June 13, 2024

Submitted via eplanning (https://eplanning.blm.gov/eplanning-ui/project/2016719/510)

ATTN: HQ GRSG RMPA
Bureau of Land Management
440 West 200 South, Suite 500
Salt Lake City, Utah 84101

RE: Greater Sage-Grouse Draft Resource Management Plan Amendment and Environmental Impact Statement

Dear Bureau of Land Management,

Please accept and fully consider these comments on behalf of the ***following 19 organizations***: Audubon Great Plains (NE/ND/SD), Audubon Rockies (CO/UT/WY), Audubon California, Colorado Wildlife Federation, Conservation Colorado, Idaho Wildlife Federation, Montana Audubon, Montana Wildlife Federation, National Audubon Society, National Wildlife Federation, Natural Resources Defense Council, North American Grouse Partnership, North Dakota Wildlife Federation, Nevada Wildlife Federation, The Wilderness Society, Utah Wildlife Federation, Wild Montana, Wyoming Outdoor Council, Wyoming Wildlife Federation.

Together we recognize the important role that the Bureau of Land Management (BLM) plays in managing a large proportion of our nation's public lands, on behalf of current and future generations. Our organizations are proud to represent millions of Americans who care about protecting wildlife, stopping habitat loss, conserving biodiversity, and maintaining intact ecosystems. For this reason, we thank the BLM for initiating this planning process to conserve the greater sage-grouse (GRSG) across its range and appreciate the broad benefits of doing so.

Our organizations have been involved in GRSG conservation for many years, including participation in the 2015 and 2019 planning processes. We hope that this third attempt at developing resource management plan amendments (RMPAs) and records of decision (RODs) for GRSG conservation will result in plans that reverse recent declines in GRSG populations, ensure that the species continues not to warrant listing as a threatened or endangered species, protect intact landscapes, achieve consistency across the species' range, and prove durable. The following comments are offered in that spirit, and we ask that the BLM fully consider them and address our concerns and recommendations as it proceeds with preparation of a final environmental impact statement (EIS), RMPAs, and RODs.

We hope this planning process will result in durable GRSG habitat management plans that can be successfully implemented over time and will not result in additional plan revisions in the near term.

These comments represent our in-depth review of previous planning processes, the latest science, and the proposed management actions presented in the draft EIS. We have endeavored to provide thoughtful and defensible recommendations on how to meet the needs and purpose outlined by the BLM for this planning process.

I. Summary

This is an undeniably challenging planning process. The BLM is called upon to balance numerous conflicting land allocations and uses across millions of acres of rangeland, and to coordinate its GRSG conservation efforts with 10 different state governments. We applaud the BLM for undertaking this planning process, and we believe that within the draft EIS, the agency has successfully identified numerous management approaches that can result in durable and effective GRSG conservation. However, we believe that there is more work to be done. Rather than adopt its preferred alternative (alternative 5) as written, we recommend that the BLM adopt a variety of management approaches from across the alternatives analyzed, and we recommend additional changes and improvements to ensure that the BLM's GRSG management reflects the best available science. We recommend the agency:

- **Manage GRSG habitat to reverse ongoing population declines.** Management plans should be achievable, consistent, and durable. Management should conserve intact landscapes and functioning sagebrush ecosystems, and support populations of GRSG sufficient to help avoid any listing under the Endangered Species Act of 1973 (ESA).
- **Use the best available science to identify and protect important GRSG habitat as priority habitat management areas (PHMA), and provide a higher level of protection for the "best of the best."** This approach will best allow the BLM to fulfill its multiple-use mandate, locating GRSG conservation actions where they will be most effective and authorizing other land allocations where they least conflict with GRSG conservation.
- **Apply the full mitigation hierarchy to all GRSG-impacting activities.** While compensatory mitigation can be used to offset impacts to GRSG, it is imperative that compensatory mitigation be used after impacts have been first avoided and minimized to the maximum extent practicable, and that it be done in a manner that addresses all indirect and cumulative impacts.
- **Use a consistent and transparent adaptive management approach to address future changes in conditions.** Adaptive management should be consistent, should address population and habitat triggers, and should be carried out in partnership with state wildlife agencies, affording them opportunities to identify triggers and initiate adaptive management, to make corrections if the BLM identifies a trigger in error, and to work with the BLM in addressing triggers.
- **Use the best available science to establish lek buffers.** Recent years have seen significant research into GRSG behavior, revealing that older approaches to lek buffers, many of which persist in the draft EIS, are inadequate to effectively protect GRSG.
- **Manage mineral development to avoid and minimize impacts to GRSG.** Currently, the most prevalent land allocations on BLM-managed lands that are incompatible with GRSG persistency are mineral development, including oil and gas, other fluid, and solid minerals.

Areas of lesser importance for GRSG should be prioritized for these uses and important GRSG habitat should be subject to closures, stipulations, and withdrawals, as appropriate.

- **Apply disturbance caps consistently.** Disturbance caps are an effective backstop for identifying and responding to indirect and cumulative impacts to GRSG habitat that otherwise might go unaddressed. The BLM should apply them in a manner consistent with the best science, and with a minimum of exceptions.
- **Exclude renewable energy development and high voltage transmission lines from important GRSG habitat.** The impacts of renewable energy on GRSG are significant, and current projections indicate that there is more than sufficient land available for renewable energy development outside of high-quality GRSG habitat. The BLM should exclude renewable energy developments from PHMA and avoid impacts to important GRSG habitat within general habitat management areas (GHMA).
- **Manage wild horses and burros to limit impacts on GRSG.** When wild horse populations exceed appropriate management levels (AMLs), GRSG populations suffer. The BLM must manage wild horses and burros within their AMLs.
- **Manage livestock grazing to conserve GRSG.** Unlike most other competing land allocations, livestock grazing can be consistent with GRSG population health, and can even improve habitat conditions for GRSG. To achieve this, the BLM must manage grazing to meet land health standards (LHS) and must consider specific circumstances unique to each location.

Each of these issues is more fully addressed in the following sections.

II. Principles for GRSG conservation.

A. Reverse ongoing GRSG declines through a strong management approach.

The GRSG has sustained consistent and dramatic population losses over the last 60 years. Range-wide, the population has declined 80% since 1965, and 37% just since 2002.[1] Even since adoption of the BLM's GRSG management plans in 2015, population declines have continued.[2]

This is deeply concerning because the goal of the BLM's 2015 planning process was to "conserve, enhance, and restore GRSG habitat across the species' remaining range. . . and to provide greater certainty that BLM resource management plan decisions in GRSG habitat . . . can

[1] Peter S. Coates, Brian G. Prochazka, Michael S. O'Donnell, Cameron L. Aldridge, David R. Edmunds, Adrian P. Monroe, Mark A. Ricca, Gregory T. Wann, Steve E. Hanser, Lief A. Wiechman, and Michael P. Chenaille, Range-wide Greater Sage-Grouse Hierarchical Monitoring Framework: Implications for Defining Population Boundaries, Trend Estimation, and a Targeted Annual Warning System, U.S. Geological Survey Open-File Report 2020-1154. https://doi.org/10.3133/ofr20201154, https://pubs.usgs.gov/of/2020/1154/ofr20201154.pdf

[2] B. G. Prochazka, P. S. Coates, C. L. Aldridge, M. S. O'Donnell, D. R. Edmunds, A. P. Monroe, Se. E. Hanser, L. A. Wiechman, and M. P. Chenaille, Range-wide population trend analysis for greater sage-grouse (*Centrocercus urophasianus*)—Updated 1960–2023, U.S. Geological Survey Data Report 1190, 2024. https://doi.org/10.3133/dr1190, https://pubs.usgs.gov/dr/1190/dr1190.pdf

lead to conservation of the GRSG and other sagebrush-steppe-associated species in the region."[3] In 2010, the U.S. Fish and Wildlife Service (FWS) determined that the GRSG warranted listed under the ESA, in part due to a lack of regulatory mechanisms protecting the species. As part of its listing determination, the FWS noted that the BLM managed over 50% of the remaining GRSG range, and suggested numerous opportunities for the BLM to adopt regulatory and other land-use practices to conserve GRSG on BLM-managed lands.[4]

Subsequently, the BLM developed and adopted the 2015 GRSG RMPAs, which have governed the BLM's GRSG management ever since.[5] In 2015, the FWS determined that the GRSG did not warrant listing under the ESA, in large part because of BLM (and other federal) land management plans.[6] Specifically, the FWS anticipated that the BLM plans would be "implemented for the next 20–30 years" and emphasized that "[t]he BLM [has] committed to full funding and implementation of these plans, and [has] included monitoring and adaptive management to ensure their long-term effectiveness."[7]

The GRSG's range-wide population moves in cycles, oscillating between periods of population growth and decline. Researchers have identified 6 distinct cycles, each defined by a low point (or nadir) in the population, using as a baseline the first identified low point in 1965. Range-wide population trends are evaluated not on an annual basis, which are highly variable, but by observing increases or decreases from low point to low point over multiple years. Based on population growth in 2022 and 2023, researchers have concluded that 2021 likely represented the most recent low point in GRSG populations.[8]

The fact that the GRSG's range-wide population appears to have reached its most recent low point and is now increasing represents an opportunity for the BLM, states, and other partners to redouble efforts to protect remaining GRSG populations and habitat, and to restore additional habitat in order to turn the current (temporary) upswing in population into permanent gains that will begin to reverse the species' decades-long decline. Both the long-term decline and the small gains of the last two years can be seen in the graphic below (Figure 1) from Prochazka et al. 2024.[9]

As it continues this planning process and moves from the draft EIS to a final EIS and accompanying RMPAs and RODs, the BLM should regard the 2015 GRSG plans as a starting point that must be improved upon. We recognize that, while the 2015 plans represent one of the

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[3] E.g. Bureau of Land Management, ROD and ARMPAs/ARMPs for the Rocky Mountain GRSG Sub-Regions, September 2015, S-2. https://eplanning.blm.gov/public_projects/lup/68346/88888/106396/HiLine_District_ROD.pdf

[4] 12-Month Findings for Petitions to List the Greater Sage-Grouse (Centrocercus urophasianus) as Threatened or Endangered, 75 Fed. Reg. 13975 (March 23, 2010).

[5] See discussion of subsequent amendments and litigation in section II.C.1.

[6] 12-Month Finding on a Petition to List Greater Sage-Grouse (*Centrocercus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. 59858 (October 2, 2015).

[7] 12-Month Finding on a Petition to List Greater Sage-Grouse (*Centrocercus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. at 59875.

[8] E.g. Prochazka et al., Range-wide population trend analysis for greater sage-grouse (*Centrocercus urophasianus*)—Updated 1960–2023.

[9] Prochazka et al., Range-wide population trend analysis for greater sage-grouse (*Centrocercus urophasianus*)—Updated 1960–2023, 4.

most comprehensive collaborative conservation planning efforts of our time, the 2015 plans were proposed to be weakened in 2019, are imperfect, allow for significant variation in management across state lines, have not been consistently implemented over the last 8+ years, and in some respects no longer reflect the best available science. All of these issues should be addressed, and we applaud the BLM for initiating this planning process to do just that. But we wish to emphasize that in all areas, should the continued goal be to ensure that a listing of the GRSG under the ESA is unnecessary, we need to see better outcomes for GRSG populations, and in many instances that will require more protective management approaches.

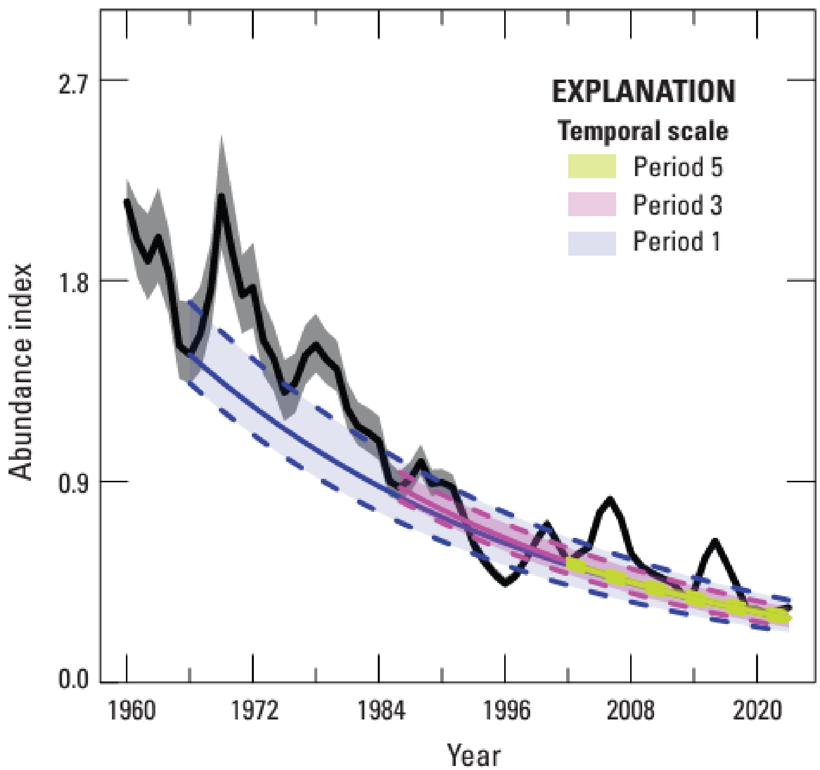

Figure 1. Abundance index (calculated as $\hat{N}$ divided by 64-year mean of $\hat{N}$) of greater sage-grouse (*Centrocercus urophasianus*) across their range from lek observations used to model population trends during 1960–2023. Median estimates (solid-colored lines) and 95-percent credible limits (dashed colored lines) of abundance trend during Period 5 (two oscillations), Period 3 (four oscillations), and Period 1 (six oscillations). Black trend line represents median estimates. Colored areas represent 95-percent credible limits of trend estimates. Grey shaded areas represent 95-percent credible limits on abundance index.

B. Protect and expand intact landscapes.

We appreciate the fact that in the draft EIS, the BLM has identified numerous land allocations and management actions that can adversely impact GRSG, and for those activities where there is new research, practical experience, or other information suggesting possible improvements to the 2015 GRSG RMPAs, proposed changes. Our comments will address all of them in detail. But the common thread that unites them is simple: GRSG, as well as approximately 350 other species that utilize the unique sagebrush ecosystem of the American West, depend on large, intact, connected habitats. At present, we are losing 1.3 million acres of functioning sagebrush habitat every year.[10]

While individual GRSG populations and management actions are important, we need to shift to a sagebrush biome focus that will more effectively address threats facing the entire ecosystem and the species the rely on it, including not only GRSG but also humans. The primary goal of this planning process should be to manage BLM lands for intact landscapes for GRSG across the range. Moreover, landscape fragmentation as a result of development and degradation allows for the spread of invasive annual grasses, which in turn alter fire cycles, and have led to staggering loss of GRSG habitat across the range. The importance of intact landscapes is not limited to PHMA, but includes GHMA as well. Otherwise we end up in a situation where we are managing for islands of habitat and isolated GSRG populations without adequate protections for corridors connecting those islands.[11]

The BLM's final rule on Conservation and Landscape Health (hereinafter Public Lands Rule), which will take effect on June 10, 2024, explicitly recognizes protection of intact landscapes as a management goal for the agency.[12] In the case of sagebrush habitat, the leading model for identifying intact land is the U.S. Geological Survey (USGS)'s Sagebrush Conservation Design (hereinafter SCD).[13] The SCD identifies 33.4 million acres of core sagebrush areas and 84.3

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[10] Kevin Doherty, David M. Theobald, John B. Bradford, Lief A. Wiechman, Geoffrey Bedrosian, Chad S. Boyd, Matthew Cahill, Peter S. Coates, Megan K. Creutzburg, Michele R. Crist, et al., A Sagebrush Conservation Design to Proactively Restore America's Sagebrush Biome, Open-File Report 2022–1081, U.S. Geological Survey, 2022. https://pubs.usgs.gov/of/2022/1081/ofr20221081.pdf

[11] See D. R. Edmunds, C. L. Aldridge, M. S. O'Donnell, and A. P. Monroe, "Greater sage-grouse population trends across Wyoming," *Journal of Wildlife Management* 82(2) (2018): 397-412, DOI:10.1002/jwmg.21386; A. W. Green, C. L. Aldridge, and M. S. O'Donnell, "Investigating impacts of oil and gas development on Greater Sage-Grouse," *Journal of Wildlife Management* 81(1) (2016): 46-57; Emma Suzuki Spence, Jeffrey L. Beck, and Andrew J. Gregory, "Probability of lek collapse is lower inside sage-grouse core areas—Effectiveness of conservation policy for a landscape species," *PloS ONE* 12(11) (2017): e0185885. https://doi.org/10.1371/journal.pone.0185885. Peter S. Coates, Brian G. Prochazka, Mark A. Ricca, Brian J. Halstead, Michael L. Casazza, Erik J. Blomberg, Brianne E. Brussee, Lief Wiechman, Joel Tebbenkamp, Scott C. Gardner, and Kerry P. Reese, "The relative importance of intrinsic and extrinsic drivers to population growth vary among local populations of Greater Sage-Grouse: An integrated population modeling approach," *The Auk* 135(2) (2018): 240–61. https://academic.oup.com/auk/article/135/2/240/5148801; S.E. Hanser, P.A. Deibert, J.C. Tull, N.B. Carr, C.L. Aldridge, T.C. Bargsten, T.J. Christiansen, P.S. Coates, M.R. Crist, K.E. Doherty, et al, Greater sage-grouse science (2015–17)—Synthesis and potential management implications: U.S. Geological Survey Open-File Report 2018–1017. https://pubs.usgs.gov/publication/ofr20181017

[12] Conservation and Landscape Health, 89 Fed. Reg. 40308, 40341 (May 9, 2024) (to be codified at 43 C.F.R. §6102.2).

[13] Doherty et al., A Sagebrush Conservation Design to Proactively Restore America's Sagebrush Biome, Open-File Report 2022–1081.

million acres of growth opportunity areas, which constitute the areas that most urgently need to be protected and restored, respectively. 17.3 million acres of core areas and 37.4 million acres of growth areas are on BLM-managed lands, and this data should be used alongside data on GRSG populations to prioritize areas for conservation and restoration.

There are numerous tools available to focus sagebrush conservation efforts on ecosystem function, including Threat-based Land Management[14] and the Defend the Core Framework.[15] Agencies, nonprofits, and state governments have all embraced these tools, and we urge the BLM to work in collaboration with them towards limiting and removing anthropogenic infrastructure to the maximum extent practical, restoring high quality, functional habitats, and defending against the spread of invasives to these areas.

In addition to the SCD framework, other criteria that the BLM should consider for identifying the best intact landscapes for GRSG include locations where high breeding densities of GRSG occur; where a preponderance of current federal ownership or adjacent state-owned land or protected areas serve to anchor conservation importance; and where distance from existing development and infrastructure can be maximized. This can be achieved by properly identifying and protecting PHMA and also high-value "best of the best" areas that are truly irreplaceable, as are described more fully in section III.C of these comments.

