



Via Email to BLM HQ GRSB Planning@blm.gov
& Submitted through the Participate Now Link

June 13, 2024

Tracy Stone-Manning, Director
Bureau of Land Management
U.S. Department of the Interior
1849 C St. NW, Room 5646
Washington, DC 20240

Re: The American Exploration & Production Council’s Comments on the Bureau of Land Management’s Proposed Greater Sage-Grouse Draft Resource Management Plan Amendment/Draft Environmental Impact Statement (DOI-BLM-WO=2300-2022-0001-RMP-EIS)

Dear Director Stone-Manning:

The American Exploration & Production Council (“AXPC”) appreciates the opportunity to comment on the Bureau of Land Management’s (“BLM’s”) Proposed Greater Sage-Grouse Draft Resource Management Plan Amendment/Draft Environmental Impact Statement (“Draft RMPA/EIS”) (“DOI-BLM-WO=2300-2022-0001-RMP-EIS”).¹

AXPC is a national trade association representing 33 leading independent oil and natural gas exploration and production companies in the United States. AXPC companies support millions of Americans in high-paying jobs and invest a wealth of resources in our communities. Dedicated to safety, stewardship, and technological advancement, our members strive to deliver affordable, reliable energy to consumers while positively impacting the economy and the communities in which we live and operate.

As part of this mission, AXPC members understand and promote the importance of ensuring positive environmental and public-welfare outcomes and responsible stewardship of the nation’s natural resources. AXPC’s members are committed to being good stewards of federal and Indian resources and operating in compliance with all federal requirements. In particular, our members work hard every day to fulfill our obligation to prudently and responsibly develop oil and natural gas resources. AXPC member companies produce more than half of U.S. onshore production each year, including many active operations developing federal minerals.

While AXPC shares BLM’s interest in protecting and conserving public lands and protecting critical habitats, we believe that the framework provided in BLM’s recent Conservation and Landscape Health Rule contravenes BLM’s statutory authority and AXPC members are

¹ Made available at [Greater Sage-grouse Land Use Plan Amendments and EIS, Volume 1 \(blm.gov\)](#), see also 89 Fed. Reg. 18,963 (Mar. 15, 2024); BLM_HQ_FRNMO4500174493.

concerned that portions of that rulemaking have been relied upon in the proposed Draft RMPA/EIS.

More specifically, AXPC seeks to ensure that:

- **BLM is following the intent of Federal Land Policy Management Act (“FLPMA”):** BLM's authority to manage public lands comes from FLPMA, which aimed to balance conservation with productive land uses. Unlike other environmental statutes, FLPMA does not solely focus on protection. Rather, it directs development and uses other than conservation. FLPMA's central mandate is multiple use and sustained yield, meaning managing lands for the combination of uses that best meet the needs of the American people over time. *This does not give priority in a wide rangeland area to any single use, it specifically requires a balance.*
- **BLM understands that oil and natural gas development from federal lands is critical for the Nation:** Affordable energy is more important now than ever as Americans grapple with rising energy prices related to increasing global demand. Additionally, U.S. oil and natural gas development has proven strategic and critical to our economic and national security including the ability to support our allies. Notably, production from federal lands managed by BLM materially contributes roughly 10 percent of those volumes, and over \$9 billion in federal revenue with what are arguably some of the most responsibly produced barrels on the planet. BLM needs to balance these American energy needs with its conservation goals.
- **BLM understands that oil and natural gas development does not *per se* result in unnecessary and undue degradation and is often compatible with BLM’s goal of restoring and maintaining healthy Sage Grouse habitat.** For many years now, oil and natural gas operators have used reclamation practices that are intentional with the seed mixes, treatments, and associated operations. Reclamation practices utilized on oil and natural gas pads have been proven to be effective in re-establishing sagebrush habitat as well as important understory grasses, and forbs all of which are critical habitat for sage grouse. Reclamation efforts from the industry have also been shown to increase species diversity improving areas of decadent sagebrush stands.
- **BLM bases its adaptive management on collaborative process data lead decision making and not on unproven model tools relying on state data.** *See Appendix A, attached hereto, which discusses specific technical comments on the Targeted Annual Warning System relied upon for Adaptive Management.*
- **BLM bases its Final RMPA/EIS on sound science.** There are significant sampling and data questions that have been raised about the new science that BLM relies upon for its Draft RMPA/EIS.
- **BLM does not over-use No Surface Occupancy Stipulations (“NSO”); and the agency ensures that NSO stipulations do not impair valid and existing leasehold rights:**

Automatically shifting to a reliance on NSO stipulations and conditions of approval may unintentionally push development to fee and state surface areas that have greater impacts. BLM should look at a bigger picture when determining if NSO is appropriate. Additionally, BLM cannot impact the valid, pre-existing rights of oil and natural gas lessees through the imposition of unreasonably surface use restrictions.

- **BLM does not adopt new alternatives in the Final RMPA that would essentially ban development on existing leases.** BLM is required to honor existing oil and natural gas leasehold rights and should not seek to invalidate leases through these RMPAs.
- **BLM recognizes the limits of its authority to require compensatory mitigation.** FLMPA does not expressly authorize the Secretary to conduct compensatory mitigation and the requirement to pay BLM or third-parties additional, unauthorized fees, could run afoul of other federal statutes, such as the Miscellaneous Receipts Act and Antideficiency Act.
- **BLM relies on data and GIS layers that adequately disclose important information to the public.** The Targeted Annual Warning System (“TAWS”) developed by the United States Geological Survey as an advisory regulatory tool, subdivides the entire range into 485 “Neighborhood Clusters” based on a clustering method that is inconsistent with all current population management designations. To AXPC’s knowledge the data used as inputs to the TAWS is not readily available and stakeholders do not have access to TAWS to see how this data is then used by the software to reach its conclusions/analysis. Additionally, there appear to be errors in the GIS map layers used for the Draft RMPA/EIS.

