NSO buffer to be applied as a Condition of Approval. The one wellpad per square mile and 3% overall disturbance percentage are the appropriate thresholds for sage grouse habitat management, and they need to be applied on a per-square-mile basis and not using Colorado Management Zones, which allows for inflation of disturbance density inside the project area. Proposed measures for livestock grazing management under Alternative D represents a step in the right direction, and they need to be further strengthened. There are a number of allotments in northwest Colorado that are not meeting Healthy Rangeland standards, and these sites of overgrazing are having a negative impact on sage grouse populations and their habitats. In addition, more work needs to be done to strengthen siting requirements for powerlines, renewable energy projects, and other tall structures, as well as fences. Priority habitats should be exclusion areas for these features, with exceptions for buried powerlines. The National Technical Team report should be the minimum threshold for sage grouse protection in the agency's final adopted plan.

We caution the BLM that there is a need to achieve regulatory certainty in fulfillment of the USFWS Policy on Effectiveness of Conservation Efforts ("PECE Policy"). Throughout the Preferred Alternative, uncertainty is introduced through discretionary exception criteria, which would be applied in a manner that renders it impossible to know how broad the exceptions would be, covering how many acres, and resulting in negative impacts on sage grouse the magnitude of which would not be possible to calculate due to the impossibility of forecasting the degree to which exceptions would be granted. We understand that it is the agency culture of the BLM to reserve for itself broad discretionary authority to maintain a flexible approach to land management, as the NEPA and FLPMA statutes under which the agency is accustomed to operate grant broad discretion to choose any number of outcomes as long as process-based procedures are followed on the way to reaching the final agency action. The Endangered Species Act, however, is an entirely different statute, with substantive requirements that threats to the persistence of candidate species be addressed in a manner that incorporates scientifically sound and defensible protection measures to ensure that they will be eliminated or minimized. If the BLM crafts a final sage grouse plan amendment that leaves to future discretion the question of whether protective measures will actually apply within Priority or General Habitats, it eliminates the certainty that regulatory measures will be enforced, and thereby undermines the plan amendment's ability to be relied upon as an adequate regulatory measures in the context of the ultimate question of whether to list the greater sage grouse under the Endangered Species Act.

Please address the issues raised within these comments, as well as the attachments and scientific literature referenced in the Literature Cited section of these comments, as you proceed through the NEPA process. Please keep us informed of all additional opportunities to participate in this planning process.

Respectfully yours,



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List of Attachments:

1. Knick et al. (2013) study regarding percentage of land disturbance surrounding active leks.
2. Kirol (2012) thesis regarding impacts of coalbed methane development on grouse along the Atlantic Rim.
3. Holloran (2005) dissertation regarding impacts of natural gas development on sage grouse in the Upper Green River valley.
4. Doherty (2008) dissertation regarding Wyoming statewide analysis on oil and gas thresholds resulting in impacts to sage grouse populations.
5. Walker et al (2007) study regarding impacts of coalbed methane development on grouse in the Powder River Basin.
6. Taylor et al. (2012) study regarding population viability of Powder River sage grouse.
7. Copeland et al. (2013) study modeling the effectiveness of the Wyoming Core Area policy.
8. Kaczor (1998) study regarding impacts of livestock grazing on grouse in the Dakotas.
9. Kaczor et al. (2011) study regarding livestock impacts to sage grouse.
10. Connelly et al. (2000) report making recommendations for sage grouse conservation measures.
11. Sage Grouse Recovery Alternative
12. Memorandum by Tom Christiansen and Joe Bohne to John Emmerich, WGFD regarding west-wide game and fish biologists' analysis of effectiveness of conservation measures for sage grouse
13. Patricelli et al. (2012) synopsis of research on noise impacts to sage grouse.
14. Stevens et al. (2013) study regarding impacts of fences on sage grouse.
15. WGFD (2009) report regarding mortality levels of sage grouse from fence strikes.
16. Kirol et al. (2012) Atlantic Rim study on impacts of vegetation treatments on sage grouse brood rearing.
17. Beck et al. (2012) review article on impacts of wildlife improvement projects on wildlife, including sage grouse.
18. Reisner et al. (2013) study regarding livestock overgrazing and cheatgrass invasion.

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