In considering ecological integrity of a landscape, the BLM should consider spatial and temporal patterns of functional vegetation groups, and seek to maximize indicators of desirable ecological conditions, such as native perennial herbaceous vegetation and sagebrush species, while minimizing undesirable conditions, such as invasive annual herbaceous vegetation and conifers encroaching on rangeland sites. Analysis of these indicators should use the best available science for identifying meaningful thresholds, ratios, or other relevant metrics based on regional differences between the Great Basin, Rocky Mountain, and Great Plains portions of the sagebrush biome. Taken together, these indictors should allow the BLM to identify landscapes where protection and restoration would best maintain ecosystem function.

Major advances in remotely-sensed datasets and mapping platforms allow the BLM to conduct this analysis with a transparent and empirical approach that was not available to the agency in 2015. Products including the Rangeland Assessment Platform[16] and especially the Western Association of Fish and Wildlife Agencies (WAFWA) Ecological Integrity Map[17] are ideally suited to facilitate this analysis at a state scale.

There are numerous threats to intact GRSG habitat, and as the BLM finalizes its management approach to these areas, it should work to the greatest possible extent to avoid, minimize, and

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[14] D. Johnson, et al., Threat-Based Land Management in the Northern Great Basin: A Manager's Guide (Corvallis, Oregon: Oregon State University Press, 2019). https://catalog.extension.oregonstate.edu/pnw722

[15]Jeremy D. Maestas, Mark Porter, Matt Cahill, and Dirac Twidwell, Defend the core: Maintaining intact rangelands by reducing vulnerability to invasive annual grasses, *Rangelands* 44(3) (2022): 181-186. https://doi.org/10.1016/j.rala.2021.12.008

[16] Jones, M.O. et al.. "Innovation in rangeland monitoring: annual, 30 m, plant functional type percent cover maps for U.S. rangelands, 1984-2017," *Ecosphere* 9: e02430. https://doi.org/10.1002/ecs2.2430.

[17] Forthcoming.

mitigate their impacts.[18] The primary threat to GRSG is loss of habitat, including both direct loss of habitat due to conversion to other uses, and functional habitat loss due to habitat fragmentation and GRSG avoidance behavior of infrastructure and disturbed areas.[19]

Common sources of GRSG habitat destruction include oil and gas development, various types of mining (solid mineral development), renewable energy facilities, rights-of-way (ROWs) associated with the above such as pipelines and transmission lines, overutilization of rangelands by both domestic livestock and wild horses and burros, invasive grasses and woody species, and rangeland fire. All of these can further fragment habitat not directly impacted, including by reducing habitat connectivity, reducing opportunities for habitat and population expansion, and by creating landscape features such as tall structures that GRSG avoid at a distance.[20]

Of particular concern are non-anthropogenic impacts to GRSG, including invasive species and altered fire regimes. In many cases, however, these are functionally second-order (indirect) anthropogenic impacts because development activities alter landscapes and introduce landscape features such as linear ROWs or disturbed ground that enable these processes. Accordingly, proper land management approaches can reduce the threat posed by fire and invasives and help maintain intact landscapes.

Doing so would yield measurable benefits for GRSG. For example, in the Great Basin, 20.6% of GRSG PHMA have burned since 2000.[21] Hotter and drier conditions, combined with human-ignited fires, have increased the length of the fire season by 134 percent for this region,[22] and this trend shows no sign of slowing.

One of the major drivers of increased wildfires is a fire-invasive cycle characterized by nonnative grasses such as cheatgrass, red brome, medusahead, fountain grass, and ventenata. These fast-growing and fast-burning species become established in disturbed areas that lack slower growing, more resilient native species, and outcompete native species while degrading soil and water quality. Habitat fragmentation due to development and associated infrastructure can create vectors for invasive species spread as well as anthropogenic wildfire ignition sources, exacerbating this threat. The problems of fire and invasive species are best addressed through a preventative approach, i.e. maintaining intact landscapes and native vegetation. Current estimates indicate most invasive plant-management programs address less than 10% of the average annual

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[18] See discussion of mitigation in section IV of these comments.

[19] D. E. Naugle, K. E. Doherty, B. L. Walker, H. E. Copeland, M. J. Holloran, and J. D. Tack, "Sage-Grouse and Cumulative Impacts of Energy Development," in *Energy Development and Wildlife Conservation in Western North America*, ed. D. E. Naugle (Washington DC: Island Press, 2011), https://doi.org/10.5822/978-1-61091-022-4_4

[20] For instance, tall features such as transmission lines have been documented to cause avoidance behavior at a minimum of 4 miles, and perhaps farther. E.g. D. J. Manier, Z. H. Bowen, M. L. Brooks, M. L. Casazza, P. S. Coates, P. A. Deibert, S. S. Hanser, and D. H. Johnson, Conservation Buffer Distance Estimates for Greater Sage-Grouse—A Review, U.S. Geological Survey Open-File Report 2014-1239 (2014), https://doi.org/10.3133/ofr20141239; Naugle et al., "Sage-Grouse and Cumulative Impacts of Energy Development." See also further discussion in section VI below.

[21] See T. E. Remington, P. A. Deibert, S. E. Hanser, D. M. Davis, L. A. Robb, and J. L. Welty, Sagebrush conservation strategy—Challenges to sagebrush conservation, U.S. Geological Survey Open-File Report 2020–1125 (2021), 90. https://doi.org/10.3133/ofr20201125

[22] Remington et al., Sagebrush conservation strategy—Challenges to sagebrush conservation, 79.

rate of spread of invasive plants,[23] so the BLM and other partners should increase their investment in this area.

When addressing sage-grouse habitat conditions, proactive management needs to consider the overstory and the native forbs/bunchgrass understory, this latter is critical to ensuring healthy eggs and chicks. The understory of big sagebrush plant communities warrants greater attention by the BLM, as on-the-ground managers pursue restoration activities. Forbs and grasses provide cover for GRSG at their lekking, nesting, and brood-rearing sites, and these also have a positive relationship with arthropod presence – an important food source for young grouse.[24] In an Oregon study, forbs and invertebrates composed 80% of the dietary mass on the area with higher grouse productivity.[25] As such, percent cover is among the 11 indicators of habitat condition in PHMA and Important Habitat Management Area (IHMA) (as defined by the BLM's land use plans) that BLM examined in its Rangewide Monitoring Report for 2015-2020. Reviewing 2013-2018, percent cover of perennial grasses and forbs on BLM rangelands declined from 24% to 12% within GRSG habitat, which was remarkably higher than outside GRSG habitat (8 to 2%).[26] Furthermore, 70% of PHMA is not meeting criteria for breeding habitat for GRSG. For specific states: In Oregon, 51-74% of the monitoring locations in PHMA early brood-rearing habitat did not meet forb cover goals; in Idaho, 62-80% did not meet cover goals; in Montana, 51%; and in Wyoming, 81%. These low numbers suggest that restoring GRSG-preferred native forbs and native bunchgrasses should be a greater priority in future management actions to ensure the habitats meet the full life history needs of the species.

Another example of a threat to GRSG that is best managed through maintenance of intact landscapes is predation. As the draft EIS notes, "where sagebrush habitats are intact nest success and adult survival rates are high, indicating that predators generally do not limit GRSG populations."[27] In contrast, fragmented habitats "reduce protective cover and often provide subsidies for sustaining abnormally large populations of predators, and the establishment of novel predators."[28] A substantial and growing body of research supports this conclusion.[29] We

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[23] Remington et al., Sagebrush conservation strategy—Challenges to sagebrush conservation, 99.

[24] Victoria E. Pennington, Daniel R. Schlaepfer, Jeffrey L. Beck, John B. Bradford, Kyle A. Palmquist, and William K. Lauenroth, 2016. "Sagebrush, Greater Sage-Grouse, and the Occurrence and Importance of Forbs," *Western North American Naturalist* 76(3) (2016): 298-312.

[25] M. S. Drut, W. H. Pyle, and J. A. Crawford, "Diets and food selection of sage grouse chicks in Oregon," *Journal of Range Management* 47 (1994): 90-93.

[26] V. Herren, E. Kachergis, A. Titolo, K. Mayne, S. Glazer, K. Lambert, B. Newman, and B. Franey, Greater sage-grouse plan implementation: Rangewide monitoring report for 2015–2020 (Denver, CO: U.S. Department of the Interior, Bureau of Land Management, 2021), 22 (at Figure 6). https://eplanning.blm.gov/public_projects/2016719/200502020/20050224/250056407/Greater%20Sage-Grouse%20Five-year%20Monitoring%20Report%202020.pdf

[27] Draft EIS, 2-99 (internal citation omitted).

[28] Draft EIS, 2-99.

[29] P. S. Coates, S. T. O'Neil, B. E. Brussee, M. A. Rica, P. J. Jackson, J. B. Dinkins, K. B. Howe, A. M. Moser, L. J. Foster, and D. J Delehanty, "Broad-scale impacts of an invasive native predator on a sensitive native prey species within the shifting avian community of the North American Great Basin," *Biological Conservation* 243 (2020): 108409; S. M. Harju, C. V. Olson, J. E. Hess, and B. Bedrosian, "Common raven movement and space use: influence of anthropogenic subsidies within greater sage-grouse nesting habitat," *Ecosphere* 9 (2018); C. P. Kirol, K. L. Pilgrim, A. L. Sutphin, and T. L. Maechtle, "Using DNA from hairs left at depredated greater sage-grouse nests to detect mammalian nest predators," *Wildlife Society Bulletin* 42 (2018): 160–65; S. T. O'Neil, P. S. Coates, B. E. Brussee, P. J. Jackson, K. B. Howe, A. M. Moser, L. J. Foster, and D. J. Delehanty, "Broad-scale occurrence

support the approach proposed under all action alternatives (alternatives 3-6), to manage predation of GRSG by avoiding subsidization of predators and enabling of expansion of novel GRSG predators through minimizing predator subsides. Predator subsides include introducing infrastructure in undisturbed habitat, and external food resources from anthropogenic sources. It is also important to monitor predator impacts on GRSG in development areas.[30] The draft EIS suggests that in some cases, it may be necessary to develop predator management plans (i.e. employ lethal control). We do not oppose this approach, but also believe that BLM and other agency resources would be best used, and GRSG populations best served, by a focus on maintaining intact GRSG habitat.

Maintaining intact landscapes represents a simple and cost-effective approach to ameliorating these threats and preserving GRSG populations.[31] Given the greater challenges and expense involved in restoring native sage habitat, protecting the most valuable intact remaining areas is simple common sense. Restoration efforts can then be focused on areas with potential for GRSG habitat expansion, such as SCD growth opportunity areas.

C. Keep GRSG off the lists of threatened and endangered species.

1. The regulatory landscape has changed since 2015.

The BLM's stated purpose for the current planning process is to "address GRSG habitat threats on BLM-administered public lands in context of the 2010 and 2015 USFWS GRSG listing decisions."[32] However, the political and scientific context of GRSG conservation has evolved

of a subsidized avian predator: Reducing impacts of ravens on sage-grouse and other sensitive prey," *Journal of Applied Ecology* 55 (2018): 2641–52; C. P. Kirol, A. L. Sutphin, L. Bond, M. R. Fuller, and T. L. Maechtle, "Mitigation effectiveness for improving nesting success of greater sage-grouse influenced by energy development," *Wildlife Biology* 21 (2015): 98–109; P. S. Coates, K. B. Howe, M. L. Casazza, and D. J. Delehanty, "Landscape alterations influence differential habitat use of nesting buteos and ravens within sagebrush ecosystem: Implications for transmission line development," *Condor* 116 (2014): 341–56; K. B. Howe, P. S. Coates, and D. J. Delehanty, "Selection of anthropogenic features and vegetation characteristics by nesting Common Ravens in the sagebrush ecosystem," *The Condor* 116 (2014): 35–49; J. B. Dinkins, M. R. Conover, C. P. Kirol, and J. L. Beck, "Greater sage-grouse (*Centrocercus urophasianus*) select nest sites and brood sites away from avian predators," *The Auk* 129 (2012).

[30] See C.A. Hagen, "Predation on greater sage-grouse: facts, process, and effects," *Avian Biology* 38 (2011): 95–100.

[31] See J. W. Connelly, S. T. Knick, M. A. Schroeder, and S. J. Stiver, Conservation assessment of greater sage-grouse and sagebrush habitats (unpublished report) (Cheyenne, WY: Western Association of Fish and Wildlife Agencies, 2004); T. B. Cross, M. K. Schwartz, D. E. Naugle, B. C. Fedy, J. R. Row, and S. J. Oyler-McCance, "The genetic network of greater sage-grouse: Range-wide identification of keystone hubs of connectivity," *Ecology and Evolution* 8(11) (2018); 5394-5412; S. J. Oyler-McCance, T. B. Cross, J. R. Row, M. K. Schwartz, D. E. Naugle, J. A. Fike, K. Winiarski, and B. C. Fedy, "New strategies for characterizing genetic structure in wide-ranging, continuously distributed species: A Greater Sage-grouse case study," *PLoS ONE* 17(9) (2022): e0274189, https://doi.org/10.1371/journal.pone.0274189; Shawna J. Zimmerman, Cameron L. Aldridge, Michael S. O'Donnell, David R. Edmunds, Peter S. Coates, Brian G. Prochazka, Jennifer A. Fike, Todd B. Cross, Bradley C. Fedy, and Sara J. Oyler-McCance, "A genetic warning system for a hierarchically structured wildlife monitoring framework," *Ecological Applications* 33(3) (2023): e2787. https://doi.org/10.1002/eap.2787

[32] Draft EIS, 1-4.

since that time. For example, the stated purpose of the BLM's 2019 GRSG management plans[33] was not to conserve GRSG but to "enhance cooperation with the States by modifying the approach to Greater Sage-Grouse management in existing RMPs to better align with individual state plans and/or conservation measures and DOI and BLM policy."[34] However, the resulting plans were enjoined in part because the court found that in achieving those goals, the plans weakened GRSG conservation without providing any justification for doing so.[35] To the extent that the BLM has incorporated many management actions from the 2019 plans into the current planning process, and especially the agency's preferred alternative (alternative 5), the agency risks encountering a similar outcome following potential judicial review of this planning process.

Like the enjoined 2019 plans, the current planning process abandons many aspects of the 2015 GRSG RMPAs, including measures specifically cited by the FWS as justifications for finding that the species did not warrant listing under the ESA, such as sagebrush focal areas (SFAs).

In its 2015 finding, the FWS clearly expected that the process of withdrawing SFAs from mineral location and entry under the Mining Act of 1872 would be completed, concluding that "the long-term protection of the sage-grouse habitat in the SFAs from locatable mineral development will ensure that these important populations are conserved into the future."[36] In 2020, a court order was issued against the Department of the Interior's decision to cancel the withdrawal of SFAs from mineral location and entry, holding that "[t]he record is clear that the FWS did rely on the proposed withdrawal in making its 2015 finding that the listing of the sage grouse as a threatened or endangered species 'is not warranted at this time.'"[37]

The end result of this process is that today, over 8 years after the FWS relied on withdrawal of SFAs from mineral location and entry, the withdrawal process has still not been completed, with the current expectation being that draft National Environmental Policy Act (NEPA) documents for the withdrawal will be available in fall 2024. Despite this, the BLM's draft EIS is virtually silent on the issue of locatable mineral management,[38] apparently assuming that the long-delayed 2015 withdrawal will be completed and thus core GRSG populations will be protected from mining. We do not share this confidence, and we are concerned that if the BLM does not commit to supporting the swift completion of the ongoing withdrawal process or a similar withdrawal, it will undermine this important reason that GRSG have not warranted listing under the ESA.

A similar story has unfolded with compensatory mitigation. In 2015, the BLM embraced compensatory mitigation with a net conservation benefit standard, incorporating it into all of its

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[33] Currently enjoined by court order, see Western Watersheds Project v. Schneider, at Memorandum Decision and Order (Dckt. No. 189), No. 1:16-CV-83-BLW (D. Idaho 2019).

[34] E.g. Bureau of Land Management, Oregon Greater Sage-Grouse Proposed Resource Management Plan Amendment and Final Environmental Impact Statement, 2018, at Abstract. https://eplanning.blm.gov/public_projects/lup/103348/163460/199452/2018_Oregon_GRSG_Proposed_RMPA-Final_EIS_508.pdf

[35] Western Watersheds Project v. Schneider, at Memorandum Decision and Order (Dckt. No. 189), No. 1:16-CV-83-BLW.

[36] 12-Month Finding on a Petition To List Greater Sage-Grouse (*Centrocercus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. at 59916.

[37] Western Watersheds Project v. Bernhardt, at Memorandum Decision and Order (Dckt. No. 264), No. 1:16-CV-83-BLW (D. Idaho 2021).

[38] With the exception of alternative 3.

GRSG RMPAs. The FWS subsequently cited net conservation benefit mitigation as a reason the species no longer warranted listing.[39] Thereafter, the BLM's 2019 GRSG RMPAs rejected the net conservation benefit standard, incorrectly concluded that the Federal Land Policy and Management Act (FLPMA) does not authorize the BLM to require compensatory mitigation *at all*,[40] and provided that compensatory mitigation programs would be implemented based on state law instead.[41] Now, the BLM and the draft EIS once again embrace compensatory mitigation, but the BLM proposes adopting a standard of no net loss.[42] We recognize that the FWS is now also recommending no net loss for mitigation programs generally, rather than net conservation benefit,[43] but this is another example of a position that the BLM included in its 2015 GRSG RMPAs, that the FWS cited in finding the species did not warrant listing, and that was recognized by a court, that the BLM now proposes to abandon in the current planning process.

2. The BLM should closely coordinate with the FWS to ensure that its final RMPAs and RODs provide adequate regulatory measures to maintain the GRSG's not warranted status.

As a result of changes between the 2015 RMPAs and the GRSG conservation approaches contemplated by the draft EIS, such as those discussed above, the FWS' 2015 not warranted determination can serve only as a limited guide for the BLM is attempting to design conservation measures that will conserve GRSG and keep the species off the lists of threatened and endangered species. This is another reason why a broader management approach focused on intact landscapes makes sense.

However, even as it manages for intact landscapes, the BLM should also be considering the ESA status of the GRSG. To do so will require close coordination with the FWS, as occurred throughout the 2015 planning process. To that end, we urge the BLM to work closely with the FWS as it identifies land allocations and management actions to carry forward to the final EIS and subsequent RMPAs and RODs. The BLM and its partners have made an incredible

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[39] 12-Month Finding on a Petition to List Greater Sage-Grouse (*Centrocercus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. 59858.