I. AXPC

AXPC is a national trade association representing the leading independent oil and natural gas companies in the United States. Our association works with regulators and policymakers to help them understand our operations so that they will be able to create sound, fact-based public policies that result in the safe and responsible exploration and production of America’s vast oil and natural gas resources. Our goal is to provide technical and regulatory expertise, making AXPC a rich repository of resources on the industry and the science behind our operations.

AXPC's members have valuable insights to contribute to the BLM's proposed Draft RMPA/EIS. As businesses heavily reliant on federal lands, they possess significant experience collaborating with the BLM and implementing the conservation and restoration practices essential for Greater Sage Grouse habitat protection.

Given our members' extensive experience with public lands, AXPC has consistently advocated for improving the efficiency and consistency of regulations governing public land use. We have supported related BLM regulatory developments aimed at streamlining processes and promoting responsible land management. In 2023, AXPC provided comment on the Council of Environmental Quality’s (“CEQ’s”) Notice of Interim Guidance on Consideration of Greenhouse

Gas Emissions and Climate Change under the National Environmental Policy Act (“NEPA”),² BLM’s Proposed Rule on Waste Prevention, Production Subject to Royalties, and Resource Conservation,³ and BLM’s Proposed Rule on Conservation and Landscape Health.⁴ AXPC has also commented on proposed Categorical Exclusions for Geophysical and Other Operations,⁵ BLM’s Proposed Rule to Regulate Hydraulic Fracturing on Public and Indian Lands,⁶ and BLM’s Call for Streamlining and Planning in NEPA.⁷ Indeed, AXPC’s motivation to frequently contribute to federal permitting and public lands rulemakings is intuitive: our members are uniquely positioned provide comments on how regulations over the exploration and development of public lands impact our nation’s energy supply.

AXPC consistently emphasizes its commitment to responsible and sustainable public land use in rulemaking dockets. Our members continually refine their environmental and land management practices to safely and responsibly address resource needs while minimizing impacts, protecting wildlife, and respecting communities. The positive environmental outcomes from AXPC member companies' practices demonstrate the compatibility of responsible resource development with economic growth.

Additionally, energy development on public lands provides enormous value for the nation. Energy development activities on the public lands account for about 10% of total domestic production of crude oil and natural gas,⁸ revenues from oil and natural gas leases on onshore federal lands exceeded \$8.6 billion in fiscal year 2022.⁹ This substantial return for the taxpayer is comprised of royalty payments, bonuses, interest payments on leases, application fees, rents, and other sources.

AXPC appreciates BLM’s consideration of these comments. Given our members’ extensive experience operating on federal lands, we stand ready to serve as a resource for BLM. Additionally, AXPC endorses and incorporates by reference the comments submitted by the American Petroleum Institute (“API”).

II. DETAILED COMMENTS

a. BLM’s relevant statutory authority.

² See Comments on the Council for Environmental Quality’s Notice of Interim Guidance on Consideration of Greenhouse Gas Emissions and Climate Change under the National Environmental Policy Act (88 Fed. Reg. 1,196) (CEQ-2022-0005) (2023).

³ See Comments on BLM’s Proposed Rulemaking on Waste Prevention, Production Subject to Royalties, and Resource Conservation (87 Fed. Reg. 73,588) (Nov. 30, 2022).

⁴ See Comments on BLM’s Proposed Rulemaking on Conservation and Landscape Health (88 Fed. Reg. 19,583), 2023

⁵ See Comments on Categorical NEPA Exclusions for Geophysical and Other Operations (71 Fed. Reg. 4,159) (2006).

⁶ See Comments on BLM’s Hydraulic Fracturing on Federal and Indian Lands Proposed Rule (78 Fed. Reg. 31,636) (BLM-2013-0002-0011) (2013).

⁷ See 2017 Response Request at https://axpc.org/wp-content/uploads/2018/03/public_policy_24jul2017.pdf.

⁸ Revenues and Disbursements from Oil and Natural Gas Production on Federal Lands at Summary.

⁹<https://revenue.data.doi.gov>

In 1976, Congress passed FLPMA to streamline management and promote multiple uses of public lands for multiple use and a sustainable yield.¹⁰ Prior to the enactment of FLPMA, the federal government managed public lands using a patchwork of laws and authorizations. This patchwork of laws became difficult to implement and led to disordered management of federal lands. Additionally, there were concerns that a large portion of federal lands were being conveyed to private parties or withdrawn from productive use for the benefit of the American public.

Unlike many other federal statutes like the Clean Air Act,¹¹ the Clean Water Act,¹² and the Endangered Species Act,¹³ FLPMA was not solely designed for environmental or habitat protection. On the contrary, FLPMA was designed to both protect the public lands and to manage the public lands “in a manner which recognizes the Nation’s need for domestic sources of minerals,”¹⁴ along with other productive uses. Congress accomplished these goals by creating distinct legal protections for the most sensitive types of land, while still allowing remaining public lands to be open to development and productive uses under pre-existing statutes like the Mineral Leasing Act (“MLA”¹⁵).¹⁵

The “multiple use and sustained yield” mandate is central to FLPMA and highly important. This “multiple use and sustained yield” directive echoes the first multiple-use mandate set forth in the Multiple Use Sustained Yield Act of 1960 (“MUSYA”).¹⁶ FLPMA Section 302 provides that “[t]he Secretary shall manage the public lands under principles of multiple use and sustained yield.”¹⁷ But as clearly indicated in FLPMA’s legislative history, the definition of multiple use was drawn from the MUSYA and is intended to have the same meaning.¹⁸ Therefore, the legislative history of MUSYA regarding multiple use principles applies with equal weight to FLPMA. In explaining MUSYA’s multiple use directive, the House Report discusses the “relative values” analysis as follows:

One of the basic concepts of multiple use is that all of these resources in general are entitled to equal consideration, but in particular or localized areas relative values of the various resources will be recognized . . . In practice, the priority of resource use will vary locality by locality and case by case. In one locality timber use might dominate; in another locality use of the range by domestic livestock; in another outdoor recreation or wildlife might dominate. Thus, in particular localities the various resource uses might be given priorities because of particular circumstances. This is the meaning of the last sentence of section

¹⁰ *Lujan v. National Wildlife Federation*, 497 US at 877.

¹¹ 42 U.S.C. § 7401, *et seq.*

¹² 33 U.S.C. § 1251, *et seq.*

¹³ 16 U.S.C. § 1531, *et seq.*

¹⁴ 43 U.S.C. § 1701(a)(11)-(12).

¹⁵ As prescribed by Congress, the purpose of the MLA is to promote the orderly development of oil and natural gas resources on the public lands through private enterprise. *Geosearch, Inc. v. Andrus*, 508 F. Supp. 839, 842 (D. Wyo. 1981) (citing *Harvey v. Udall*, 384 F.2d 883 (10th Cir. 1967)); *Mountain States Legal Found. v. Andrus*, 499 F. Supp. 383, 392 (D. Wyo. 1980) (citing *Cal. Co. v. Udall*, 296 F.2d 384, 388 (D.D.C. 1961).

¹⁶ 16 U.S.C. § 528.

¹⁷ 42 U.S.C. § 1732(a).

¹⁸ See Senate Report No. 95-583 (“this [multiple use] definition is very similar to that . . . which presently appears at section 4 of the Multiple-Use Sustained-Yield Act of 1960 . . .” and House Report No. 94-1163 (“the definition of multiple use preserves essentially its same meaning as used in the Forest Service Multiple Use Act of 1960.”)

2 of the bill. **But no resource would be given a statutory priority over the others. The bill would neither upgrade nor downgrade any resource.**¹⁹

This framework prohibits BLM from giving superior priority to any one resource or resource set over others particularly at a “landscape” scale. Instead, concerning the goal of “multiple use,” FLPMA requires that the public lands be managed “so that they are utilized in the combination that will best meet the present and future needs of the American people.”²⁰

FLPMA's multiple use mandate protects existing rights and policies, including those under the Mining and Minerals Policy Act of 1970, which states:

[T]hat it is the continuing policy of the Federal Government in the national interest to foster and encourage private enterprise in (1) the development of economically sound and stable domestic mining, minerals, metal and mineral reclamation industries, (2) the orderly and economic development of domestic mineral resources, reserves, and reclamation of metals and minerals to help assure satisfaction of industrial, security and environmental needs . . .²¹

Likewise, FLPMA also incorporates and requires compliance with the MLA. Accordingly, under FLPMA’s “multiple use and sustained yield” mandate, BLM must strike an appropriate balance between potentially competing productive uses and land management objectives, but it can only do so in a manner consistent with the requirements in the MLA and other similar resource management statutes that Congress incorporated into FLPMA.

Over the course of many years, the oil and natural gas industry has engaged in numerous activities and efforts to help conserve and restore resilient habitat for the Greater Sage Grouse. However, the overly broad use of restrictions in the Draft RMPA/EIS impacts many activities, including grazing, mineral development, and renewable energy. While conservation is important, this could limit energy development on public lands, which is becoming increasingly important for the nation's energy supply. BLM should consider if these lands are being managed effectively for the American people, given growing demand for energy. BLM should also consider whether it can use its management tools to manage lands in a manner that will facilitate both conservation and productive uses that results in reasonable or minimal surface impacts – such as oil and natural gas development.

b. Oil and natural gas development is critical for the Nation.

Of the roughly 640 million surface acres owned by the federal government, BLM manages more than 30 percent of them (245 million acres). BLM also manages 700 million acres of subsurface mineral estates, which is more than any other government agency in the United States. In addition to oil and natural gas, BLM managed federal lands are also used for conservation and wildlife, grazing, recreation, mining and exploration of critical minerals, geothermal and renewable energy. Oil and natural gas development only occurs on a very small percentage of federal lands

¹⁹ H.R. Rep. No. 1551, 86th Cong., 2d Sess. (1960), reprinted in 1960 U.S.C.C.A.N. 2377, 2379 (emphasis added).

²⁰ 43 U.S.C. § 1702(c).

²¹ 84 Stat. 1876, 30 U.S.C. § 21a.

(~4 percent).¹ Yet in 2022, oil production from federal lands provided 11 percent of total US oil production and 9 percent of US natural gas production.²² As a result, production from public lands can have an outsized impact on total oil and natural gas production when compared to the associated surface footprint of that development.