[40] The full history of the FWS, BLM, and U.S. Forest Service flip-flops on mitigation from the Obama administration to the Trump administration and now the Biden administration is beyond the scope of these comments. The key events were the issuance of a series of Department of the Interior Solicitor's Opinions. See U.S. Department of the Interior Office of the Solicitor, M-37039, The Bureau of Land Management's Authority to Address Impacts of its Land Use Authorizations through Mitigation, December 21, 2016, https://www.doi.gov/sites/default/files/m-37039-the-blms-authority-to-address-impacts-of-its-land-use-authorizations-through-mitigation.pdf; U.S. Department of the Interior Office of the Solicitor, M-37046, Withdrawal of M-37039, "The Bureau of Land Management's Authority to Address Impacts of its Land Use Authorizations Through Mitigation," June 30, 2017, https://www.doi.gov/sites/default/files/uploads/m-37046.pdf; U.S. Department of the Interior Office of the Solicitor, M-37075, Withdrawal of M-37046 and Reinstatement of M-37039, "The Bureau of Land Management's Authority to Address Impacts of its Land Use Authorizations Through Mitigation," April 15, 2022. https://www.doi.gov/sites/default/files/m-37075-compensatory-mitigation-m-op-reinstatement-04.15.22.pdf

[41] E.g. Bureau of Land Management, Oregon Greater Sage-Grouse Proposed Resource Management Plan Amendment and Final Environmental Impact Statement, 2018.

[42] E.g. Draft EIS, 2-22 through 2-25.

[43] U.S. Fish and Wildlife Service, Mitigation Policy (Appendix 1, 501 FW 2), May 2023. https://www.fws.gov/sites/default/files/policy/pdfs/FWS-Mitigation-Policy.pdf

investment of time and resources in GRSG conservation, including this planning process. For the species to nonetheless decline to the point of listing would be a tragic outcome not just for the species but for the agency and for countless people and communities who have contributed to conservation efforts for this species.

D. Set achievable goals.

As discussed above, one of the unfortunate realities of GRSG conservation is that the species has continued to decline since 2015. Clearly, the 2015 management plans have not achieved their goals, and this is one reason the current planning process is necessary. The last several years have seen a number of political and ecological challenges (such as drought and wildfires) beyond the BLM's control, and we can only hope that future GRSG conservation efforts will not be similarly impacted.

However, we are concerned that in at least one respect, the BLM may be setting itself up for failure by committing to management actions that cannot be achieved. Specifically, one of the ways the BLM proposes to achieve greater consistency in compensatory mitigation across the range is by using the habitat assessment framework (HAF) to assess habitat sufficiency in implementing mitigation.[44] Although we recognize the science that went into development of the HAF and endorse use of this tool in theory, completing HAF data sheets in the field is a time- and personnel-intensive activity. Considering BLM field offices' existing workloads, we are not confident that the agency will consistently complete HAF assessments such that they will achieve the BLM's design of having a consistent, reliable, best-science tool for evaluating the effectiveness of compensatory mitigation.

There may be other aspects of the draft EIS that pose similar implementation challenges. We urge BLM leadership to work with not just state and field offices but field staff to design GRSG management actions that the agency will consistently be able to execute across the range for the duration of the current plans. In addition, GRSG conservation activities must be well staffed and robustly funded in order to be effective.

Another important way for the BLM to ensure that its goals for this planning process are achieved is through consultation and close coordination with state governments. State wildlife agencies are the primary managers of GRSG populations, even on BLM-managed lands where the BLM manages GRSG habitat. There are numerous aspects of BLM's management plans that can only be achieved by working with states, including for example implementing compensatory mitigation programs, conducting lek counts and generating population estimates, and identifying and responding to active management triggers. Tribal governments, NGOs, and other stakeholders may have roles to play in some of these actions as well. Regardless, the broader the GRSG conservation movement is and the more unified all GRSG managers and stakeholders are, the more likely that the BLM's goals for GRSG conservation will be achieved.

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[44] Draft EIS, 2-22.

E. Apply a consistent management approach.

Application of the 2015 GRSG management plans has not only been incomplete, it has also been inconsistent across state lines. This was recognized in the 2015 planning process but accepted as a political necessity. The 2019 plans, developed for only 7 of the 10 states in the current planning area, were explicitly designed to more closely mirror state law and therefore proposed to make GRSG management even less consistent across the range.[45]

Many aspects of the 2015 GRSG plans relied on state laws and policies or complex procedures that were subject to different implementation across BLM offices. Examples include lek buffer distances, compensatory mitigation approaches, and adaptive management. GRSG do not recognize nor respond differently across state lines. One of the strengths of the draft EIS is that it overwhelmingly applies the same management actions to the same land allocations across the species' range, which will promote consistency and efficiency in managing GRSG. It will also increase transparency, because stakeholders, including members of the public, will be able to look at BLM's approach in one state and be informed regarding what they can expect to see in another state.

The draft EIS continues to recognize some differences in GRSG management across state lines, and we understand that this is necessary. Some state-by-state management issues will be addressed in these comments; others are too specific to discuss in depth. But in all cases, we ask that the BLM strive to avoid a "race to the bottom" situation where certain states are subject to more liberal opportunities for development, potentially leading to governors' reviews during the protest period, as was seen in 2015, and ultimately weakening of GRSG plans, as was seen in 2019. In general, we urge the BLM to adopt state-specific variations for GRSG management only when necessary, only when the altered management approach(s) will provide equal or greater protection to the species, and only after attempting to find other solutions to conflicts and variations across the range. Doing so will best allow this planning process to achieve the goals of consistency, efficiency, and transparency.

F. Create durable management solutions.

We believe that one of the most important goals for this planning process should be to put an end to the politically driven back-and-forth that has characterized the last 8+ years of GRSG conservation. No one is well served by completing plans, litigating them, revising them, litigating them again, returning to earlier management approaches, starting a third planning process, etc. Not the agency, not industry, and not other public lands users and stakeholders such as our organizations and members. And least of all the GRSG itself. The 2015 GRSG plans were expected to be implemented for *at least* 20 to 30 years,[46] but instead they were (initially) implemented for less than 4 years, and some aspects, such as SFA mineral withdrawals, were never implemented.

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[45] See draft EIS, Appendix 2 for a detailed summary of all the different management actions for each state in the range under both the 2015 and 2019 plans.

[46] 12-Month Finding on a Petition to List Greater Sage-Grouse (*Centrocercus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. at 59892 (emphasis added).

If the BLM creates the most comprehensive and highest-quality GRSG management plans imaginable, but a future administration throws them out and starts over, this process will have been a failure. Alternatively, if the agency allows a race to the bottom characterized by large variations across state lines and many concessions to development, and a court invalidates the plans, this process will have been a failure. Such is the needle that the BLM must thread, and it must do so while ensuring that the GRSG is effectively conserved.

We believe that this is possible.

III. Discussion of alternatives and identification of GRSG habitat management areas (HMAs).

We recommend that the BLM map HMA based on the best available science; exclude discretionary activities including wind, solar, and major ROWs from PHMA; allow criteria-based management in non-habitat within HMA if no indirect or direct impacts to GRSG result; and provide for the strictest management in high-value "best of the best" areas that could be designated as areas of critical environmental concern (ACECs).

A. No single identified alternative will achieve the goals of effective and durable GRSG conservation.

We do not believe that the BLM's preferred alternative, alternative 5, is sufficiently protective of GRSG, and we urge the agency to strengthen it as it completes a final EIS and RMPAs/RODs. Furthermore, we are unable to recommend any other single alternative as the best approach for GRSG management. Fortunately, the BLM is not required to select a specific alternative as it develops RMPAs and RODs. As the draft EIS notes, the agency "may select various goals, objectives, allocations and management prescriptions from each of the alternatives analyzed in the Draft RMPA/EIS."[47] This allows the BLM to "select the best strategy that incorporates appropriate GRSG habitat management actions to meet the RMP goals and objectives, is consistent with the purpose and need, is in accordance with the agency's mandate to manage the public lands for multiple use and sustained yield, and aligns with state and local plans and policies to the extent possible."[48]

As our comments on individual land allocations and management actions will make clear, we support elements from a variety of the proposed alternatives. Because the 2015 plans have become dated and have not been implemented in a way that has been proven to effectively conserve GRSG habitat and populations, and the enjoined 2019 plans would be even less effective, we do not support alternatives 1 and 2. Given recent declines in GRSG populations, there is limited justification for supporting measures that are weaker than those presented in the 2015 plans. However, we recommend that the BLM adopt some or many elements from each of the other alternatives. Most of our comments focus on alternatives 4 and 5, which we believe represent the BLM's most successful efforts to respond to current science and to develop a

[47] Draft EIS, 2-7.
[48] Draft EIS, 2-7.

workable compromise between GRSG protection and other land uses. In addition, we recommend a handful of ideas from alternative 3 relating to prioritization for oil and gas development (see discussion in section VII.B), and the identification of high-value "best of the best areas," which could be designated as ACECs, although such areas should be more targeted than those proposed under alternatives 3 or 6 (see discussion in section III.C).

Below, we highlight some of the broad, range-wide issues in the alternatives that cut across various land allocations. Individual allocations are discussed in more detail later in these comments.

B. BLM should adopt the most recent science-based PHMA and GHMA mapping.

Given the variations across the proposed alternatives, there are a multitude of ways that the BLM could attempt to thread the needle between effective GRSG conservation and the other multiple-use demands on BLM lands. These include striking a balance between using mapping products developed through remote sensing and other technologies to identify areas for allowable allocations and land use practices with limiting impacts of development through project-level restrictions and mitigation requirements. The more consistently and effectively each of these are applied, the less need for the other to fill in the gaps. To that end, we believe that many of the more liberal land allocations and management actions included in proposed alternative 5 would be acceptable if paired with expansive and scientifically-defensible habitat management area (HMA) boundaries, which are most often proposed in alternative 4.

The differences in HMAs between alternatives 4 and 5 are significant. Under alternative 4, 36,701,000 acres would be designated as PHMA and 25,946,000 acres as GHMA. Under alternative 5, 34,803,000 acres would be designated as PHMA (5% fewer) and 23,718,000 acres as GHMA (8.5% fewer).

Furthermore, the differences would not be evenly distributed across the species' range.[49] The majority of the difference in PHMA would be in Wyoming, where the more extensive PHMA proposed in alternative 4 would capture habitat that provides essential connectivity for GRSG populations and reflects the best available science.

Identifying these areas as PHMA will protect delineated, science supported, population connectivity corridors that maintain genetic exchange, including, for example, in northeastern Wyoming between sub-populations east and west of the Powder River and beyond to populations in Montana and the Dakotas. A similar situation can be found in the Red Desert Basin in south-central Wyoming, where the larger area of PHMA under alternative 4 would provide better connectivity for GRSG populations on either side of I-80.[50] Utah is another state where there would be significantly fewer acres of PHMA under alternative 5 compared to alternative 4.

[49] See Draft EIS at Map 2.4 and Map 2.5.

[50] See T. B. Cross, J. D. Tack, D. E. Naugle, M. K. Schwartz, K. E. Doherty, S. J. Oyler-McCance, R. D. Pritchert, and B. C. Fedy, "The ties that bind the sagebrush biome: integrating genetic connectivity into range-wide conservation of Greater Sage-Grouse," *Royal Society Open Science* 10 (2023): 1–15.

Another issue is that HMA boundaries under alternative 5 in Nevada are the result of clipping the USGS Coates model to state population management units (PMUs). Areas outside of the PMUs have not been occupied for "decades" but may still be viable habitat. The approach of clipping to PMUs is similar to that of clipping to known occupied area in several other states, resulting in many isolated HMAs under alternative 5. HMAs defined in alternative 4 are the most likely to meet the conservation elements of the purpose and need and represent the full extent of modeled habitat from USGS. Clipping to PMUs would inappropriately confine the species to these borders, making it less likely for individual populations to survive, especially when inevitable disturbances arise.

Overall, we urge the BLM to adopt the mapping of PHMA and GHMA that reflects the best available science and is best for protecting and sustaining GRSG habitat and populations, consistent with the purposes of this planning process. Across most of the range, this means adopting the PHMA and GHMA mapping proposed in alternative 4, but we recognize that there may be some areas where additional information, including state input and the best available science, suggest that alternative 5 proposes stronger HMA mapping.

C. The BLM should designate a small number of high-value areas as ACECs.

In the preceding discussion of HMA mapping, we emphasized the efficiencies that could be gained if essential GRSG core and connectivity habitat is identified as PHMA and managed with stronger protections for GRSG from competing land allocations. This approach would ensure that more important areas for GRSG conservation receive more extensive protections, without unduly hampering the BLM's multiple-use obligations.

The same logic extends to the "best of the best" GRSG habitat, constituting a small number of uniquely irreplaceable areas characterized by high levels of GRSG connectivity, genetic exchange, population density, and intact sagebrush. These areas should be provided with even higher levels of protection, as the BLM proposes to do with ACECs identified under alternative 6. While we support the BLM's management approach to these areas, which equal or exceed the strongest approach to PHMA under alternative 4, the 11,139,472 acres being considered under alternative 6 are too expansive.

Instead, we recommend that a small number of these "best of the best" areas be considered for designation as ACECs based on local input and support, backed by peer-reviewed scientific literature that takes into account landscape intactness, range-wide population modeling, sage-grouse genetic flow/population connectivity, development potential, and spatially explicit models such as the SCD.[51] Among these areas are the Golden Triangle/Little Sandy (WY),[52]

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[51] N. B. Carr, I. I. F. Leinwand, and D. J. A. Wood, A Multiscale Index of Landscape Intactness for the Western United States, U.S. Geological Survey data release, 2016, https://dx.doi.org/10.5066/F75H7DCW; Doherty et al., A Sagebrush Conservation Design to Proactively Restore America's Sagebrush Biome, Open-File Report 2022–1081.

[52] See Nomination for the Proposed Little Sandy Area of Critical Environmental Concern, submitted electronically to Bureau of Land Management Rock Springs Field Office Manager Kimberlee Foster, December 19, 2022. Available at https://rockies.audubon.org/sites/default/files/little_sandy_acec_nomination_2023.pdf

portions of the Owyhee-Jarbidge (NV/ID border) and High Divide (ID/MT border) areas, and South Valley Phillips/Hi-Line (MT).

To protect the relevant and important values of these highly-targeted areas, special management prescriptions are needed, which could include the following:

- Designate as ROW exclusion areas, including prohibiting renewable energy generation sites and transmission lines;
- Recommend withdrawal from mineral entry;
- Close to leasing or allow leasing only with no surface occupancy with no exceptions, waivers, or modifications;
- When the primary term for existing leases end, allow the leases to expire;
- When reviewing new applications for permits to drill (or APD extensions), condition approval contingent upon both lease terms and ACEC management direction;
- Close to construction of new roads;
- Designate as seasonally closed to motor vehicle use, limited to motor vehicle use on designated routes, or limited to mechanized use on designated routes;
- Close to mineral material sales;
- Designate as Visual Resource Management Class I or II;
- Restrict construction of new structures and facilities unrelated to the preservation of GRSG and not necessary for the management of uses allowed under the land use plan; and
- Retain public lands in federal ownership.

Adopting the three-tiered approach of GHMA, PHMA, and "best of the best" will best ensure the BLM meaningfully protects the most important areas for GRSG conservation while allowing other important uses of BLM-managed lands in less sensitive areas, and so meet the agency's multiple-use obligations.

D. The final EIS should provide a scientifically-sound method for identifying non-habitat within HMAs and authorizing appropriate development.

We support the BLM's recognition that identified GRSG HMAs will inevitably include some areas that do not provide GRSG habitat and where development could be located without any adverse impacts to GRSG populations or prospects for population growth. We urge the BLM to engage in frequent and meaningful consultation with states, including concurrence of state wildlife agencies, in order to identify such areas.

Mapping errors may be present in initial data, for example, because of insufficient ground-truthing. Mapping inconsistencies may also arise over time, as conditions on the ground change due to both natural conditions and also federal, state, and local management actions. According to the agency's Land Use Planning Handbook, the BLM has the authority to update its land management plans without preparing a formal RMPA for maintenance actions including "correcting minor, typographical, mapping, or tabular data errors."[53] If these RMPAs are to

[53] Bureau of Land Management, Land Use Planning Handbook, H-1601-1, at VI.H, Determining When to Update Land Use Plan Decisions Through Maintenance Actions. Available at

effectively govern GRSG conservation over a period of years or decades, such corrections will be necessary. In the absence of these corrections, or in periods between them, the draft EIS proposes a sensible and conservative approach to allowing development in non-habitat erroneously mapped as habitat.

We urge the BLM to use caution in authorizing development within non-habitat areas, because doing so may have indirect or cumulative effects on adjacent GRSG habitat and may preclude restoration of non-habitat areas to provide habitat value to GRSG populations. We broadly support the management approach proposed in both alternatives 4 and 5, requiring non-habitat exemptions be granted only on a project-by-project basis, after coordination with state and federal agencies, including with trained biologists, and with limitations on access to prevent new indirect impacts to GRSG habitat.[54]

In order to ensure consistency at the state level and across the range, we recommend that any projects in non-habitat be authorized by the BLM State Director, with concurrence from the state wildlife management agency. Furthermore, adopting the more expansive and scientifically-supported designation of HMA under alternative 4, as we recommend, would expand the decision space and flexibility for site-specific management of non-habitat areas within HMAs. In all cases, siting based on non-habitat areas within HMAs should not lead to further landscape fragmentation, anthropogenic subsidies for predators, or restrict GRSG seasonal movement and genetic connectivity.

IV. The BLM must apply the full mitigation hierarchy to all land use activities impacting GRSG, use compensatory mitigation sparingly, fully compensate for all impacts, and achieve a minimum standard of no net loss.

Effective mitigation is a widely accepted regulatory tool and was a critical part of the 2015 decision not to list the GRSG under the ESA. The 2015 RMPAs rely on the mitigation hierarchy to help reach their goal of protecting sage-grouse while also allowing multiple uses to proceed by ensuring associated impacts to habitat are fully offset. The FWS not-warranted finding explicitly recognized the importance of mitigation:

> All of the Federal Plans require that impacts to sage-grouse habitats are mitigated and that compensatory mitigation provides a net conservation gain to the species. All mitigation will be achieved by avoiding, minimizing, and compensating for impacts following the regulations from the White House Council on Environmental Quality (e.g., avoid, minimize, and compensate), hereafter referred to as the mitigation hierarchy. If impacts from

https://www.ntc.blm.gov/krc/system/files?file=legacy/uploads/5656/4_BLM%20Planning%20Handbook%20H-1601-1.pdf (See also 43 CFR § 1610.5-4)

[54] Draft EIS, 2-19 through 2-21.

> BLM/USFS management actions and authorized third party actions that result in habitat loss and degradation remain after applying avoidance and minimization measures (i.e., residual impacts), then compensatory mitigation projects will be used to provide a net conservation gain to the species.[55]

The FWS then concluded, "[r]equiring mitigation for residual impacts provides additional certainty that, while impacts will continue at reduced levels on Federal lands, those impacts will be offset."[56] The 2015 BLM sage-grouse plans thus not only employ the mitigation hierarchy as a regulatory and conservation tool to preclude listing, but the FWS not warranted decision was, in part, based on the promise of the protections and conservation measures that mitigation would deliver.

Mitigation is based on two common-sense principles: (1) it is more appropriate to locate certain activities in some locations than others; and (2) we should clean up after ourselves as we conduct activities that damage the landscape. Properly designed and implemented mitigation involves smart planning, efficient and effective decision-making, and predictability for project proponents, and fully considers the needs of the proposed project, land management priorities, and stakeholder interests. Applied in a balanced manner, mitigation can result in positive outcomes for all – the public, communities, businesses, and the environment. Sound mitigation policy provides agencies such as the BLM with a structured, rational, and transparent framework for reviewing use requests and meeting multiple-use and sustained-yield mandates.

Good mitigation policy and practice is also one of the best opportunities to meet both sustainable development and conservation goals.[57] Many projects, even those with relatively small footprints, can pose significant impacts to wildlife. When fairly designed and implemented and evaluated at appropriate scales, mitigation policies can reduce conflict between conservation and land use activities and support private land stewardship. Such approaches are essential for effective GRSG conservation, and as this planning process continues, we urge the BLM to incorporate strong criteria for mitigation in the final EIS and RMPAs/RODs.

A. The BLM must avoid, minimize, and mitigate impacts to GRSG, in that order.

It is well-established that mitigation is a multi-step process that follows a hierarchy where damage to public lands and resources must first be avoided, second minimized, and third

[55] 12-Month Finding on a Petition to List Greater Sage-Grouse (*Centrocercus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. at 59881 (citation omitted).
[56] 12-Month Finding on a Petition to List Greater Sage-Grouse (*Centrocercus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. at 59881.
[57] See generally Justin R. Pidot, Compensatory Mitigation and Public Lands, 61 Boston College Law Rev. 1045, 1058-59 (2020).

compensated for (compensatory mitigation).[58] This approach is reflected in BLM policies and manuals, including IM 2021-046, Manual Section MS-1794, and Handbook H-1790-1.[59]

The mitigation hierarchy is a stepwise framework for evaluating proposed impacts that first considers options for avoiding impacts from development on the most important habitat in the first place. Some places are too sensitive, rare, or irreplaceable for development and should be avoided entirely. Consider, for example, GRSG wintering areas. Several recent studies have confirmed the importance of ensuring conservation of a sufficient amount of these habitats.[60] In other instances, measures to minimize and/or compensate for impacts may not be available or effective, making avoidance the necessary choice.

The second step in the mitigation hierarchy is to minimize impacts, lessening the scope and severity of disturbance of wildlife and habitat in the project area. If unavoidable impacts occur, the third and final step is to compensate for the loss by creating, restoring, enhancing, or preserving habitat elsewhere. This might involve supporting new conservation management actions on nearby land or restoring nearby habitat with treatments designed to improve conditions for affected species. Compensatory mitigation projects should be consistent with the best practices outlined in subsection IV.C of these comments.

Following each step of the mitigation hierarchy in sequence provides a predictable framework that results in a consistent approach to all types of land allocations and individual projects. Mitigation allows agencies to frontload their planning and provide the public and applicants with information in advance about where development should and should not go, resulting in faster, better decisions. Potential conflicts between conservation and development are reduced when developers know in advance what areas should be avoided. Applying the mitigation framework to sensitive species also helps ensure that decisions made today aren't precluding future use activities or transferring species management challenges from one unit of government to another.

B. Compensatory mitigation must, at minimum, meet a standard of "no net loss" and must fully account for all cumulative impacts.

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[58] The mitigation hierarchy is widely discussed in both regulatory and academic publications. See, for example, CEQ regulations implementing NEPA, at 40 CFR § 1508.1(s).

[59] See Bureau of Land Management, Instruction Memorandum 2021-046: Reinstating the Bureau of Land Management (BLM) Manual Section (MS-1794) and Handbook (H-1794-1) on Mitigation, accessed March 15, 2024, available at https://www.blm.gov/policy/im-2021-046 ("Follow the mitigation hierarchy by first avoiding damage to the public lands and resources; second, minimizing damage that cannot be avoided; and third, compensating for any residual impacts to important, scarce, or sensitive resources or resources protected by law.").

[60] See e.g., Jonathan B. Dinkins, Kirstie J. Lawson, Kurt T. Smith, Jeffrey L. Beck, Christopher P. Kirol, Aaron C. Pratt, Michael R. Conover, and Frank C. Blomquist, "Quantifying overlap and fitness consequences of migration strategy with seasonal habitat use and a conservation policy," *Ecosphere*, v. 8, no. 11, article e01991 (2017), https://doi.org/10.1002/ecs2.1991; Kurt T. Smith, Jeffrey L. Beck, and Aaron C. Pratt, "Does Wyoming's core area policy protect winter habitats for greater sage-grouse?", *Environmental Management*, v. 58, no. 4 (2016): 585-96.

Throughout the draft EIS, the BLM has adopted a standard of no net loss for compensatory mitigation. This is consistent with the FWS' revised Mitigation Policy, issued in 2023.[61] According to the draft EIS, this means "full restoration of functional habitats or enhancement of habitats to minimally support the number of GRSG present prior to disturbance at the apex of the population cycle."[62]

We recognize that no net loss has emerged as the most widely-accepted approach to compensatory mitigation for GRSG and other species, following the abrupt shift from the 2015 GRSG RMPAs that embraced net conservation benefit to the 2019 RMPAs that disclaimed any authority over compensatory mitigation under FLPMA.[63] However, given the ongoing decline of GRSG populations, the urgent need to not only stabilize but increase the species' numbers, and the documented reality that successful restoration efforts in sagebrush habitat are risky and can take several decades to complete, we believe that compensation programs and activities designed to do more than ensure no net loss will be essential to successful conservation of the species. It is critical that the BLM have a high degree of confidence that direct, indirect, and cumulative impacts of infrastructure development and resource extraction will be offset with high quality, durable, timely, and additional compensatory mitigation projects. Without effective mitigation to at least a no net loss standard, sage-grouse habitat will be lost by the proverbial "death by a thousand cuts" from development and other types of conversion.

One way to ensure that cumulative impacts are fully offset by compensatory mitigation is to implement mitigation before impacts are permitted, as opposed to afterwards. This avoids the risk of mitigation measures proving ephemeral, underfunded, or ineffective. Effective monitoring programs can then sustain this assurance over time. Mechanisms that can provide advance mitigation of impacts include conservation banks, habitat exchanges, and regional mitigation plans.[64]

We recognize, however, that there are significant practical obstacles to consistently achieving this desired outcome. We support the approach taken by the draft EIS in applying compensatory mitigation, where the draft EIS recognizes that compensatory mitigation should account for the level of risk that a compensatory mitigation action may fail or not persist for the full duration of the impact compensated.[65] We urge the BLM to apply this logic to compensatory mitigation of all types.

Another reason compensatory mitigation must be carefully designed and achieve high standards is the highly sensitive nature of many sagebrush habitats. Sagebrush and associated vegetative communities in arid western landscapes tend to be slow growing, and therefore creating or

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[61] U.S. Fish and Wildlife Service Mitigation Policy and Endangered Species Act Compensatory Mitigation Policy, 88 Fed. Reg. 31000 (May 15, 2023); U.S. Fish and Wildlife Service, Mitigation Policy (Appendix 1, 501 FW 2), 3.

[62] Draft EIS, 2-23.

[63] See discussion in section II.C.1, above.

[64] Habitat exchanges, in particular, are an innovative tool that is still maturing. See, e.g., Kristiana Hansen, Sara Brodnax, Roger Coupal, Jennifer Lamb, Anne MacKinnon, Ginger Paige, Eric Peterson, and Melanie Purcell, "Wyoming Conservation Exchange: A Case Study in Grassroots Conservation Program Design," *Journal of Extension* 61(4) (2024). https://tigerprints.clemson.edu/joe/vol61/iss4/2/

[65] See, e.g., draft EIS, 2-35.

restoring ecologically functioning land is a time-consuming and difficult process. For example, the impact of fire on sagebrush has been extensively studied, and "most sagebrush taxa are slow to recover after fire because of limited seed dispersal, inability to resprout, and poor seed viability" and "sagebrush recovery to near pre-burn cover after fire can take anywhere from a few decades to more than a century depending on geography, seasonal precipitation, and soil types."[66] Moreover, some of the most important GRSG habitat such as mature and intact sagebrush stands that provide for nesting may never be recreated through restoration efforts.

Given the urgent need to restore GRSG populations, and our limited control over impacts such as wildfire, it makes little sense to intentionally create new demand for habitat restoration by allowing development impacts that must be compensated for by a development entity. Instead, we should focus on avoiding and minimizing any impacts from discretionary anthropogenic activities, especially in the best remaining GRSG habitat.

C. Compensatory mitigation must follow recognized best practices to be effective.

To achieve effective compensatory mitigation with a minimum standard of no net loss, we urge the BLM to ensure that numerous well-established best practices for compensatory mitigation are incorporated into the final EIS and any subsequent mitigation programs designed to conserve GRSG.

Important features of compensatory mitigation have already been recognized by the BLM, and can be found in the agency's Mitigation Manual (1794-M) and Mitigation Handbook (H-1794-1). Another useful source is a 2015 report published by The Nature Conservancy, *Achieving Conservation and Development: Applying the Mitigation Hierarchy*.[67] We urge the BLM to carefully and thoroughly apply all of these principles to GRSG management, including:

1. Loss/gain methodology.

Mitigation programs should quantify impacts and offsets through loss/gain methodologies, ideally based on a measure of the capacity of areas lost and offset. There are large variations in the quality of habitat for sage-grouse, and it is important to address the variation in habitat quality by including measures of habitat functionality and using adjustment factors to account for the risk of project failure. These measures need not be overly precise, but rather should strive to

[66] Michele R. Crist, Rick Belger, Kirk W. Davies, Dawn M. Davis, James R. Meldrum, Douglas J. Shinneman, Thomas E. Remington, Justin Welty, and Kenneth E. Mayer, "Trends, Impacts, and Cost of Catastrophic and Frequent Wildfires in the Sagebrush Biome," *Rangeland Ecology & Management*, vol. 89 (2023): 3-14, 6. https://doi.org/10.1016/j.rama.2023.03.003 See also C. L. Roth, S. T. O'Neil, P. S. Coates, M. A. Ricca, D. A. Pyke, C. L. Aldridge, and D. J. Delehanty, "Targeting sagebrush (Artemisia Spp.) restoration following wildfire with greater sage-grouse (*Centrocercus urophasianus*) nest selection and survival models," *Environmental Management*, 70(2) (2022): 288-306; and the U.S. Geological Survey's three-part handbook on sagebrush restoration. Available at https://www.usgs.gov/news/technical-announcement/handbook-sagebrush-steppe-restoration-techniques-can-help-sustain

[67] B. McKenney and J. Wilkinson, *Achieving Conservation and Development: 10 Principles for Applying the Mitigation Hierarchy* (The Nature Conservancy, 2015). Available at https://www.conservationgateway.org/Documents/TNCApplyingTheMitigationHierarchy.pdf

yield a roughly equivalent amount and type of replacement resources. Risk, uncertainty, and time lag can be addressed through the inclusion of appropriate adjustment factors.

2. Site selection, service areas, scale-appropriate decision making, appropriate actions, and habitat types.

Mitigation programs should provide guidance on appropriate criteria for selecting offset sites, including distance from impact site, boundaries within which impacts may be offset, and any requirements for identifying offset areas based on relevant scale-appropriate conservation information. Specific actions that may be used to provide offsets (e.g., restoration, preservation, enhancement, creation) and types of habitat that are appropriate (e.g., equivalent habitat types) should also be described. Properly applied, these criteria will ensure that there is a reasonable relationship between the impacts authorized and the compensation intended to offset them.

3. Performance standards.

Mitigation programs should have in place performance standards that are clear, science-based, measurable, and designed to track compliance, effectiveness, and inform any needed adjustments for improvement. They should also clearly specify the conservation outcomes (impacts minimized, functional units of offsets delivered) that are expected. Minimization and offset actions should be required to meet ecological performance standards and adhere to provisions for monitoring, adaptive management, and enforcement measures to ensure long-term and sustainable outcomes for conservation.

4. Timeliness.

Recognizing that it may not be possible to implement mitigation activities before authorizing impacts, compensatory mitigation should nonetheless strive to minimize the lag between the time unavoidable impacts occur and the time offsetting mitigation benefits are provided. Mitigation benefits occur not when mitigation commitments are made, but when effective mitigation actions have been successfully completed. Some mitigation actions, such as vegetation management, may be subject to seasonal limitations and/or take many years to prove their impact, so some flexibility is required.

5. Duration.

Compensatory mitigation measures should be designed to be in place at least as long as the duration of the direct and indirect impacts they offset. This requires accurately identifying the duration of impacts. Some impacts may only last for a limited time, while others may be permanent. The end of a specific activity causing an impact does not necessarily mark the end of the impact – the impact ends only when the affected habitat has regained its value for GRSG.

GRSG life cycles and behaviors must also be considered. Because GRSG populations are cyclical in nature, it is important to evaluate long-term trends and not to assume that an increase in population reflects a permanent gain – as we are seeing right now on the upswing from the latest 2021 population low point. Additionally, GRSG exhibit high fidelity to established habitat, including leks and other seasonal habitats, and individual GRSG often will not abandon an impacted area. Avoidance behavior is not immediate, but occurs as yearlings subsequently abandon the impacted area.[68] Similarly, after an impact ends and habitat is restored, it is future generations, not the current generation, that will recolonize it. Accordingly, it can take years for impacts both to appear at the population level and to end after restoration.

6. Durability.

Compensatory mitigation measures must be durable to be effective. This means that they must be maintained and be effective for the entire duration of the impact and additional reclamation time. Durability of offsets may be realized through administrative tools such as land use planning, protective leases for public purposes, or restoration and mitigation leases such as those recognized by the BLM in the new Public Lands Rule.

7. Additionality.

One of the essential requirements for compensatory mitigation is that it must provide conservation benefits above what would have occurred in the absence of compensatory mitigation measures. This can take the form of new resource benefits such as GRSG habitat, or a reduction in risks or threats to GRSG due to mitigation actions.

Detailed analysis of additionality considerations for every type of compensatory mitigation are beyond the scope of these comments. One issue common to all mitigation programs, however, is the concept that any action required by a federal or state law, or participation in a government benefits program, cannot provide additionality. This is especially an issue on public lands, where the BLM's actions are already subject to significant conservation obligations under FLPMA and the agency's regulations and policies.

On public lands, any activities that are required of a permit holder (such as restoration or reclamation after mineral development, or maintenance of rangeland health) would not provide additionality. Only conservation actions that exceed existing permit, lease, or other land use authorizations or regulatory obligations provide additionality. For GRSG, in some areas there is so little GRSG habitat on private lands (for example in Nevada), it may be necessary to provide mitigation on public lands. The BLM's Public Lands Rule clearly contemplates the potential for enhancement and restoration efforts on BLM-managed lands to offset habitat loss through the use of mitigation leasing. We encourage the BLM to develop compensatory mitigation projects on BLM lands when they would have the most benefit to GRSG.

8. Monitoring and adaptive management.

We applaud the BLM for its approach to adaptive management in the draft EIS, which is considerably improved from the 2015 RPMAs.[69] Adaptive management is also an important

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[68] M. J. Holloran, R. C. Kaiser, and W. A. Hubert, "Yearling Greater Sage-Grouse Response to Energy Development in Wyoming," *Journal of Wildlife Management* 74 (2010): 65–72. http://www.bioone.org/doi/abs/10.2193/2008-291

[69] See discussion in section V below.

aspect of mitigation actions, as conditions on the ground will inevitably change over the years and even decades that they are active. Compensatory mitigation programs, like other aspects of GRSG management, should be monitored to determine if they are meeting intended outcomes; if they are not, why; and how they can be changed to meet their objectives.

One potential challenge for the approach taken in the draft EIS is the suggestion that the HAF approach can be used to measure habitat sufficiency in implementing mitigation.[70] Given the field time required to implement the HAF methodology, the BLM should consider alternative approaches, including remote sensing, to verify the effectiveness of compensatory mitigation actions, and supplement these with the HAF where available.

D. The BLM may rely on state mitigation programs to achieve compensatory mitigation requirements for GRSG, provided those programs meet standards outlined in BLM policy.

Following adoption of the 2015 RMPAs, it became apparent that, because some states had already completed or had begun efforts to develop compensatory mitigation strategies to implement conservation measures for the species, it would be redundant to develop federal mitigation strategies for each GRSG management zone. Subsequently, state mitigation programs became the preferred way to manage GRSG mitigation across the range.

States have adopted a variety of approaches to GRSG mitigation, and we support continued flexibility for states to design and apply different geographically-appropriate mitigation approaches. Variability from state-to-state allows for experimentation and, eventually, the ability to compare the effectiveness of different approaches across states.

A voluntary approach to mitigation, employed by states such as Utah, is not acceptable, however, since it provides no certainty that any new habitat will be created in response to development of existing habitat. In addition, application of strict avoidance and minimization principles in these programs is critical because we cannot begin to reduce impacts to sagebrush habitat if development continues to occur on the best habitat.

In contrast, Nevada's Conservation Credit System represents a state mitigation program that requires participation. It also uses the mitigation hierarchy, quantifies impacts and mitigation (debits and credits), applies mitigation at a variety of appropriate scales, applies a net conservation gain standard, and is implemented and overseen by a technical team that applies the best science.[71]

Because the BLM does, in fact, have the authority under FLPMA to require compensatory mitigation,[72] we support the approach taken in alternatives 4 and 5, under which the BLM itself

[70] Draft EIS, 2-22.
[71] See State of Nevada Sagebrush Ecosystem Program, Nevada Conservation Credit System, accessed April 30, 2024, https://sagebrusheco.nv.gov/CCS/ConservationCreditSystem/
[72] See U.S. Department of the Interior Office of the Solicitor, M-37075, Withdrawal of M-37046 and Reinstatement of M-37039, "The Bureau of Land Management's Authority to Address Impacts of its Land Use Authorizations Through Mitigation."

will require mitigation to a no net loss standard if the relevant state either does not require mitigation, or the state's mitigation program is determined by the BLM to be inconsistent with BLM/DOI policy.[73] We further support the approach in alternative 4, under which the BLM would consider requiring mitigation *above* state requirements in areas where adaptive management triggers have been met.[74]

E. Compensatory mitigation may not be appropriate for certain impacts.

As discussed previously in these comments, compensatory mitigation is not a cure-all, or a tool that can be used to authorize unlimited impacts to GRSG habitat. The BLM must apply the full mitigation hierarchy and best practices to ensure effective compensatory mitigation that captures indirect and cumulative impacts over time.

Even using such a properly-designed approach to compensatory mitigation, there are some impacts and locations where the BLM should not allow compensatory mitigation, instead requiring impacts, including indirect and cumulative impacts, to be completely eliminated through avoidance and minimization.

One such situation is the application of waivers, exemptions, and modifications (WEMs) for oil and gas development in GRSG PHMA.[75] Under both alternatives 4 and 5, the draft EIS would authorize WEMs for oil and gas development within PHMA, both inside and outside of 0.6 miles from active leks. Alternatives 4 and 5 would both require compensatory mitigation for impacts deriving from these WEMs to provide appropriate offsets, durability, and risk management. Alternative 4 would further require advance implementation of compensatory mitigation and recognizes that compensatory mitigation may not be appropriate in some GRSG populations and habitat.