Oil and natural gas development coming from federal lands also plays an important role in providing affordable energy across the globe. In 2023, the United States produced more crude oil than any nation at any time in history.²³ American natural gas production also set a record in 2024.²⁴ Production is growing because demand for oil and natural gas is increasing worldwide. Global demand for oil is expected to grow by 2.25 million barrels per *day*.²⁵ And demand for natural gas is expected to grow by 2.5 percent.²⁶ As a result of increasing energy demand, energy prices remain high which impacts the middle class and lower income earners the most.²⁷

The majority of oil and natural gas development on federal lands comes from New Mexico and Wyoming; and here, the Draft RMPA/EIS will have significant impacts on the potential to continue development of valuable reserves throughout the state of Wyoming. At the same time, the BLM is leasing considerably less minerals during the Biden Administration. In 2023, BLM held lease sales in nine states, only offering 293,575 acres for lease nationwide.²⁸ The majority of this acreage (78 percent) was in Wyoming and only offered for lease in response to a court decision directing BLM to do so. The remaining 22 percent offered was spread across 8 other states, many of which don't even have much oil and natural gas production. BLM ultimately failed to lease most of the acreage offered, **leasing a total of just 161,380 acres in all of 2023**. In contrast, the Obama Administration **leased an average of 1.35 million acres per year**.

Once a lease is issued, companies must spend significant time and resources to determine whether the lease is producible, and then more time and resources be able to apply for a permit to drill. It can easily take 5-6 years before an issued lease has its necessary approvals and its first well on production. In 2023, the BLM on average took approximately 100 more days than it did in 2022 to approve submitted APD applications and it took an average of 55 additional days to issue pending permits after an application was deemed administratively complete. Many operators report it is taking between 8–18 months to get an APD approved. This trend is especially common in regions with the most oil and natural gas activity for BLM to oversee.

²² See About the BLM Oil and natural gas Program, www.blm.gov (last visited June, 6, 2024) (available at [About Oil and natural gas | Bureau of Land Management \(blm.gov\)](#)).

²³ See U.S. Energy Information Administration, In-Brief Analysis, United States produced more crude oil than any country, ever, www.eia.gov (Mar. 11, 2024) (available at [United States produces more crude oil than any country, ever - U.S. Energy Information Administration \(EIA\)](#)).

²⁴ See Rapier, U.S. Oil and natural gas Production Are Ahead of Last Year's Record Pace, *Forbes* (Apr. 26, 2024) (available at [U.S. Oil and natural gas Production Are Ahead Of Last Year's Record Pace \(forbes.com\)](#)).

²⁵ See Lawler, OPEC sees robust summer oil demand, economic upside potential, *Reuters* (Apr. 11, 2024) (available at [OPEC sees robust summer oil demand, economic upside potential | Reuters](#)).

²⁶ See Anand, Global gas demand to grow by 2.5% in 2024, despite supply and geopolitical challenges, *Energyworld.com* (Jan. 27, 2024) (available at [Global gas demand to grow by 2.5% in 2024, despite supply and geopolitical challenges, ET EnergyWorld \(indiatimes.com\)](#)).

²⁷ See Guan, Burden of the global energy price crisis on households, *Nature Energy* (Feb. 2023) (available at [Burden of the global energy price crisis on households | Nature Energy](#)).

²⁸ See Taxpayers for Common Sense, Fact Sheet Oil and natural gas Lease Sales on Federal Lands (Nov. 16, 2023) (available at [Oil and natural gas Lease Sales on Federal Lands - Taxpayers for Common Sense](#)).

The reluctance to issue new oil and natural gas leases and delays in issuing applications for permits to drill in areas where leases already exist will undoubtedly impact domestic oil and natural gas production for years to come. Wells produce their highest volumes in their first year or so, which then decline rapidly, often by as much as 90 percent by year two. For the remainder of its life, the well may continue to produce at a lower, steadily declining rate (~10 percent a year). This means that without regularly adding new wells to the mix, to replace large volumes of production as existing wells decline, total federal production and the revenues and economic activity it generates will also fall. So, for the next 5 – 10 years, Americans will likely feel the pains of lost federal production and steep declines in the federal revenues and state disbursements that go with it.

c. Oil & natural gas development is a permissible use of public lands under FLPMA.

Notably, FLPMA does not require a “no net loss” standard to habitat. The no net loss standard (applied in several of the alternatives proposed by BLM in the Draft RMPA/EIS) appears to be a concept based on a 1989, bi-partisan policy put in place by EPA and the U.S. Army Corps of Engineers establishing compensatory mitigation under a Memorandum of Agreement issued pursuant to the Clean Water Act Section 404(b)(1) guidelines. Those guidelines do not apply under FLPMA.²⁹

Under FLPMA, BLM must manage federal lands for multiple use. Multiple use management is a deceptively simple term describing the complicated task of striking a balance among the many competing uses to which land can be put, including recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific, and historical values, including oil and natural gas development.

While BLM has a duty to prevent unnecessary and undue degradation (“UUD”) of public lands, oil and natural gas production can and has safely occurred for years in many areas without causing UUD.³⁰ FLPMA does not define UUD, but the Department of Interior has determined that oil and natural gas development projects do not constitute UUD so long as development is consistent with applicable laws, policies, and prudent operating standards.³¹ Indeed, in *Biodiversity Conservation Alliance*, 174 IBLA at 5-6, the Interior Board of Land Appeals found that mere surface occupancy and oil and natural gas development are not *per se* UUD. Instead, Congress clearly intended FLPMA's multiple use standard, including UUD, to coexist with mineral development.

Historically oil and natural gas development is a use that has been allowed on public lands. For decades, following the passage of FLPMA, BLM has applied an interpretation of “multiple use” that clearly contemplates allowing oil and natural gas development on public lands. It would be

²⁹ [ELL.pdf \(army.mil\)](#)

³⁰ 43 U.S.C. § 1732(b).