We urge the BLM to adopt a stronger approach, and not allow the use of compensatory mitigation to authorize WEMs in NSO areas, including within all PHMA outside of Wyoming and within lek buffers subject to NSO stipulations in Wyoming. As already noted, compensatory mitigation must meet very high standards to be effective, and its use invariably introduces some level of risk to protected resources such as GRSG. In the case of oil and gas development, there is simply no need to introduce this risk. The reason for NSO stipulations on most PHMA and Wyoming lek buffers is that they represent the core areas most essential to GRSG reproduction, population sustainment over time, and ultimately recovery of the species' population. NSO stipulations are a linchpin for any GRSG conservation strategy that focuses on core areas. Compensatory mitigation should not be used to authorize otherwise-prohibited development in NSO areas.[76]

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[73] Draft EIS, 2-24 through 2-25.
[74] Draft EIS, 2-24 through 2-25.
[75] See draft EIS, 2-47 through 2-72.
[76] We note that the draft EIS analyzed the impacts of managing GRSG habitat without any WEMs at all, which places this recommendation within the range of alternatives analyzed.

V. The adaptive management program proposed by the draft EIS is a significant improvement over the 2015 approach and an essential component of a functional GRSG conservation plan.

Because conditions change over time, adaptive management is an important aspect of GRSG conservation. A properly-designed and -implemented adaptive management program will help make the BLM's GRSG management both durable and effective. Adaptive management was an important part of the 2015 GRSG RMPAs, and was cited extensively by the FWS in its decision not to list the species under the ESA.[77] We are pleased that the BLM continues to see adaptive management as an important foundation of the current planning process, and we believe that the draft EIS improves on the 2015 RMPAs in several ways.

In practice, the 2015 approach to adaptive management has proven to be flawed in at least three ways. First, adaptive management strategies vary widely across the states in the range, leading to inconsistent methodologies and outcomes, making it challenging to ensure effectiveness and to develop best practices or lessons learned to improve adaptive management over time. Second, state agencies and state BLM offices have been inconsistent in their responses to triggers, and generally slow to come to an agreement regarding causal factors and slow to implement management responses (if any). Third, while adaptive management plans included both habitat and population triggers, the majority of triggers included and met were population triggers.[78] This exacerbated the first two issues. Because GRSG populations are cyclical and can fluctuate over a fairly wide range, it proved difficult to come to definite conclusions that population-based triggers had in fact been reached, had been reached due to covered management actions, and would be successfully addressed through proposed management changes. This uncertainty enabled inaction in implementing adaptive management, and likely contributed to GRSG population declines. In contrast, the adaptive management program proposed by the draft EIS addresses all of these issues, and we urge the BLM to retain and ultimately implement it as this planning process continues.

A. The proposed adaptive management program achieves consistency across the range.

The first strength of the proposed adaptive management program is its consistency. We support the draft EIS's approach of applying the same adaptive management framework across the

[77] 12-Month Finding on a Petition to List Greater Sage-Grouse (*Centrocercus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. 59858.

[78] See, e.g. Bureau of Land Management, Record of Decision and Approved Resource Management Plan Amendments for the Great Basin Region, Including the Greater Sage-Grouse Sub-Regions of Idaho and Southwestern Montana Nevada and Northeastern California Oregon Utah, Appendix D, Adaptive Management Strategy, 2015. https://eplanning.blm.gov/public_projects/lup/103348/143737/176977/ORGRSG_AppendixD-Adaptive_Mngmnt_508.pdf; Bureau of Land Management Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs Field Offices Approved Resource Management Plan Amendment for Greater Sage-Grouse (Wyoming), 2015, 37-38. https://eplanning.blm.gov/public_projects/lup/103347/143767/177179/002_Wyoming_ARMPA_Main-Body.pdf

GRSG's range, without any variation across states, including both the specific triggers for adaptive management and the methodology and timeframe for actions to be taken in response.

We also note that the BLM's approach is virtually the same across alternatives 3, 4, and 5. The only difference among them is that under alternative 5, new authorizations could be considered during the rapid assessment period for a trigger, subject to project-level NEPA.[79] While it might be preferable in certain cases to foreclose this option, project-level NEPA that is rigorous and considers the ongoing adaptive management process could help to address any issues of concern.

In addition to consistency across the range, the draft EIS also provides a 60-day deadline for completion of rapid assessments, followed by 6 months for a more in-depth causal factor analysis (CFA), if necessary. This will help ensure that adaptative management is conducted in a timely manner, unlike under the 2015 RMPAs. We support the BLM's decision to adopt a more generous deadline for CFAs as they are highly trigger- and location-specific, and are only needed when rapid assessments are unable to identify the cause for a trigger being reached. We expect that in many cases, habitat triggers will result in conclusive rapid assessments, and allow adaptive management to be completed expeditiously.

B. The broad application of habitat-based adaptive management triggers will make adaptive management more effective.

We appreciate the fact that the draft EIS includes numerous adaptive management triggers based on habitat conditions, including a soft trigger when a neighborhood cluster loses more than 5% of its area capable of supporting sagebrush in a given year (including due to wildfire), a hard trigger when a neighborhood cluster drops below 65% of the area capable of supporting sagebrush, and a hard trigger when the 5% loss soft habitat trigger is met in 4 consecutive years.[80]

Because it is easier to identify specific causes for habitat loss compared to population loss, for example due to development impacts or wildfire, we expect that these habitat triggers will prove at least as effective as the population triggers included in the 2015 plans.

We support the use of the best science in identifying habitat triggers. All adaptive management analyses should be transparent and repeatable, allowing verification by state wildlife agencies and the scientific community and the identification of best practices. To achieve this, we support the draft EIS's use of geospatial and remote-sensed data to assess sagebrush habitat, with additional analysis using the HAF considered when available.[81]

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[79] Draft EIS, 2-123.
[80] Draft EIS, 2-122.
[81] See discussion in section II.D about the challenges of using the HAF.

C. The Targeted Annual Warning System (TAWS) provides a scientifically-sound method for identifying population-based adaptive management triggers.

Generally, we support the draft EIS' approach to population trend triggers. As the draft EIS states, "[t]he BLM must consider all available information regarding population threshold status." First and foremost, this includes state wildlife agency lek counts, state population trend analyses, and other state data, because state wildlife agencies have primary authority over fish and wildlife resources within their states and are responsible for managing GRSG populations.

While we support the BLM's decision to use the TAWS model as a means of identifying adaptive management triggers, we urge that it do so as a backstop, continuing to rely on and work with state wildlife agencies to collect, share, and analyze population data. The 2015 approach to population triggers varied by state and has been inconsistently applied. TAWS is the leading, USGS-developed, scientific tool available for identifying triggers. It provides a consistent methodology that automatically analyzes lek data from across the range, providing repeatable and verifiable results. That said, it is not perfect. It is a complex modeling tool that is inevitably subject to some errors.

For these reasons, we urge the BLM to use TAWS as one means of monitoring population fluctuations and to identify potential triggers. TAWS can serve as a consistent model across states, while still encouraging state wildlife agencies to collect and share population data and conduct their own, parallel analyses of potential changes and triggers. The BLM should also use and rely on data collected and analyses prepared by state wildlife agencies both as a means of identifying triggers and to determine responses.

Rather than give the state the opportunity to rebut a TAWS finding, we recommend the BLM make a commitment to work with state wildlife agencies to ground-truth any TAWS finding collaboratively. TAWS should act as a safety net, using its sensitive modeling capabilities to catch potential triggers that can then be verified by the BLM, state wildlife agencies, and others. This process will help ensure that no management changes are made due to TAWS errors.

The BLM has the ultimate obligation to determine when an adaptive management trigger has been met and how it will be addressed, and to take action in a timely manner. The collaborative process outlined here should facilitate that action in a way that reflects the best available science and is consistent with the purpose of this planning process.

VI. The BLM should follow well-established science when establishing lek buffers.

Lek buffers are an important tool to protect active GRSG leks from a variety of habitat-disturbing anthropogenic activities, including oil and gas wells, roads, pipelines, transmission lines, and other tall structures. Lek buffers have two primary purposes. First, when buffers are sufficient in size they can reduce the likelihood of lek abandonment due to development and habitat conversion.[82] Second, lek buffers of sufficient size protect GRSG nesting and early brood-rearing habitat that surrounds the lek.[83] Leks are only occupied by male GRSG when there is surrounding sagebrush habitat for females to nest. Research has demonstrated that if the nesting habitat around the lek is degraded or removed, lek attendance will decline and the lek will eventually become inactive.[84]

A 2016 study in Wyoming found that current regulations for oil and gas development are not preventing lek attendance declines in development areas.[85] According to the Wyoming study, on average, lek attendance was stable when no oil and gas development was present within 4 miles. The study also noted that areas not protected under the Wyoming plan are not subject to Core Area (PHMA) regulations and thus may experience larger increases in oil and gas development and, therefore, larger declines in lek attendance,[86] which often leads to complete lek abandonment.[87]

Studies from different states in the GRSG range have looked at lek buffers and protection of breeding (e.g., nest sites) and summer habitats surrounding lek sites. A 2016 study in Utah recommended buffers of 3 to 5 miles between disturbed areas and sage-grouse breeding and summer habitats, respectively.[88] Similarly, a study in California suggests a 3.1-mile and 4.7-mile buffer for non-migratory and migratory sage-grouse populations, respectively.[89]

As part of the 2015 GRSG RMPA planning process, the Department of the Interior commissioned the USGS to review the scientific information on conservation buffer distances

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[82] B. L. Walker, D. E. Naugle, and K. E. Doherty, "Greater Sage-Grouse Population Response to Energy Development and Habitat Loss," *Journal of Wildlife Management* 71 (2007): 2644–54. http://www.bioone.org/doi/abs/10.2193/2006-529; J. E. Hess and J. L. Beck, "Disturbance factors influencing Greater Sage-Grouse lek abandonment in north-central Wyoming," *Journal of Wildlife Management* 76 (2012): 1625–34; S. T. Knick, S. E. Hanser, and K.L. Preston, "Modeling ecological minimum requirements for distribution of greater sage-grouse leks: implications for population connectivity across their western range, U.S.A.," *Ecology and Evolution* 3 (2013): 1539–51; Manier et al., Conservation buffer distance estimates for Greater Sage-Grouse—A review.

[83] J. W. Connelly, C. A. Hagen, and M. A. Schroeder, "Characteristics and dynamics of greater sage-grouse populations," *Studies in Avian Biology* 38 (2011): 53–67; Manier et al., Conservation buffer distance estimates for Greater Sage-Grouse—A review.

[84] Walker et al., "Greater Sage-Grouse Population Response to Energy Development and Habitat Loss"; S. M. Harju, M. R. Dzialak, R. C. Taylor, L. D. Hayden-Wing, and J. B. Winstead, 2010. "Thresholds and Time Lags in Effects of Energy Development on Greater Sage-Grouse Populations," *Journal of Wildlife Management* 74 (2010): 437–48. http://www.bioone.org/doi/abs/10.2193/2008-289; Knick et al., "Modeling ecological minimum requirements for distribution of greater sage-grouse leks: implications for population connectivity across their western range, U.S.A."

[85] Adam W. Green, Cameron L. Aldridge, and Michael S. O'donnell, "Investigating impacts of oil and gas development on greater sage-grouse," *Journal of Wildlife Management* 81(1) (2017): 46-57.

[86] Green et al., "Investigating impacts of oil and gas development on greater sage-grouse."

[87] Walker et al., "Greater Sage-Grouse Population Response to Energy Development and Habitat Loss."

[88] D. K. Dahlgren, T. A. Messmer, B. A. Crabb, R. T. Larsen, T. A. Black, S. N. Frey, E. T. Thacker, R. J. Baxter, and J. D. Robinson, "Seasonal movements of greater sage-grouse populations in Utah—Implications for species conservation," *Wildlife Society Bulletin* 40(2): 2016: 288–99. https://onlinelibrary.wiley.com/doi/abs/10.1002/wsb.643

[89] P.S. Coates, M. L. Casazza, E. J. Blomberg, S. C. Gardner, S. P. Espinosa, J. L. Yee, L. Wiechman, and B. J. Halstead, "Evaluating Greater Sage-Grouse seasonal space use relative to leks: Implications for surface use designations in sagebrush ecosystems," *Journal of Wildlife Management* 77 (2013): 1598–1609.

for sage-grouse.[90] The resulting study recommended there be a 3.1-mile buffer between leks and infrastructure related to energy development. It is important to stress that this distance does not result in 100% protection for sage-grouse:

> [T]he minimum distance inferred here (5 km [3.1 miles]) from leks may be insufficient to protect nesting and other seasonal habitats. Based on the collective information reviewed for this study, conservation practices that address habitats falling within the interpreted distances may be expected to protect as much as 75 percent to 95 percent of local population's habitat utilization.[91]

These, and other peer-reviewed studies well established as the best available science, intimate that the use of a smaller 0.6-mile buffer around leks in PHMA and 0.25-mile NSO buffer for leks in certain states or GHMA may not be adequate to reverse declining GRSG populations.[92] In this planning process, the BLM should evaluate the latest science to determine whether the current lek buffers are sufficient. The BLM should also consider whether large variations in site-specific conditions, such as topography, merit site-specific consideration of ecologically appropriate set-backs.

In the draft EIS, descriptions of the various lek buffers proposed are scattered across the document, which unfortunately makes it difficult for readers to understand the full range of lek buffers proposed. Furthermore, they vary considerably across the range regarding both the land allocations subject to lek buffers and the size of the buffers, and so fail to achieve the goal of increasing consistency in management across the range.

It is clear, however, that most of the proposed buffers are insufficient to protect GRSG leks. They are inconsistent with the best available science as summarized in Mainier et al. 2014 and corroborated in more recent research, and will not sustain GRSG populations. Of particular concern are NSO buffers for fluid mineral development in Wyoming PHMA under alternative 5 (0.6 miles in PHMA), and in all GHMA under both alternatives 4 and 5 (variously 0.25, 0.6, or 2 miles), as well as buffers for minor ROWs (0.6 or 1.2 miles). According to Manier et al., 2014, all of these buffers should be at least 3.1 miles.

Although there are a minority of states where some state-specific criteria apply buffers more closely aligned with Manier et al., 2014 (primarily Colorado, Idaho, and Utah), we recommend

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[90] Manier et al., Conservation buffer distance estimates for Greater Sage-Grouse—A review.

[91] Manier et al., Conservation buffer distance estimates for Greater Sage-Grouse—A review, 2.

[92] In addition to Manier et al., 2014, other papers suggesting lek buffers need to be larger to be effective include Coates et al., "Evaluating Greater Sage-Grouse seasonal space use relative to leks: Implications for surface use designations in sagebrush ecosystems" (suggesting that a 5-km [3.1-mi] and 7.5-km [4.7-mi] km buffer distance around leks, for non-migratory and migratory sage-grouse populations respectively, encompasses approximately 90% of sage-grouse seasonal habitat use, and a 5 km [3.1-mi] buffer around leks includes 95% of GRSG nests) and S. T. Knick and S. E. Hanser, "Connecting pattern and process in Greater Sage-Grouse populations and sagebrush landscapes," *Studies in Avian Biology* 38 (2011): 383–405 (finding in a range-wide and multiyear [1965 and 2007] study that the level of the human footprint within 5-km [3.1-mi] of a lek was predictive of lek abandonment).

the BLM reconsider the proposed lek buffers in the draft EIS and bring them more fully into alignment with the best available science.

VII. The BLM should manage mineral development, especially oil and gas development, to avoid impacts to GRSG to the maximum extent possible.

A. Oil and gas development is the leading threat to GRSG in the eastern portion of its range.

Disturbance from oil and gas development is a primary threat to GRSG. The 2015 RMPAs included provisions and stipulations designed to minimize the impacts of oil and gas development on GRSG and its habitat, but these measures have not been implemented with consistency or, in some cases, at all. The enjoined 2019 RMPAs would have weakened the BLM's ability to manage oil and gas development for GRSG conservation, and it is imperative that this planning process result in a durable approach to oil and gas (and other energy and mineral) development that reflects the best science and conserves GRSG populations and habitat.

Nonrenewable energy development has emerged as a major issue in GRSG conservation because areas currently under development contain some of the highest densities of GRSG and other sagebrush-obligate species in western North America.[93] The impact of oil and gas (and similar development) on GRSG was summarized by Remington et al. 2021 as follows:

> Approximately 8 percent of sagebrush habitats across the entire biome are directly affected by oil and gas development, with greater than 20 percent of sagebrush habitats affected in the Rocky Mountain area. Several million additional acres within the sagebrush biome have been impacted by mining activities and alternative energy development, such as wind and solar. Sagebrush-associated wildlife can be impacted by loss and degradation of habitat, as well as by numerous indirect effects such as noise, exposure to contaminants, and disturbance from vehicles and human presence.[94]

Not only does construction of oil and gas wells impact GRSG habitat, associated infrastructure such as roads and pipelines further fragment habitat, and create vectors for invasive species, wildfires, and predators, both native predators and novel predators, to access GRSG habitat.[95] A comprehensive review of the literature in this area can be found in Remington et al. 2021.[96]

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[93] Naugle et al., "Sage-Grouse and Cumulative Impacts of Energy Development."
[94] Remington et al., Sagebrush conservation strategy—Challenges to sagebrush conservation, 163.
[95] Remington et al., Sagebrush conservation strategy—Challenges to sagebrush conservation, 171.
[96] Remington et al., Sagebrush conservation strategy—Challenges to sagebrush conservation, 171-72. See also Naugle et al., "Sage-Grouse and Cumulative Impacts of Energy Development."

B. The BLM should prioritize areas outside of GRSG habitat for oil and gas development.

A key component of the 2015 RMPAs required the BLM to prioritize new oil and gas leasing outside of PHMA and GHMA in order to protect that habitat from future disturbance. Prioritization of development outside of priority habitat is also a core component of state GRSG regulations and policies; for example, the Wyoming Greater sage-grouse Core Area Protection Executive Order states: "To ensure continued sustainability of Wyoming's economy, incentivizing and prioritizing development outside of Core Population Areas shall be a priority."[97]

In 2014, when the 2015 planning process was unfolding, there was only a 4% overlap between PHMA and existing coal and oil and gas leases on federal lands.[98] Approximately 79% of federal lands and minerals in existing PHMA have a zero to low oil and gas development potential, and approximately 71% of federal lands and minerals in the principal GRSG states that have a medium to high oil and gas development potential are located outside existing PHMA.[99] In the current planning process, protection of GRSG habitat from oil and gas development should be maintained, and this can be done with little impact on oil and gas development opportunities.[100]

In 2018, the BLM reinterpreted its prioritization directive in Instruction Memorandum 2018-026—a policy that a court later stuck down.[101] The BLM has not adopted new national guidance on the prioritization requirement and has represented to the Montana court that the agency's previous prioritization guidance (adopted in 2016) also is not in effect. As a result, there is currently no national guidance providing direction on how prioritization is to be applied. At present, the BLM must comply with the prioritization requirement of the 2015 RMPAs when considering leasing parcels in PHMA and/or GHMA, and many of our organizations have consistently advocated for the BLM to defer leasing all parcels containing PHMA and/or GHMA at least until new national guidance is issued. In the current planning process, the BLM should include a prioritization objective similar to the 2015 RMPAs.