³¹ *Biodiversity Conservation All. v. Bureau of Land Mgmt.*, No. 09-CV-08-J, 2010 WL 3209444, at *17 (D. Wyo. June 10, 2010) (citing *Biodiversity Conservation Alliance*, 174 IBLA 1, 5-6 (2008)).

arbitrary and capricious for the agency to now, suddenly, disallow such uses without a solid scientific justification for doing so.

This is because not all degradation results in UUD.³² As BLM similarly stated in Instructional Memorandum No. 92-67, “[u]nnecessary and undue degradation’ implies that there is also necessary and due degradation.”³³ This historic interpretation of FLPMA does not comport with a no net loss requirement. The U.S. Court of Appeals for the District of Columbia Circuit has explained that the obligation to prevent UUD must be understood in the context of FLPMA's multiple use and sustained yield mandates, which clearly allow the BLM to authorize activities that result in some level of “degradation.”³⁴ The court cited with approval IBLA decision holding that an environmental impact may rise to the level of “unnecessary or undue degradation” if it results in “something more than the usual effects anticipated from *appropriately mitigated* development.”³⁵ Applying that standard, the D.C. Circuit upheld the BLM's determination that there would be no UUD where the BLM adopted mitigation measures that “comport with [Wyoming Game & Fish Department] recommendations and utilize reasonably available technology.”³⁶ So, reasonable mitigation measures can and have successfully helped ensure the oil and natural gas development can continue as an allowed multiple use on public lands contained within the Sage Grouse Habitat Area. Nonetheless, these mitigation measures and requirements have not historically amounted to a no net loss standard. Instead, FLPMA requires a balance of permissible uses with conservation goals. And this will likely always entail some permissible level degradation.

d. The Adaptive Management Practices requirements are based on flawed data.

³² See *Theodore Roosevelt Conservation Partnership v. Salazar*, 661 F.3d 66, 78 (D.C. Cir. 2011) (“FLPMA prohibits only unnecessary or undue degradation, not all degradation.”) (emphasis in the original); see also BLM, Instructional Memorandum No. 92-67 (Dec. 3, 1991) (“‘Unnecessary and undue degradation’ implies that there is also necessary and due degradation. For example, if there is only one route of access possible for development of an existing oil and natural gas lease, and that route presents the likelihood of some degradation of public lands or resources, such degradation may be considered necessary for the management of the oil and natural gas resource. . . . As another example, the RMP/EIS or site-specific environmental document may identify mitigation which would result in excessive expenditures of money or unusual technological requirements to achieve compliance. Otherwise there would be some degree of degradation of public lands or resources. If the mitigation would render the proposed operation uneconomic or technologically infeasible so that a prudent operator would not proceed, such degradation may also be considered necessary for the management of the oil and natural gas resource.”).

³³ BLM, Instructional Memorandum No. 92-67 (Dec. 3, 1991) (“‘Unnecessary and undue degradation’ implies that there is also necessary and due degradation. For example, if there is only one route of access possible for development of an existing oil and natural gas lease, and that route presents the likelihood of some degradation of public lands or resources, such degradation may be considered necessary for the management of the oil and natural gas resource. . . . As another example, the RMP/EIS or site-specific environmental document may identify mitigation which would result in excessive expenditures of money or unusual technological requirements to achieve compliance. Otherwise there would be some degree of degradation of public lands or resources. If the mitigation would render the proposed operation uneconomic or technologically infeasible so that a prudent operator would not proceed, such degradation may also be considered necessary for the management of the oil and natural gas resource.”).

³⁴ *Theodore Roosevelt Conservation P'ship*, 661 F.3d at 76.

³⁵ *Id.*

³⁶ *Theodore Roosevelt Conservation P'ship*, 661 F.3d at 78.

The adaptive management as proposed in Alternatives 3, 4, 5 and 6 is unlawful, in that it relies arbitrary and capricious data. The proposed management relies on data that the BLM does not own but rather relies on state data, along with implementing the Targeted Annual Warning System (“TAWS”) to identify potential triggers for thresholds. TAWS has not been proven as accurate or robust enough compared to the data driven processes relied upon by states such as Wyoming. More important, the TAWS model is flawed, outputting false information. The BLM may want population data; however, states are not required to provide this information, and in some states, it would be unconstitutional should the data be used to negatively impact the state by leading to further restrictions to oil and natural gas projects impacting states revenue from taxes, royalties, and employment. The BLM does not have the authority to require TAWS as its tool to model adaptive management needs.

Causal factors analysis (“CFA”) deadlines are also unreasonable based on BLM’s current processing times. The timeframe of six months lacks explanation. The proposal states during this assessment phase the BLM will not authorize any new activity in the affected area. BLM’s proposal changes the scientifically supported adaptive management system from the 2015 and then 2019 plans to add triggers from an unproven model tool of which can stop development while ongoing studies and analysis are performed in the proposed processes for CFA. Oil and natural gas industry reclamation practices associated with project work, however, have great beneficial impact. For many years now, oil and natural gas operators have used reclamation practices that are intentional with the seed mixes, treatments, and associated operations. Reclamation practices utilized on oil and natural gas pads have been proven to be effective in re-establishing sagebrush habitat as well as important understory grasses, and forbs all of which are critical habitat for sage grouse. Reclamation efforts from the industry have also been shown to increase species diversity improving areas of decadent sagebrush stands.

e. It is important to base the RMPA/EIS on sound science.