Past experience suggests that new prioritization directives will need to be more robust than past efforts. In its Rangewide Monitoring Report for 2015-2020, the BLM found there have been 604 land use authorizations across a variety of types of land use authorization (e.g., oil and gas,

[97] State of Wyoming, Executive Order 2019-3: Greater sage-grouse Core Area Protection, August 21, 2019. https://wgfd.wyo.gov/media/15359/download?inline

[98] C. LeBeau, J. Fruhwirth, and J. Boehrs, Analysis of the Overlap between Priority Greater Sage-Grouse Habitats and Existing and Potential Energy Development across the West, Final Report, October 16, 2014, Prepared for Western Values Project, Bozeman, Montana. Prepared by Western EcoSystems Technology, Inc. (WEST), Cheyenne, Wyoming.

[99] C. LeBeau C. and G. Gardner, Analysis of the Overlap between Priority Habitat Management Areas and Existing and Potential Energy Development across the West, Final Report, June 9, 2017, Prepared for Backcountry Hunters & Anglers, Denver, Colorado. Prepared by Prepared by Western EcoSystems Technology, Inc. (WEST), Laramie, Wyoming.

[100] An exception to this trend is in Wyoming, where some of the best GRSG habitat shows high potential for oil and gas development.

[101] Montana Wildlife Federation v. Bernhardt, No. 18-cv-69-GF-BMM, 2020 WL 2615631 (D. Mont. May 22, 2020). This policy stated that prioritization would apply only where a "backlog" of leasing requests exists.

rights-of-way, etc.) in PHMA and IHMA covering approximately 73,000 acres.[102] In Colorado, the BLM approved over 34,000 acres of surface-disturbing authorizations within priority habitat since 2015, followed by Nevada (approximately 22,000 acres) and Wyoming (approximately 13,000 acres).[103] Importantly, the acreages cited for these authorizations represents the surface disturbance of the land use authorization, which does not include the far further-reaching indirect effects of the disturbances (noise, etc.) that can impact GRSG miles away from the development itself.

The BLM should adopt a coherent prioritization that it can apply universally across field offices within identified GRSG PHMA and GHMA. In addition, appropriate prioritization guidance would be consistent with the BLM's newly-issued rule on onshore oil and gas development, which specifies that when offering lands for lease, the BLM must consider "[t]he presence of important fish and wildlife habitats or connectivity areas, giving preference to lands that would not impair the proper functioning of such habitats or corridors."[104]

We recommend that, as this planning process continues, the BLM adopt prioritization language proposed in alternative 3, which states: "If possible, place [oil and gas] development outside of PHMA (and IHMA)."[105]

Additional approaches that the BLM should consider include the following:

- Look for opportunities to modify parcel boundaries to remove PHMA and GHMA before including them in lease sales;
- Take into account the availability of other parcels for lease in all field offices;
- If parcels are within identified PHMA and have low or moderate potential for oil and gas, they should not be included in a lease sale;
- If parcels are within identified PHMA and have high potential for oil and gas, are not in proximity to existing disturbance and/or require additional infrastructure to be developed, there should be a strong presumption against including them in a lease sale, especially if there are other parcels that do not have PHMA and do not have other high-priority resource conflicts;
- If parcels within identified PHMA or GHMA have high potential for oil and gas and are in close proximity to existing disturbance and infrastructure and/or are already within an existing oil and gas unit that has been analyzed in an EIS, then they may be considered for leasing;
- Parcels outside PHMA should be considered for leasing prior to parcels in PHMA;
- Parcels outside GHMA should be considered for leasing prior to parcels in GHMA; and
- For parcels in PHMA or GHMA that are included in lease sales, there should be an evaluation of other conditions of approval that will limit any new infrastructure or other stressors on sage-grouse.

[102] Herren et al., Greater sage-grouse plan implementation: Rangewide monitoring report for 2015–2020, viii.
[103] Herren et al., Greater sage-grouse plan implementation: Rangewide monitoring report for 2015–2020, viii.
[104] Fluid Mineral Leases and Leasing Process, 89 Fed. Reg. 30916, 30986 (April 23, 2024).
[105] Draft EIS, 2-41.

Prioritizing appropriate lands outside of GRSG habitat for oil and gas development is the best way to ensure the BLM achieves the goal of conserving GRSG and also maintains production of oil and gas (and other essential minerals and energy resources). This is the essence of multiple-use management.

C. We support the provision of alternative 5 that provides for no surface occupancy for oil and gas operations in PHMA outside of Wyoming.

By effectively prioritizing non-GRSG habitat for oil and gas development, the BLM can avoid the drastic step of closing vast acreages to oil and gas development entirely. For this reason, we do not support the approach of alternative 3, which would close all GRSG habitat to oil and gas leasing.[106]

Assuming that the BLM applies rigorous prioritization criteria and adopts the approach to PHMA and high-value areas (such as the Golden Triangle in Wyoming) laid out in section III of these comments, alternative 5 could be compatible with effective GRSG conservation. By applying NSO stipulations to oil and gas in PHMA across most of the range, the BLM will realize most of the benefits of the alternative 3 approach while still allowing access to important natural resources through directional drilling and other technologies. In Wyoming, which is blessed with an abundance of both GRSG and oil and gas resources, we support the alternative approach of applying NSO stipulations only within lek buffers. However, we reiterate our discussion in section VI of these comments, and urge the BLM to apply scientifically-sound lek buffers of no less than 3.1 miles, with NSO stipulations inside that area, as well as the other stipulations detailed in the draft EIS.[107]

D. We support the draft EIS's approach of using lek buffers and other stipulations to protect the most important GRSG habitat in GHMA.

Lek buffers can be effectively used to conserve the most important GRSG habitat in GHMA. The draft EIS contemplates a variety of land allocation limitations within GHMA lek buffers, including both controlled surface use and timing limitation stipulations. These vary across state lines and between alternatives 4 and 5, and a detailed analysis of each stipulation is beyond the scope of these comments. In general, when finalizing these provisions in the final EIS and accompanying RMPAs/RODs, the BLM should apply the best available science and ensure that leks within GHMA are adequately protected from impacts of oil and gas and other fluid mineral development. These leks and the surrounding habitat represent the best hope for future expansion of GRSG populations, and if they are not protected, we will be consigning the species to a slow but inevitable decline. Furthermore, leks in GHMA act as genetic exchange hubs providing genetic links to different GRSG populations within PHMAs.[108]

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[106] Draft EIS, 2-41.

[107] See Manier et al., Conservation buffer distance estimates for Greater Sage-Grouse—A review. A larger buffer of 4 miles would be meaningfully more protective.

[108] Cross et al., The genetic network of greater sage-grouse: Range-wide identification of keystone hubs of connectivity.

E. WEMs should be considered for oil and gas development in GHMA, but not PHMA.

The BLM should limit the availability of waivers, exceptions, and modifications (WEMs) for oil and gas stipulations, as intended in the 2015 RMPAs, to ensure that these provisions do not undercut the purpose of the plans. In general, the requirements laid out in the draft EIS for projects to secure WEMs are appropriate and rigorous, including scientific analysis of the area by a biologist, requirements for the complete mitigation of any impacts on adjacent habitat, including indirect and cumulative impacts, clear documentation, and public review.[109] We hope and expect that the BLM will both retain these requirements in the final EIS and then rigorously enforce them.

We wish to reiterate, however, our previous discussion of compensatory mitigation for WEMs in section IV.E of these comments. Ideally, WEMs for oil and gas would not be permitted in PHMA at all, but only in GHMA. Failing that, the use of WEMs in PHMA should be avoided to the maximum extent possible. We furthermore believe that the challenges of consistent and thorough application of compensatory mitigation requirements stacked on top of the challenges of consistent and thorough application of WEM requirements introduces a high degree of risk. It seems likely that BLM field staff – through no fault of their own – will be unable to consistently and reliably meet their obligations under the revised GRSG RMPAs and issues will fail to be identified and addressed, to the detriment of GRSG populations. Given this risk, we recommend that at a minimum, the final EIS and RMPAs/RODs not authorize the use of compensatory mitigation in order to justify WEMs in PHMA.

In addition, we recommend that any WEM authorizations included in the final EIS and RMPAs/RODs require the concurrence of the BLM State Director and applicable state wildlife agency. This approach would strengthen the consistency of the BLM's application of WEMs and ensure that WEMs are handled at the appropriate high level within the agency, reflecting their significance as departures from the land management practices adopted through the RMPA process. Moreover, it would ensure that the BLM considers the cumulative impacts of WEMs across a state when considering additional requests.

F. We support NSO and other appropriate stipulations for geothermal energy development.

Most forms of renewable energy will be addressed in section IX of these comments. Geothermal energy, however, is a fluid-based underground resource similar to oil and gas. Geothermal facilities draw water from deep underground where high ambient temperatures can be found, extract the heat energy from the water, and then return the water to the earth. Geothermal exploration and operations use technologies similar to both oil and gas development (bore holes, surface pumps, etc.) and renewable energy projects (transmission lines, gen-ties), all of which have adverse impacts on GRSG.[110]

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[109] See draft EIS, 2-47 through 2-91.

[110] For discussion of geothermal impacts on GRSG, see Peter S. Coates, Brian G. Prochazka, Shawn T. O'Neil, Sarah C. Webster, Shawn Espinosa, Mark A. Ricca, Steven R. Mathews, Michael Casazza, and David J.

On BLM-managed lands, geothermal energy is managed as a fluid mineral like oil and gas, and with minor exceptions is subject to the same management approach, including stipulations. Under both alternatives 4 and 5, the draft EIS would apply NSO stipulations to geothermal development in PHMA in every state (unlike oil and gas, where Wyoming PHMA would not be NSO under alternative 5), and other, less restrictive, stipulations in GHMA.

Geothermal energy development is currently experiencing an explosion of interest, especially in Nevada, including in northeastern Nevada where high-potential areas extensively overlap PHMA.[111] Under the 2008 Final Programmatic Environmental Impact Statement (PEIS) for Geothermal Leasing in the Western United States, 143 million acres of BLM-managed lands were identified as suitable for geothermal development.[112] Initial utilization of this resource for clean energy was slow, but is now gaining momentum. In 2022, the BLM approved five new geothermal projects (3 in Nevada, 1 each in California and Utah),[113] and in 2024 the BLM adopted from the U.S. Forest Service and U.S. Navy two categorical exclusions (CEs) allowing geothermal exploration operations on BLM lands without additional NEPA review.[114]

Adverse impacts to GRSG populations are not limited to geothermal energy operations but can also occur as a result of geothermal exploration. Especially because geothermal resources are concentrated in the desert southwest, even exploration could lead to severe local impacts on specific GRSG populations. Only rigorous project-level NEPA analysis can give the BLM and the public the necessary insight into those impacts to determine if a specific project should go forward or not.

We support the BLM's management approach to geothermal energy development, especially NSO stipulations for all PHMA. As with the oil and gas industry, we urge the agency to apply the best science and require appropriate (minimum 3.1-mile[115]) lek buffers in GHMA. We also recommend geothermal energy development be kept out of high-value seasonal habitats and connectivity corridors.

Delehanty, "Geothermal energy production adversely affects a sensitive indicator species within sagebrush ecosystems in western North America," *Biological Conservation* 280 (April 2023): 109889. https://www.sciencedirect.com/science/article/pii/S0006320722004426; Alexandra Weill, "Buildings maps to help geothermal energy and greater sage-grouse coexist in Nevada's sagebrush country," *U.S. Geological Survey*, March 6, 2023. https://www.usgs.gov/news/featured-story/building-maps-help-geothermal-energy-and-greater-sage-grouse-coexist-nevadas

[111] See draft EIS, 3-36.

[112] Bureau of Land Management and U.S. Forest Service, Final Programmatic Environmental Impact Statement (PEIS) for Geothermal Leasing in the Western United States, October 2008. https://www.blm.gov/sites/blm.gov/files/Geothermal_PEIS_final.pdf.

[113] US Department of Interior, Bureau of Land Management. Public Land Renewable Energy – Fiscal Year 2022 [Factsheet].

[114] Bureau of Land Management, "BLM adopts categorical exclusions to expedite geothermal energy permitting," press release, April 15, 2024. https://www.blm.gov/press-release/blm-adopts-categorical-exclusions-expedite-geothermal-energy-permitting

[115] See Manier et al., Conservation buffer distance estimates for Greater Sage-Grouse—A review.

G. The draft EIS provides appropriate limitations on saleable minerals, non-energy leasable minerals, coal mining, and locatable minerals for the protection of GRSG.

In the context of other (non-energy) minerals, accurate mapping of the most important habitat (see section III of these comments) is essential to achieving the purposes of this planning process and the BLM's multiple-use mission. All types of surface-disturbing mining are destructive to GRSG habitat and damaging to GRSG populations.[116] We support the draft EIS's strong, protective approach to mining activities in GRSG habitat, especially PHMA, under both alternatives 4 and 5.[117]

We note that development of domestic sources of critical minerals is essential to meeting current goals for renewable energy development (see section IX of these comments) and addressing climate change. As such, it is essential the BLM strike a balance between competing land uses and meet its multiple-use obligations by protecting the most sensitive GRSG habitat while developing mineral resources in the best areas for that purpose. Given the dire situation of GRSG populations and the purpose of this planning process, where those values conflict directly, the BLM must favor GRSG conservation. We support numerous provisions of the draft EIS that do just that.

We support closure of PHMA to saleable mineral development, excluding free use permits and expansions of existing pits, but we urge that those exclusions be used sparingly. We support closure of PHMA to non-energy leasable minerals, again urging that exceptions in California, Idaho, Nevada, and Wyoming be used sparingly.

For states where coal is present, we recognize the need to adopt a flexible approach that evaluates the suitability of a specific site for a specific coal mining method. However, we urge the BLM to be exceedingly thorough in project-level NEPA analysis, and extremely cautious when authorizing development. Because accessible coal deposits are highly localized, there is a risk of acute effects in one area destroying essential GRSG habitat, reducing habitat connectivity, and undermining goals for species recovery. To address this, it is essential that the BLM apply disturbance caps at the correct scale (see section VIII of these comments) to avoid excessive development impacts in important GRSG areas.

Locatable mineral management is an area of comparative weakness in the draft EIS, if only because the BLM's intentions are unclear. As previously explained (see section II.C.1 of these comments), the BLM never completed the withdrawal from mineral location and entry that was planned for SFAs in 2015 and relied upon by the FWS in its not warranted finding. Instead, that process is ongoing, with new NEPA documents expected later this year. Under alternative 3, the BLM would recommend all GRSG HMAs for withdrawal. Under alternatives 4 and 5, the draft EIS is silent on any potential mineral withdrawal, noting only that one area of Montana has already been withdrawn.[118] Consistent with the approach articulated in section III of these comments, recommending that the BLM protect the most important areas of GRSG habitat more

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[116] See generally Remington et al., Sagebrush conservation strategy—Challenges to sagebrush conservation, 163-72.
[117] See draft EIS, 2-14 through 2-19.
[118] Draft EIS, 2-16.

highly than other PHMA, we request that the BLM advance such areas for withdrawal from location and entry.

VIII. We support the approach to disturbance caps under alternative 5, with certain improvements.

To further address the threat imposed by infrastructure associated with development, the 2015 RMPAs included disturbance caps for anthropogenic disturbance within PHMA. Once a disturbance cap is reached, additional development will not be permitted on federal lands within the relevant PHMA. Caps were set at 3% or 5%, depending on the state.[119] We are pleased to see that the draft EIS is revisiting these disturbance caps. Most of the draft EIS' approach to disturbance caps is an improvement over the 2015 RMPAs, although there are opportunities for further improvement as well.

First, approaches to disturbance cap calculation are inconsistent across state lines. This is the case under the 2015 RMPAs, and while the draft EIS offers significant improvements in this area, inconsistencies remain. The first issue is the appropriate scale for calculation of disturbance caps. The 2015 plans used both the project scale and the biologically significant unit (BSU) scale, and BSUs were calculated differently in each state.[120] The draft EIS improves on this by using project-level and HAF fine scale population units. Compared to BSU scales, the HAF fine scale will introduce greater consistency to disturbance caps across the range and in some cases use smaller areas, allowing for more precise data.

There is also variation in definitions of what disturbances are actually included in the disturbance cap calculation. As previously discussed, disturbances are included regardless of surface ownership, in order to capture cumulative impacts. This important approach should be retained. We also appreciate the fact that project-level boundaries for disturbance calculations would be set at a 4-mile radius, which is a conservative approach consistent with the best science on impact distances.[121]

While the proposed disturbance cap calculation captures most important sources of anthropogenic disturbance,[122] there are others that are omitted, as well as non-anthropogenic

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[119] Draft EIS, 2-29.

[120] See, e.g. US. Forest Service, Greater Sage-Grouse Implementation Guide Minerals, Ver. 1.4, Utah, Nevada, Idaho/SW Montana, Wyoming, NW Colorado, accessed May 3, 2024, at 4. https://www.fs.usda.gov/sites/default/files/media_wysiwyg/minerals_guide_1_4_docx.pdf.

[121] E.g. Manier et al., Conservation buffer distance estimates for Greater Sage-Grouse—A review.

[122] Specifically, Oil and gas wells and development facilities; Coal mines; Wind developments (e.g., towers, sub-stations, etc.); Solar fields; Geothermal development facilities; Mining (active locatable, nonenergy leasable and saleable/mineral material developments); Roads (transportation features with a maintenance intensity of level 3 or 5 – see BLM Technical Note 422 – Roads and Trails Terminology, 2006 or as updated) (does not include two-tracks); Railroads; Power lines; Communication towers; Other vertical infrastructure, as well as developed rights-of-way with habitat loss (e.g., pipelines); Coal bed methane ponds (at the project scale); Meteorological towers (e.g., wind energy testing) (at the project scale); Nuclear energy facilities (at the project scale); Airport facilities and infrastructure (at the project scale); Military range facilities and infrastructure (at the project scale);

impacts such as wildfire.[123] In addition, while most states would be subject to a disturbance cap of 3%, alternative 5 would apply a higher disturbance cap to the project-scale cap in Montana and Wyoming. This approach is consistent with the 2015 RMPAs and for good reason: the two issues are interrelated. In Montana and Wyoming, the 5% project-level disturbance cap would *include* both wildfire and agricultural impacts, two sources of disturbance that are omitted from the 3% disturbance caps in other states.

The best available science supports disturbance caps of 3%. In one study, brood-rearing GRSG established home ranges in areas that had 3.5% anthropogenic surface disturbance on average, including both active disturbance and reclamation.[124] In another study, Kirol et al. 2020 showed that during reproductive life stages female GRSG from multiple regions in Wyoming consistently occupied areas with less surface disturbance relative to what was available to them. Ninety percent of nesting and brood-rearing locations were in areas with < 3% disturbance within a ~3-km2 area.[125] Researchers have also pointed to major behavior changes at similar percentages of surface disturbance when studying impacts of energy disturbance on other sagebrush-associated species. For instance, the presence and abundance of pygmy rabbits (*Brachylagus idahoensis*) declines sharply once oil and gas surface disturbance reaches 2% and migrating mule deer (*Odocoileus hemionus*) rarely use areas with greater than 3% oil and gas disturbance.[126] Within crucial winter range, both mule deer and the sagebrush-obligate pronghorn (*Antilocapra americana*) avoid all human-disturbed habitat, even within populations that can tolerate low levels of disturbance during migration.[127]

Because disturbance caps of 3% represent the best available science, and project-level caps of 5% in Montana and Wyoming are more inclusive and function as caps of 3% or less, we support the approach to disturbance caps proposed under alternative 5.