Additionally, AXPC supports the comments provided by API regarding the new science relied upon by BLM for the Draft RMPA/EIS. Management area identifications/boundaries and restrictions must be based on sound science. As pointed out in comments submitted by the API, research supports that there are limited impacts of modern oil and natural gas operations on the Greater Sage Grouse. In part, this is due to the fact that modern oil and natural gas operations result in limited surface impacts that are temporary in nature. Oil and natural gas operators undertake a variety of measures to minimize surface impacts, and BLM has stated in previous guidance that it intends to protect valid existing rights.³⁷ Additionally, many oil and natural gas leases within the Draft RMPA/EIS area are already subject to surface use stipulations that were in place at the time the lease was issued, and these stipulations, which are contractually agreed upon terms, should not change with RMP revisions.³⁸

The majority of surface disturbance associated with oil and natural gas development undergoes reclamation soon after initial surface disturbance. Oil and natural gas operations have larger land

³⁷ [Areas of Critical Environmental Concern Fact Sheet.pdf \(blm.gov\)](#)

³⁸ U.S. BUREAU OF LAND MGMT., H-1624-1, at I-2, IV-2 (stating circumstances when RMP revisions are permitted and describing example when surface use stipulation may be revised).

needs in the implementation stage of drilling and completing wells. Once wells are producing the footprint of the well pad in most cases is reduced and put into reclamation. Reclamation practices are intentional with the seed mixes, treatments, and associated operations. Reclamation practices utilized on oil and natural gas pads assist the environment and have been proven to be effective in re-establishing sagebrush habitat as well as important understory grasses, and forbs all of which are critical habitat for sage grouse. Reclamation efforts from the oil and natural gas operator practices have increased species diversity improving areas of decadent sagebrush stands. Sage Grouse flock to easier to digest new leader growth and young vegetation which older sagebrush stands have less abundance of. The robust reclamation species diversity seed mix utilized by operators provides new growth and has assisted insect diversity and abundance as well. Both the reclamation plant species and insect abundance and diversity aid the sage grouse diet. These reclamation practices have been in use in western states for decades. As such, oil and natural gas development can successfully coexist with the healthy establishment of Sage Grouse habitat and does not need to be completely stopped in order to protect the species.

f. BLM should not overly utilize or rely on NSO conditions in the final RMPA/EIS.

BLM should not impose new NSO conditions for development on existing leases. Federal oil and natural gas leases are contracts.³⁹ In these contracts, the federal government is granting the lessee an exclusive right to fully develop any oil and natural gas that may be found on the leasehold and lease agreement provides that any necessary facilities that are required to extract the oil and natural gas can be constructed.⁴⁰ Older federal leases also reserved to BLM the right to dispose of the surface of the leased lands if the right “to dispose of any resource in such lands” would not “unreasonably interfere” with lease operations. More recent federal leases provide that BLM has the right “to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way. Such uses shall be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee.” Additionally, under well-established law, the mineral estate under a federal oil and natural gas lease is typically considered the dominant estate and, thus, has the right to use a reasonable portion of the surface to develop its mineral rights granted under the lease.⁴¹ As a result, most existing federal oil and natural gas leases (unless they contain an agreed upon NSO stipulation at the time of lease issuance) contain a right for the lessee to use a reasonable amount of surface for their operations.

³⁹ Under well-established precedent, after the BLM accepts the bid and the lessee fully pays for the lease, a contract exists between the lessee and the BLM based solely on those identified terms and conditions. *See, e.g., Coastal States Energy Co.*, 80 IBLA 274, 279 (1984).

⁴⁰ Under the terms of the Mineral Leasing Act, the Secretary of the Interior does not have the right to cancel lease rights of a bona fide purchaser. 30 U.S.C. § 184(h)(2); 43 C.F.R. § 3108.4; *Clayton W Williams, Jr.*, 103 IBLA 192, 210 - 216 (1988).

⁴¹ 2 *Law of Federal Oil and natural gas Leases* § 22.10[1], Rocky Mountain Mineral Law Foundation (2008) (emphasis added, internal footnote omitted); *see also Onshore Oil and natural gas Order No. 1*, 72 Fed. Reg. 10308, 10324 (Mar. 7, 2007) (“The Federal mineral estate is the dominant estate and the BLM and its lessees may enter the lands to perform such operations as are necessary to develop the minerals.”); *Susan J. Kayler*, 162 IBLA 245, 257-58 (2004).

Because leases are contracts, they cannot be unilaterally modified by the BLM.⁴² The BLM may not later amend the lease with terms not identified in the sale notice and not part of the contract subject to the oral bidding process. A retroactive amendment of lease terms by the BLM would be a unilateral breach of the lease contract.⁴³ In addition, "[t]o hold otherwise would... violate the equal opportunity for all bidders to compete on a common basis for leases."⁴⁴

Surface use rights are one of the land use rights contained within an oil and natural gas lease and they cannot and should not be eliminated for existing federal oil and natural gas leases that did not contain an NSO at the time of lease issuance. FLPMA provides that nothing in the Act shall be construed as terminating any valid lease, permit, patent, right-of-way, or other land use right or authorization existing on the date of approval of this Act.⁴⁵ FLPMA further provides that all actions by the Secretary shall be subject to valid existing rights.⁴⁶ Leasing is the point at which BLM makes an irretrievable commitment of resources such that BLM can no longer preclude surface disturbing activities on lease parcels.⁴⁷ Thus, an NSO restriction in a Resource Management Plan that is by its terms to be applied to future oil and natural gas leases does not provide an independent basis to impose an NSO restriction on previously issued leases.⁴⁸

While it is true that BLM may impose mitigation measures on leasehold operations, BLM's authority has limits.⁴⁹ The BLM cannot, for example, impose COAs that are inconsistent with existing, contractual lease rights and the BLM cannot restrict operations to the point that economic development on a lease is precluded. Courts have recognized that once the BLM has issued an oil and natural gas lease conveying the right to access and develop the leasehold, the BLM cannot later impose unreasonable mitigation measures that take away those rights.⁵⁰

⁴² *Winkler v. Andrus*, 614 F.2d 707, 712 (10th Cir. 1980); *Union Oil Co. v. Morton*, 512 F.2d 743, 747 (9th Cir. 1975); see also *Mobil Oil Exploration & Producing Southeast, Inc. v. United States*, 530 U.S. 604, 620 (2000) (recognizing that federal oil and natural gas leases are contracts and that the federal government's breach of lessees the right to explore for and develop oil and natural gas entitles lessee to refund); *Oxy USA, Inc. v. Babbitt*, 268 F.3d 1001, 1006-7 (10th Cir. 2001) (noting that the Tenth Circuit has long held that federal oil and natural gas leases are contracts), *rev'd on other grounds*, *BP America Production Co. v. Burton*, 549 U.S. 84 (2006).

⁴³ For example, BLM Instruction Memorandum 92-67 explained that "[t]he lease contract conveys certain rights which must be honored through its term, regardless of the age of the lease, a change in surface management conditions, or the availability of new data or information. The contract was validly entered based upon the environmental standards and information current at the time of the lease issuance."

⁴⁴ *Anadarko Prod Co.*, 66 IBLA 174, 176 (1982), *aff'd* Civ. No. 82-1278C (D. N.Mex. 1983).

⁴⁵ 43 U.S.C. § 1701, note (a) (2000).

⁴⁶ Federal courts have interpreted the phrase "valid existing rights" to mean that federal agencies cannot impose stipulations or COAs that make development on existing leases either uneconomic or unprofitable. See *Utah v. Andrus*, 486 F. Supp. 995, 1011 (D. Utah 1979); see also *Conner v. Burford*, 848 F.2d 1441, 1449-50 (9th Cir. 1988), see also 43 U.S.C. § 1701, note (h) (2000); *Colorado Environmental Coalition, The Wilderness Society*, 165 IBLA 221 (Apr. 8, 2005).

⁴⁷ See, e.g., *Union Oil Co. of Cal et al.*, 102 IBLA at 189.

⁴⁸ See, e.g., *Colorado Environmental Coalition, The Wilderness Society*, 165 IBLA 221 (Apr. 8, 2005).

⁴⁹ *William P. Maycock*, 177 IBLA 1 (2009), *Yates Petroleum Corp.*, 176 IBLA 144 (2008). Notably, the *Yates* decision does not stand for the proposition that BLM can impose COAs whenever it deems necessary or in broad programmatic documents. Rather, in *Yates*, the IBLA merely affirmed the imposition of an additional COA based on site-specific information including recent and directly applicable scientific research. *Yates*, 176 IBLA at 157; *William P. Maycock*, 177 IBLA 1, 16-17 (2009).

⁵⁰ See *Conner v. Burford*, 848 F.2d 1441, 1449-50 (9th Cir. 1988).

For newly issued leases, BLM could decide to offer parcels subject to an NSO stipulation. However, prior to doing so, BLM should consider whether this would result in optimal outcomes for the Greater Sage Grouse. Oil and natural gas operators have increasingly found ways to limit their use of the surface when pursuing development to help with conservation efforts. Technological advances in drilling now allow for horizontal drilling into many (but not all mineral leases). Additionally, advances in technology have resulted in temporary uses of larger amounts of surface which are then reclaimed after initial drilling and completions, while leaving a longer-term smaller footprint after drilling and completions are finalized. Many times, during this interim reclamation process operators have been able to grow additional sage-brush habitat that is heartier and which provides better nutrition to leks. In addition, automatically shifting surface use by using NSOs from federal oil and natural gas leases to private and state surface areas may not result in the best outcomes for the Sage Grouse.

AXPC recommends that BLM consider a number of factors when determining whether an NSO stipulation on a new lease is appropriate. For example, the agency should consider:

- If there are reasonable mitigations other than NSOs that can be used?
- Can the O&G operator's development result in more robust areas of sage brush habitat that are better for lek populations?
- Will drilling from State and Fee lands have a more significant impact?
- Is directional drilling from an off-lease location feasible and economic?

g. The BLM must not adopt an Alternative that would deny development on existing leases.

Regardless of comments received from other parties, BLM should not adopt new alternatives or additional conditions which would prevent, prohibit or essentially ban development of existing leases. It is well settled that once the BLM has issued a federal oil and natural gas lease without NSO stipulations, and in the absence of a nondiscretionary statutory prohibition against development, the BLM cannot completely deny development on the leasehold.⁵¹ Only Congress has the right to completely prohibit development once a lease has been issued. Thus, any alternative that would void leases or deny development through modified stipulations or new conditions of approval could be found unlawful. Additionally, should the BLM adopt an alternative that denies or unreasonably delays the ability to develop existing leases, the BLM's actions in carrying out that alternative may constitute a taking in violation of the Fifth Amendment to the U.S. Constitution. Additionally, any alternative that would substantially modify lease rights could subject the BLM to rescission and restitution claims.⁵²

h. BLM must recognize the limits on its authority to require compensatory mitigation.

⁵¹ See, e.g., *National Wildlife Federation, et al.*, 150 IBLA 385, 403 (1999); *Western Colorado Congress*, 130 IBLA 244, 248 (1994).