As in the 2015 RMPAs, the draft EIS includes criteria that would allow a project to be excepted from the disturbance cap and go forward even if it would cause cumulative disturbances that exceed the cap. In 2015, this was only available in Idaho, Montana, Nevada, and Wyoming, and in Idaho and Nevada it was qualified by a requirement that projects exceeding the cap would

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Hydroelectric plants/facilities (at the project scale); and Recreation areas facilities and infrastructure larger than 0.25 acres (e.g., parking lots, campgrounds, trail heads, etc.) (at the project scale). See draft EIS, 2-30 thru 2-31.

[123] Specifically, Wildfire; Agriculture; Vegetation treatments; Residences; Barns; Fencing; Range improvements; and All other impacts. See draft EIS, 2-31.

[124] C. P. Kirol, "Patterns of nest survival, movement and habitat use of sagebrush-obligate birds in an energy development landscape" (PhD dissertation, University of Waterloo, Waterloo, Canada, 2021). Although this study found the cut-off at 3.5% rather than 3%, this was because it included reclamation areas and was in an area in northwestern Wyoming that has so much disturbance that little to no areas are available that haven't been disturbed – females instead pick the least disturbed areas.

[125] C. P. Kirol, K. T. Smith, N. E. Graf, J. B. Dinkins, C. W. Lebeau, T. L. Maechtle, A. L. Sutphin, and J. L. Beck, "Greater sage-grouse response to the physical footprint of energy development," *Journal of Wildlife Management* 84 (2020): 989–1001.

[126] S. S. Germaine, S. K. Carter, D. A. Ignizio, and A. T. Freeman, "Relationships between gas field development and the presence and abundance of pygmy rabbits in southwestern Wyoming," *Ecosphere* 8(5) (2017): e01817; H. Sawyer, M. S. Lambert, and J. A. Merkle, "Migratory disturbance thresholds with mule deer and energy development," *Journal of Wildlife Management* 84(5) (2020): 1–8; M. Sandoval Lambert, H. Sawyer, and J. A. Merkle, "Responses to natural gas development differ by season for two migratory ungulates," *Ecological Applications* 32 (2022): 1–13.

[127] Lambert et al., "Responses to natural gas development differ by season for two migratory ungulates."

only be permitted if they resulted in a net benefit to GRSG. Under the draft EIS, disturbance cap exceptions would be available in all states, although only at the project scale, and only if extensive requirements are met. In broad terms, these requirements include concurrence from the BLM State Director; proper and complete application of the mitigation hierarchy; and an additional analysis demonstrating consolidation of disturbances, use of RMP-designated utility corridors, or a net benefit to GRSG.[128]

We caution the BLM against the application of disturbance cap exceptions except in very rare circumstances. The criteria laid out in the draft EIS are comprehensive, and if rigorously applied should reduce inadvertent impacts to GRSG populations due to exceptions. But allowing any disturbance cap exceptions creates a risk of indirect and cumulative impacts to GRSG populations. This is exactly the situation that disturbance caps are intended to forestall.

The requirement that disturbance cap exceptions receive the concurrence of the BLM State Director is a useful backstop that would ensure exceptions are granted in consistent (and hopefully rare) circumstances. If disturbance cap exceptions are included in the final EIS and RMPAs/RODs, we recommend that this requirement be retained. We also support the requirement that when compensatory mitigation is applied to disturbance cap exceptions, it should either be completed in advance of disturbances (alternative 4), or account for the level of risk that a compensatory mitigation action may fail or not persist for the full duration of the impact compensated for (alternative 5).[129]

IX. We support the approach under alternative 4 of excluding renewable energy infrastructure from important GRSG habitat.

Renewable energy development is a challenging issue for GRSG conservation, due to exploding demand for renewable energy across the range, including from wind and solar and increasingly geothermal sources, and the associated need for new transmission lines. Renewable energy development is a high priority for many states, as well as the federal government.

At the federal level, Executive Order 14008 and the Energy Act of 2020 (Pub. L. 116-260, Division Z) direct the BLM to prioritize renewable energy deployment on public lands, and the agency is currently developing a final EIS for solar energy development across 11 western states (the Solar PEIS).[130] On May 1, 2024, the BLM issued its final rule on Rights-of-Way, Leasing, and Operations for Renewable Energy.[131] The Biden Administration has met and is on its way to exceeding its goal of permitting 25 gigawatts of onshore renewable energy on public lands by

[128] Draft EIS, 2-34 through 2-39. This brief description omits additional technical requirements.
[129] See, e.g. draft EIS, 2-35.
[130] Bureau of Land Management, Solar Energy, accessed May 14, 2024. https://www.blm.gov/programs/energy-and-minerals/renewable-energy/solar-energy
[131] Rights-of-Way, Leasing, and Operations for Renewable Energy, 89 Fed. Reg. 35634 (May 1, 2024).

2025,[132] and in Fiscal Year 2022 the BLM permitted 5,670 megawatts of onshore renewable energy, nearly doubling Fiscal Year 2021.[133] The Inflation Reduction Act of 2022 (Pub. L. 117-169) reduced rents and extended tax incentives for the wind and solar industries until at least 2034, while grants under the Infrastructure Investment and Jobs Act (Pub. L. 117-58) are funding projects. As a result, the financial outlook for these sectors is likely to remain very strong, accelerating the renewable energy growth that is already taking place across the West.[134]

These initiatives are bearing fruit, causing a noticeable impact on the range. At present, on BLM-managed lands there are 383,833 acres of proposed wind, solar, and geothermal projects (including gen-ties) as well as 182,780 acres in NEPA review and 201,053 acres in preliminary review.[135]

The impacts of renewable energy development on GRSG, like other forms of infrastructure, are considerable. Renewable energy infrastructure generally has a large footprint per megawatt (especially solar energy), tall structures (especially wind and transmission lines), and is characterized by ground disturbance such as road construction, site clearing, grading, vegetation and soil removal, etc.[136] Although vegetation may be restored following construction and/or decommissioning of renewable energy facilities, our understanding of how much GRSG respond to the presence/absence of vegetation vs. artificial structures themselves is still evolving.[137]

Renewable energy infrastructure impacts GRSG populations in similar ways to other energy and related infrastructure on the landscape. This was recently validated by a meta-analysis of 21 other studies that concluded that there are no "obvious differences in the effect sizes between types of infrastructure" and therefore "current grouse conservation actions could be applicable to renewable energy development."[138]

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[132] Scott Streater, "BLM on pace to exceed 25K-megawatt renewable energy goal," *E&E News*, April 20, 2022. https://subscriber.politicopro.com/article/eenews/2022/04/20/blm-on-pace-to-exceed-25k-megawatt-renewable-energy-goal-00026578

[133] US Department of Interior, Bureau of Land Management. Public Land Renewable Energy – Fiscal Year 2022 [Factsheet], accessed May 14, 2024. https://www.blm.gov/sites/default/files/docs/2023-12/FY22%20Report%20to%20Congress%20Fact%20Sheet.pdf

[134] E.g. M. Booth, "What's driving sudden flare of solar energy and storage in Colorado?", *Colorado Sun*, June 21, 2023, https://coloradosun.com/2023/07/21/colorado-renewable-energy-surge-project-growth/.

[135] See Bureau of Land Management, Active Renewable Projects, accessed May 9, 2024. https://www.blm.gov/programs/energy-and-minerals/renewable-energy/active-renewable-projects. See also U.S. Solar Photovoltaic Database, https://eerscmap.usgs.gov/uspvdb/viewer/#3/37.25/-96.25

[136] See generally Remington et al., Sagebrush conservation strategy—Challenges to sagebrush conservation, 172-76. It should be noted that our understanding of the impact of wind and other renewable energy sources on GRSG is still evolving. See, e.g., John D. Lloyd, Cameron L. Aldridge, Taber D. Allison, Chad W. LeBeau, Lance B. McNew, and Virginia L. Winder, "Prairie grouse and wind energy: The state of the science and implications for risk assessment," *Wildlife Society Bulletin* 2022: e1305. https://doi.org/10.1002/wsb.1305

[137] For example, recent research suggests that GRSG populations can tolerate the presence of a solar energy facility, see Michael B. Gerringer, Kurt T. Smith, and Karl L. Kosciuch, "Observations of Greater Sage-Grouse at a solar energy facility in Wyoming," *Western North American Naturalist* 82(1) (2022); 196-200, but more research will be needed to see if that population is able to sustain itself over time. As we have previously observed, avoidance behavior is not immediate, but occurs over time as yearlings abandon impacted areas.

[138] C. LeBeau, K. Smith, S. Howlin, A, Tredennick, and K. Kosciuch, "A meta-analysis investigating the effects of energy infrastructure proximity on grouse demography and space use," *Wildlife Biology* 2023(5) (2023), e01087.

GRSG responses to wind energy development are a case in point. In Wyoming, lek counts declined more severely near wind infrastructure, after a 3- or 5-year time lag, than non-impacted leks. Effects of wind infrastructure on lek attendance were weakly evident within 1.5 km (0.93 miles) from a turbine.[139] In an additional study at the same location, females and their chicks used brood-rearing and summer habitats farther from wind infrastructure than what was previously documented.[140]

Accordingly, renewable energy development in GRSG habitat should be approached with similar caution as oil and gas development. Furthermore, most types of renewable energy development presently lack widely-accepted best management practices.[141] This is another reason to take a cautious approach to allowing renewable energy development in important GRSG habitat.

Based on studies such as the BLM's own analysis in the Solar PEIS, other existing reasonably foreseeable development scenarios (RFDS), and projections for various types of renewable energy development, we believe there is more than enough BLM-managed land available to accommodate the necessary renewable energy development expected in the foreseeable future without making important GRSG habitat available.

For these reasons, we support the approach proposed for wind and solar energy in alternative 4 of the draft EIS, and recommend the BLM to close all GRSG PHMA to renewable energy development. This will further the approach of supporting GRSG populations by managing BLM land for intact landscapes. In addition, locating renewable energy development in areas with no to low conflict with GRSG will enable faster permitting and simpler project-level NEPA review for renewable energy projects.

We also support alternative 4's approach to GHMA, which would be managed as avoidance areas for wind and solar development, bolstered by lek buffers and protection for high-value seasonal habitats and connectivity corridors. It also includes a habitat buffer, where GHMA within 0.5 miles of PHMA would be managed as exclusion areas. This is a strong approach to preventing indirect and cumulative impacts from wind and solar development within GHMA from impacting GRSG populations in PHMA. However, we recommend that this habitat buffer be larger, reflecting the best available science on avoidance distances for various renewable energy resources.

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[139] C. W. LeBeau, J. L. Beck, G. D. Johnson, R. M. Nielson, M. J. Holloran, K. G. Gerow, and T. L. McDonald, "Greater sage-grouse male lek counts relative to a wind energy development," *Wildlife Society Bulletin* 41(1) (2017): 17–26. https://doi.org/10.1002/wsb.725

[140] C. W. LeBeau, G. D. Johnson, M. J. Holloran, J. L. Beck, R. M. Nielson, M. E. Kauffman, E. J. Rodemaker, and T. L. McDonald, "Greater sage-grouse habitat selection, survival, and wind energy infrastructure," *Journal of Wildlife Management* 81(4) (2017): 690–711. https://doi.org/10.1002/jwmg.21231

[141] A notable exception is the wind industry, for which there is the FWS' Land-Based Wind Energy Guidelines. U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines, March 23, 2012. https://www.fws.gov/sites/default/files/documents/land-based-wind-energy-guidelines.pdf. In addition, for solar energy development, numerous states have developed their guidelines. See, e.g. Association of Fish and Wildlife Agencies, "Solar Wildlife Working Group," accessed March 5, 2024 https://www.fishwildlife.org/afwa-acts/afwa-committees/solar-wildlife-working-group. However, no renewable energy industry presently has anything like the "Gold Book" for oil and gas development. See Bureau of Land Management, The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, 2007, available at https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/the-gold-book

In contrast, alternative 5 takes a much weaker approach, managing PHMA as avoidance areas, with limited additional protections available for breeding, nesting, and high-value seasonal habitats, limited by exceptions. GHMA would be open to development, subject only to minimization and compensation measures. Renewable energy development is one of relatively few areas of the draft EIS where alternative 5 is dramatically less protective than alternative 4, and we urge the BLM to adopt the wind and solar energy development provisions in alternative 4.

In the following subsections, we provide additional observations and recommendations relevant to wind and solar energy. We also discuss transmission lines, while geothermal was discussed in more detail with other fluid minerals in section VII.F.

A. Wind energy development and GRSG.

The BLM estimates that approximately 20 million acres of BLM-managed land have wind energy potential.[142] To date, 2600 wind turbines have been constructed on BLM-managed lands, but just 288 of them have been constructed within GRSG habitat. However, wind energy development is accelerating. The Department of Energy forecasts that by 2050, the nation will have 404.25 GW of wind energy in service, an increase of over 290 GW compared to 2020.[143] For onshore wind in BLM states, the largest growth would be in Montana, followed by Wyoming.[144]

GRSG persistence is largely inconsistent with wind energy development. Research indicates that GRSG avoid wind turbines.[145] For this reason, we urge the BLM to adopt alternative 4 of the draft EIS for wind energy development.

B. Solar energy development and GRSG.

The BLM is currently in the process of moving from a draft to final EIS for its Solar PEIS planning process, which when complete will result in RMPAs that will govern utility-scale photovoltaic solar (hereinafter PV solar) energy development on BLM lands in all 11 western states.[146] As part of the Solar PEIS process, the BLM relied on the 2015 GRSG RMPAs and identified GRSG PHMA as a resource-based exclusion applicable to all action alternatives, providing that no PV solar development would be permitted in PHMA. Because the mapping of GRSG PHMA and whether or not solar energy development will be permitted in PHMA are among the issues being considered as part of this planning process, it is imperative that the BLM completes a final EIS and RMPAs/RODs for the GRSG that uses a science-based approach to identify GRSG PHMA and exclude those areas from solar energy development. That

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[142] Bureau of Land Management, Wind Energy, accessed May 6, 2024. https://www.blm.gov/programs/energy-and-minerals/renewable-energy/wind-energy

[143] U.S. Department of Energy, Map: Projected Growth of the Wind Industry From Now Until 2050, accessed May 6, 2024. https://www.energy.gov/map-projected-growth-wind-industry-now-until-2050

[144] See U.S. Department of Energy, Map: Projected Growth of the Wind Industry From Now Until 2050.

[145] E.g. LeBeau et al. "Greater sage-grouse male lek counts relative to a wind energy development"; LeBeau et al., "Greater sage-grouse habitat selection, survival, and wind energy infrastructure."

[146] See Bureau of Land Management, BLM National NEPA Register: Utility-Scale Solar Energy Development PEIS/RMPA, accessed May 6, 2024. https://eplanning.blm.gov/eplanning-ui/project/2022371/510

determination must then be applied to the Solar PEIS planning process as it is essential that these planning processes stay aligned. This approach is consistent with the 2015 GRSG RMPAs and is anticipated by the Solar PEIS, which found more than adequate land for PV solar development outside of PHMA.

This is important because the impacts of PV solar development on GRSG are significant. Although PV solar facilities are low-lying (except for meteorological towers), unlike wind turbines, they nonetheless have impacts upon GRSG. Although best practices are currently lacking, PV solar facility management typically includes vegetation removal, grading of the site, fencing, etc., all of which adversely impact and may even prevent GRSG utilization of the site. Accordingly, we support the exclusion of PV solar energy facilities from important GRSG habitat. In particular, PHMA should be closed to PV solar, as under alternative 4 in the draft EIS.

We also note that, in the case of PV solar energy, recent research and planning documents make it clear that there is more than enough BLM-managed land with solar energy potential to site expected solar energy development outside of important GRSG habitat. As part of the Solar PEIS planning process, the BLM explained that under its RFDS, the agency expects to site PV solar developments on approximately 700,000 acres of BLM-managed land over the next 20 years.[147] The agency concluded that this land could be identified utilizing only land that was already disturbed and in close proximity (10 miles) to existing or planned transmission corridors, while respecting resource-based exclusions such as for GRSG. For the most part, such disturbed lands do not overlap GRSG habitat at all. To the extent that some important GRSG GHMA in places such as Wyoming was incorrectly identified as disturbed land in the Solar PEIS, many of the undersigned organizations submitted comments asking the BLM to correct that mapping. If that is done, the Solar PEIS will exclude PV solar development from both PHMA and important GHMA, achieving a level of GRSG protection consistent with that proposed under alternative 4 in the draft EIS while allowing PV solar development in disturbed areas within GHMA.

C. Transmission lines and GRSG.

One of the largest current challenges for renewable energy projects is delivering the electricity they produce to market. To facilitate this, the BLM has designated, and is currently revising,[148] 5,000 miles of energy corridors under Section 368(a) of the Energy Policy Act of 2005.[149] These corridors, some of which have already been developed with transmission lines and others of which are sites for proposed transmission lines, have significant effects on local wildlife resources. The towers that support power lines are tall structures that GRSG will avoid at a distance of 4 miles or more,[150] the conductor is a source of potential bird collisions (unless properly marked), and the corridor itself introduces a linear feature that fragments and bisects

[147] Bureau of Land Management, Draft Programmatic Environmental Impact Statement for Utility-Scale Solar Energy Development, Document #DOI-BLM-HQ-3000-2023-0001-RMP-EIS, accessed May 6, 2024 (2-3). https://eplanning.blm.gov/public_projects/2022371/200538533/20102762/251002762/2023%20Draft%20Solar%20PEIS%20Volume%201%201-10-2024_508compliant.pdf
[148] See Bureau of Land Management, West-wide Energy Corridor Information Center, accessed June 6, 2024, https://corridoreis.anl.gov/.
[149] Bureau of Land Management, West-Wide Energy Corridors, accessed May 6, 2024. https://www.blm.gov/energy-corridors
[150] See Manier et al., Conservation buffer distance estimates for Greater Sage-Grouse—A review.

habitat. Depending on management, areas around transmission line towers and sometimes between them may be kept clear of vegetation, may be locations for surface roads, and may become vectors for GRSG predators, invasive species, and wildfires.

The draft EIS addresses transmission lines as major ROWs (along with large pipelines). PHMA would be managed as avoidance areas under both alternatives 4 and 5, while GHMA would be open with minimization and compensatory mitigation criteria. For both PHMA and GHMA, alternative 4 would provide additional protections for breeding, nesting, and other high-value/limiting seasonal habitat, while alternative 5 would provide only compensatory mitigation.

We urge the BLM to adopt in the final EIS and RMPAs/RODs an approach *at least* as protective as alternative 4. Ideally, the BLM should use the existing and planned transmission lines recently identified in the Solar PEIS process to identify those corridors where transmission lines can be collocated to minimize habitat fragmentation and associated impacts. New transmission lines should not be authorized outside of utility corridors, nor should new corridors be placed within PHMA. For those locations where transmission lines already exist, or where valid existing rights necessitate construction of new gen-ties in GRSG habitat, the BLM should apply the avoidance criteria and additional protections for breeding, nesting, and other high-value/limiting seasonal habitat proposed under alternative 4.

X. The BLM must manage protected wild horses and burros to limit impacts on GRSG habitat.

Wild horses and burros are protected on public lands by the Wild and Free-Roaming Horses and Burros Act of 1971.[151] Free-roaming horses and burros are nonnative livestock that lack natural predators and can have detrimental impacts on native ecosystems and wildlife habitat. Native shrubs, grasses, forbs, and riparian areas are not adapted to the intense pressures of modern equine herds and are subject to degradation, soil erosion, and a loss of biodiversity from those herds that exceed the carrying capacity for certain ecosystems.

Wildlife habitat is declining in quality across many areas in the West due to the explosion of wild horse and burro populations, impacts that are being exacerbated by warmer and drier conditions as well as nonnative invasive plants. GRSG leks are particularly vulnerable to pressure from wild horses and burros, which disrupt lekking activity at greater levels than native ungulates.[152]

The BLM is charged with management of wild horses and burros, and to facilitate this the agency sets AMLs, which represent the number of horses and burros that can coexist with other

[151] Wild and Free-Roaming Horses and Burros Act of 1971, Pub. L. No. 92-195, 85 Stat. 649 (1971).
[152] E.g. Diana A. Muñoz, Peter S. Coates, and Mark A. Ricca, "Free-roaming horses disrupt greater sage-grouse lekking activity in the Great Basin," *Journal of Arid Environments* 184 (2021): 104304. https://eplanning.blm.gov/public_projects/2012689/200480865/20045030/250051218/Munoz%20et%20al.%202021.pdf

resource uses on the same land.[153] As of the BLM's 2023 estimates, the horse and burro population across the range was 73,520, close to three times the "high" AML of 26,785.[154] Although every state but Idaho exceeded its high AML, the problem was by far the most acute in Nevada, where there were 38,023 horses and burros, over half the total, exceeding the "high" AML for the state of 12,811 by more than a factor of three.[155]

Persistent overpopulations of wild horses and burros adversely affect GRSG. Overuse by wild horses and burros reduces vegetation, causes habitat fragmentation, and can open rangeland up to invasive weeds.[156] Analysis recently completed by Coates et al. 2021 concludes that populations in excess of AMLs are associated with GRSG declines.[157] For every 50% increase in horse abundance over an AML, GRSG abundance is likely to decline by 2.6%.[158] When horse populations are double the established AML, there is a 76% probability of GRSG decline.[159] In contrast, "in areas where horse abundance was at or below currently established AMLs, impacts to sage-grouse population trends were consistent with areas where horses are absent on the landscape altogether. This suggests that the maximum AMLs are effective at neutralizing the adverse impacts that horse populations have on sage-grouse populations and that free-roaming horses have the potential to coexist with native wildlife under the right management approach."[160]

Any of the approaches proposed in the draft EIS, if successfully implemented, would address this issue, including the alternative 5 approach, management of wild horses and burros within the full range of AMLs. We support continued inclusion of GRSG habitat objectives in wild horse and burro management, adaptive management of wild horse and burro populations, and changes to AMLs as necessary.[161]

We recognize that managing wild horses and burros is challenging, and we urge the BLM to work with state governments, other federal agencies, political leaders, and other partners to find solutions that will lead to effective management of wild horses and burros and durable conservation for GRSG populations.

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[153] E.g. Peter S. Coates, Shawn T. O'Neil, Diana A. Muñoz, Ian A. Dwight, and John C. Tull, "Sage-Grouse Population Dynamics are Adversely Affected by Overabundant Feral Horses," *Journal of Wildlife Management* 85(6) (2021): 1132-1149. https://wildlife.onlinelibrary.wiley.com/doi/10.1002/jwmg.22089

[154] Bureau of Land Management, Herd Area and Herd Management Area Statistics, March 1, 2024. https://www.blm.gov/sites/default/files/docs/2024-03/2024_HMA-HA_PopStats_2-29-2024_COMBINED_Clean_FINAL_web.pdf

[155] Bureau of Land Management, Herd Area and Herd Management Area Statistics.

[156] Coates et al., "Sage-Grouse Population Dynamics are Adversely Affected by Overabundant Feral Horses."

[157] Coates et al., "Sage-Grouse Population Dynamics are Adversely Affected by Overabundant Feral Horses."

[158] Coates et al., "Sage-Grouse Population Dynamics are Adversely Affected by Overabundant Feral Horses."

[159] U.S. Geological Survey, "When Unchecked, Free-Roaming Horse Populations Threaten Greater Sage-Grouse," press release, August 2, 2021. https://www.usgs.gov/news/national-news-release/when-unchecked-free-roaming-horse-populations-threaten-greater-sage

[160] U.S. Geological Survey, "When Unchecked, Free-Roaming Horse Populations Threaten Greater Sage-Grouse."

[161] Draft EIS, 2-113 through 2-116.

XI. The BLM must manage livestock grazing to conserve GRSG and meet rangeland health objectives.

Livestock grazing can have considerable impacts on GRSG, both beneficial and deleterious. Achieving positive outcomes depends on careful consideration of numerous factors. For example, researchers from the U.S. Geological Survey, Colorado State University, and Utah State University found that higher levels of grazing early in the growing season (before peak plant productivity) were associated with GRSG population declines, but similar high grazing levels later in the season corresponded with GRSG population increases.[162] In moister areas with greater plant productivity, in contrast, GRSG benefitted from intermediate grazing levels *early* in the season, and *not* from higher levels of grazing, even later in the season.[163]

Similarly, Richardson et al. 2023 found that grazing timing and intensity significantly impacts insect and plant availability, including species that provide GRSG with vital food sources.[164] The study concluded that grazing intensity was not necessarily detrimental to insect abundance: while beetle, butterfly, and ant populations shifted in various ways based on moisture levels, only beetles were impacted by grazing intensity, and their numbers *increased* with increased grazing pressure.[165] Overall, we now have over a decade of data and experience that can be applied to grazing management to secure positive outcomes for GRSG populations.[166]

Deleterious effects of poorly-managed grazing include increased heterogeneity in vegetative communities, habitat fragmentation, and increased invasive grasses.[167] The BLM must manage its grazing program, which encompasses 21,000 separate allotments across 155 million acres,[168] to minimize these deleterious impacts. Its chief tool for doing so are land health standards (LHS),

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[162] See U.S. Geological Survey, "Livestock grazing effects on sage-grouse," press release, March 21, 2017. https://www.usgs.gov/news/national-news-release/livestock-grazing-effects-sage-grouse-study-identifies-options-sustain-0

[163] U.S. Geological Survey, "Livestock grazing effects on sage-grouse."

[164] William Richardson, Tamzen K. Stringham, Andrew B. Nuss, Brian Morra, and Keirith A. Snyder, "Shifts in sage-grouse arthropod food sources across grazing and environmental gradients in upland meadow communities," *Journal of Environmental Management* 348 (2023): 119261. https://www.sciencedirect.com/science/article/pii/S0301479723020492?via%3Dihub

[165] Richardson et al., "Shifts in sage-grouse arthropod food sources across grazing and environmental gradients in upland meadow communities."

[166] See, e.g., Lorelle Berkeley, Joseph Smith, and Mark Szczypinski, Evaluating Sage-Grouse and Habitat Responses to Sage-Grouse Friendly Livestock Grazing Strategies: 3-yr Preliminary Findings, September 10, 2013. https://www.nrcs.usda.gov/publications/ceap-wildlife-2014-SageGrouse-response-LivestockGrazingStrategies.pdf; Lorelle Berkeley and Mark Szczypinski, Evaluation of Grazing Treatments Within the Sage grouse Initiative Program on Greater Sage grouse Habitat and Population Dynamics in central Montana, October 24, 2017. https://ecos.fws.gov/ServCat/DownloadFile/163619

[167] E.g. Kyle A. Cutting, Emma C. Grusing, David Messmer, Sean R. Schroff, James A. Waxe, Aaron O'Harra, and Bok F. Sowell, "Heterogenous resources across sagebrush type are associated with components of offspring fitness in an avian habitat specialist," *Biological Conservation* 293 (2024): 110552.

[168] Bureau of Land Management, Livestock Grazing on Public Lands, accessed May 7, 2024. https://www.blm.gov/programs/natural-resources/rangelands-and-grazing/livestock-grazing; Public Employees for Environmental Responsibility, Rangeland Health and BLM Grazing Programs Factsheet, accessed May 7, 2024. https://peer.org/wp-content/uploads/2022/03/03-14-2022-Rangeland-Fact-Sheet.pdf

which are designed to capture the regulatory fundamentals of rangeland health[169] and describe the conditions on the landscape that demonstrate health.[170]

Historically, the BLM has struggled to meet its obligations under the grazing program. Although 108 million acres have been assessed under the LHS, nearly 41 million acres have not been. 50% of assessed acres are not meeting LHS. In 72% of these, livestock grazing was a significant cause for not meeting LHS.[171] In Nevada, where rangeland resources are also under immense pressure from wild horses and burros, no allotments met LHS as of 2020, with livestock grazing identified as a contributing factor in approximately half of them.[172] However, grazing has been both a neutral and beneficial tool to help BLM reach its LHS obligations under the grazing program. In addition to historically well-managed grazing, outcome-based grazing, a new approach adopted in 2017 and in the pilot phase, has the potential to improve grazing management and rangeland health outcomes.[173]

In the draft EIS, the BLM describes two different approaches to grazing management for GRSG, neither of which are satisfactory. Under alternative 3, all GRSG HMAs would be closed to grazing. This approach is unnecessarily cautious and could negatively impact GRSG, because grazing can be an important rangeland management tool that can be strategically used to benefit GRSG (and other wildlife) provided that appropriate purpose, location, timing, duration, and intensity of grazing are taken into consideration.

Under alternatives 4 and 5, the BLM would make only minor adjustments to grazing leases, land health assessments (LHAs), and LHS in order to restore, maintain, or enhance GRSG habitat. Specific range-management actions would pertain to timing, intensity, duration, and frequency of grazing; application of the HAF to LHAs; specific adaptive management thresholds and responses to improve GRSG habitat suitability (required under alternative 4, optional under alternative 5); removal or modification of harmful range improvements; improved livestock management through technologies such as virtual fencing; removal of existing fencing; and the option of retiring grazing permits or leases when voluntarily relinquished.[174]

All of these tools identified in alternatives 4 and 5 are worthwhile and, if fully implemented, could improve rangeland management for GRSG while moving more BLM-managed rangelands towards compliance with LHS. We support responsible grazing within both PHMA and GHMA, provided that appropriate management actions are required. Ultimately, improvements to public land livestock grazing will only occur with the timely completion of LHAs, which requires appropriate staffing and implementation of the improvements made to the process by the Public Lands Rule, which are outside the scope of these plan amendments. For this reason, we support the approach taken in alternatives 4 and 5, rather than alternative 3. However, there are ample

[169] These are watersheds, ecological processes, water quality, and habitats. See 43 C.F.R. § 4180.1

[170] See Bureau of Land Management, Manual H-4180-1 – Randeland Health Standards, January 19, 2001 https://www.blm.gov/sites/blm.gov/files/uploads/Media_Library_BLM_Policy_h4180-1.pdf

[171] Public Employees for Environmental Responsibility, Rangeland Health and BLM Grazing Programs Factsheet.

[172] Public Employees for Environmental Responsibility, Interactive BLM Rangeland Health Geospatial Data Portal, accessed May 7, 2024. https://mangomap.com/peer/maps/126421/blm-rangeland-health-status-2020-the-significance-of-livestock-grazing-on-public-lands?preview=true#

[173] See Bureau of Land Management, Livestock Grazing on Public Lands.

[174] See draft EIS, 2-103 through 2-112. The draft EIS explains each of these approaches in much more detail.

opportunities for the BLM to improve its grazing program beyond those identified in the draft EIS. Based on the best available science,[175] we suggest that the following approaches be considered when managing grazing in GRSG habitat:

- Targeted grazing, which could include seasonal use restrictions as well as limits on timing, frequency, duration, distribution, or intensity;
- Structural range improvements, which could include protection for undisturbed (not currently developed), naturally occurring springs and seeps; protective design features for artificial water sources; and targeted fence removal;
- Allowing qualified permittees or lessees to voluntarily relinquish grazing permits or leases;
- Giving priority to LHAs in GRSG habitat, resulting in identification and implementation of appropriate actions where current livestock grazing management has been identified as a causal factor in not meeting LHS; and
- Managing grazing in GRSG habitat to maintain important habitat features, such as residual forage for hiding cover (including seasonal limits or closures), suitable sagebrush cover and height, and cool season grasses, while controlling invasive annual grasses such as cheatgrass, ventenata, and medusahead.

All of the above should take into account the current and desired conditions of the landscape.

XII. Conclusion.

This planning process – the third for GRSG since 2015 – comes at an incredibly important time. The 2015 RMPAs, which succeeded in the important goal of securing "not warranted" status for

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[175] See K. A. Cutting, et al., "Heterogenous resources across sagebrush type are associated with components of offspring fitness in an avian habitat specialist"; C. P. Kirol and B. C. Fedy, "Using individual-based habitat selection analyses to understand the nuances of habitat use in an anthropogenic landscape: a case study using greater sage-grouse trying to raise young in an oil and gas field," *Wildlife Biology* 1–17 (2023); W. Richardson et al., "Shifts in sage-grouse arthropod food sources across grazing and environmental gradients in upland meadow communities"; K. A. Cutting, J. J. Rotella, S. R. Schroff, M. R. Frisina, J. A. Waxe, E. Nunlist, and B. F. Sowell, "Maladaptive nest-site selection by a sagebrush dependent species in a grazing-modified landscape," *Journal of Environmental Management* 236 (2019): 622–30; L. L. Correll, R. M. Burton, J. D. Scasta, and J. L. Beck, Landowner guide to sage-grouse conservation in Wyoming: a practical guide for landowners and managers, Extension Bulletin B-1295 (University of Wyoming Extension, 2017); A. P. Monroe, C. L. Aldridge, T. J. Assal, K. E. Veblen, D. A. Pyke, and M. L. Casazza, "Patterns in Greater Sage-grouse population dynamics correspond with public grazing records at broad scales," *Ecological Applications* 27(4) (2017): 1096–1107; C. S. Boyd, J. L. Beck, and J. A. Tanaka, "Livestock grazing and sage-grouse habitat: impacts and opportunities," *Journal of Rangeland Applications* 1 (2014): 58–77; E. J. Blomberg, S. R. Poulson, J. S. Sedinger, and D. Gibson, "Prefledging diet is correlated with individual growth in Greater Sage-Grouse (*Centrocercus urophasianus*)," *The Auk* 130 (2013): 715–24; J. W. Connelly, T. E. Rinkes, and C. E. Braun, "Characteristics of greater sage-grouse habitats: a landscape species at micro- and macroscales," *Studies in Avian Biology* 38 (2011): 69–83; S. T. Knick, S. E. Hanser, R. F. Miller, D. A. Pyke, M. J. Wisdom, S. P. Finn, E. T. Rinkes, and C. J. Henny, "Ecological influence and pathways of land use in sagebrush," *Studies in Avian Biology* 38 (2011): 203–51; D. E. Naugle, C. L. Aldridge, B. L. Walker, T. E. Cornish, B. J. Moynahan, M. J. Holloran, K. Brown, G. D. Johnson, E. T. Schmidtmann, R. T. Mayer, C. Y. Kato, M. R. Matchett, T. J. Christiansen, W. E. Cook, T. Creekmore, R. D. Falise, E. T. Rinkes, and M. S. Boyce, "West Nile virus: pending crisis for greater sage-grouse," *Ecology Letters* 7 (2004): 704–13.

GRSG under the ESA, were never fully implemented. The BLM's subsequent attempt to open the plans and make them more agreeable to states did not withstand judicial scrutiny. As the BLM stated in its 2015-2020 Rangewide Monitoring Report[176]:

> The results presented in this report, in combination with the U.S. Geological Survey's rangewide population monitoring report (Coates et al. 2021) and sagebrush conservation strategy (Remington et al. 2021), emphasize the urgent need to expand ongoing efforts to conserve currently functional habitat and restore currently degraded habitat.

Thus, it is our sincere hope that the BLM can now develop an approach that successfully balances GRSG conservation with other uses across the 69 million acres of GRSG habitat within the planning area. By doing so, the BLM will meet its multiple use obligations and create a durable approach that can be fully implemented over the coming years and decades.

Because additional legal controversy is likely, it is essential that the BLM's environmental review be thorough and fully comply with NEPA, FLPMA, and all other statutory and regulatory obligations of the agency. The undersigned organizations are dedicated to the careful and consistent application of the best available science in all wildlife and land management decisions. We thank you for your work on behalf of this species, and for the opportunity to submit these comments to help guide the BLM as it moves towards a final EIS and associated RMPAs/RODs.

Sincerely,

Sara Brodnax
Director, Public Lands Policy
National Audubon Society
sara.brodnax@audubon.org

Bailey Brennan
Public Lands Counsel
National Wildlife Federation
brennanb@nwf.org

Kristal Stoner
Executive Director
Audubon Great Plains (NE, ND, SD)
kristal.stoner@audubon.org

Ted Koch
Executive Director
North American Grouse Partnership
ted@grousepartners.org

Alison Holloran
Executive Director
Audubon Rockies (CO, UT, WY)
alison.holloran@audubon.org

John Bradley
Executive Director
North Dakota Wildlife Federation
jbradley.ndwf@gmail.com

[176] Herren et al., Greater sage-grouse plan implementation: Rangewide monitoring report for 2015–2020, 51.

Mike Lynes
Director of Public Policy
Audubon California
mike.lynes@audubon.org

Suzanne O'Neill
Executive Director
Colorado Wildlife Federation
cwfed@coloradowildlife.org

Luke Schafer
West Slope Director
Conservation Colorado
luke@conservationco.org

Kyle Makie
North Idaho Field Representative
Idaho Wildlife Federation
kmaki@idahowildlife.org

Larry Berrin
Executive Director
Montana Audubon
lberrin@mtaudubon.org

Frank Szollosi
Director, Public Lands Policy
Montana Wildlife Federation
frank@mtwf.org

Bobby McEnaney
Director, Land Conservation
Natural Resources Defense Council
bmcenaney@nrdc.org

Russell Kuhlman
Executive Director
Nevada Wildlife Federation
Kuhlman@nvwf.org

Chase Huntley
Vice President for Strategy and Policy
The Wilderness Society
chase_huntley@tws.org

Brad Prettyman
Board Chair
Utah Wildlife Federation
tbprettyman@gmail.com

Aubrey Bertram
Attorney, Climate & Energy Program Director
Wild Montana
abertram@wildmontana.org

Meghan Riley
Wildlife Program Manager
Wyoming Outdoor Council
meghan@wyomingoutdoorcouncil.org

Nat Paterson
Policy Coordinator
Wyoming Wildlife Federation
npaterson@wyomingwildlife.org