⁵² *Amber Resources Co. v. United States*, 538 F.3d 1358, 1377 - 78 (Fed. Cir. 2009).

AXPC recognizes that mitigation – including compensatory mitigation can play an important role in Greater Sage Grouse conservation, but compensatory mitigation should be conducted on a voluntary basis. There are different types of activities that may be considered compensatory mitigation that state and federal agencies employ. For example, some compensatory mitigation plans contemplate conducting mitigation projects located on a lease or unit or other nearby federal lands. While other types of compensatory mitigation programs contemplate purchasing credits from mitigation banks for work that may be completely unrelated to the lease or lessor. Still other proposed forms of compensatory mitigation seem to merely contemplate paying money to third parties – like Non-Governmental Organizations organized to promote general welfare projects. Not all types of compensatory mitigation are the same in a practical or legal sense.

While FLPMA vests the Secretary of the Department of Interior with broad authority to manage public lands, FLPMA’s language is fairly specific as to when the Secretary is authorized to assess fees or charges. For example, Section 304 provides how and when the Secretary may assess fees, charges, and commissions related to public land uses. This section states that “the Secretary may establish reasonable filing and service fees and reasonable charges and commissions with respect to applications and other documents related to public lands.” Section 401 of FLPMA specifically authorizes the charging for grazing fees. However, FLMPA contains **no** language authorizing BLM to assess or demand fees or payments for compensatory mitigation. This is important because Congress was specific in FLMPA’s text as to when the Secretary could charge or impose fees and new explicit or implicit mandates that public land users pay or otherwise financially compensate for impacts could be construed as an unauthorized fee.⁵³ In fact, a 1995 BLM policy and legal analysis raised serious concerns that compensatory mitigation could “appear[] to be an unauthorized tax or an equally unauthorized attempt to augment BLM’s existing appropriations” that would likely “strike the subjects of the ‘contribution’ as little more than thinly veiled blackmail.”⁵⁴ As the analysis further cautioned, “the courts tend to find such matters very offensive to fundamental notions of fairness and administrative law.”⁵⁵

Likewise, nothing within the MLA or existing oil and natural gas leases specifically allows BLM the right to add additional fees or charges for surface disturbances arising from pre-existing surface use rights granted under a federal oil and natural gas lease agreement. Recently, when BLM sought to change or add fees under the onshore Federal Oil and natural gas Leasing Program the agency was required to obtain statutory amendments or new statutory authority under the Inflation Reduction Act from Congress. And members of Congress were specific in the Inflation Reduction Act that new fees could only apply prospectively to newly issued leases.

While BLM often requires mitigation operations at actual impacted federal land sites, such mitigation activities arise directly from the use on that particular parcel of federal lands. BLM has not historically sought compensatory mitigation for harm caused to a species. This is something that falls within the purview of the Endangered Species Act and the jurisdiction of the Fish & Wildlife Service or state wildlife agencies. Here, the new science cited by BLM as justification for the Draft RMPA/EIS seems to focus most heavily on protections for the birds, themselves.

⁵³ See *Kotab v. Bureau of Land Mgmt.*, 595 F. Supp. 3d 947, 955 (D. Nev. 2022), *appeal dismissed*, No. 22-15810, 2022 WL 17261849 (9th Cir. Aug. 3, 2022) (finding statutory limits as to when BLM can charge fees).

⁵⁴ Statement of Policy Regarding Compensation Mitigation, BLM-WY IM No. 96-21 (Dec. 14 1995).

⁵⁵ Statement of Policy Regarding Compensation Mitigation, BLM-WY IM No. 96-21 (Dec. 14 1995).

The studies primarily analyze issues like population density, lek persistence, and genetic uniqueness. As a result, it is not clear what exactly BLM intends to seek compensatory mitigation for. For example, if lek populations decline on a leasehold, does BLM intend to demand payment for the wildlife decline? Or does BLM intend to prospectively require oil and natural gas operators to pay for future forecasted impacts to the species? What if these actual or forecasted population declines are attributable to another cause, like increased predation?

As indicated in API's comments, there are significant data-related questions related to issues like genetic connectivity, where the studies relied upon by BLM are based on small sample sizes and/or contain sampling errors. The TAWS developed by the USGS as an advisory regulatory tool, subdivides the entire range into 485 "Neighborhood Clusters" based on a clustering method that is inconsistent with all current population management designations. This system is then used by USGS and BLM to track and regulate 2 to 3-year trends in neighborhood clusters relative to large-scale "climate cluster" trends. However, those climate clusters are not based on actual climate data but clustering of leks into higher levels, with special post-hoc carve outs to create other climate clusters (such as Jackson WY was not related to climate). Some neighborhood clusters contain only a single lek or a handful of leks, which contributes to sampling error and erroneous results.⁵⁶ Additionally, the last year of data collection was in 2019 when populations were at a low ebb. Moreover, the climate papers relied upon by BLM consider the worst case RCP8.5 climate models, which even the IPCC has backed away from. And the genetic diversity and genetic connectivity papers relied upon by BLM are based on a handful of "neutral" genetic markers that are not relevant to natural selection in the wild. Moreover, the sample sizes are frequently small in this research and large gaps occur in the range. As such, there are significant questions about what is actually causing the observations that BLM may ultimately want to seek compensation for. What happens if oil and natural gas operations are found to not be the cause of some or any of the above issues after compensatory payments are paid? Will operators be entitled to refunds from BLM, mitigation banks, or the third parties who receive payment?

Finally, there are questions concerning BLM's authority to require payments to third parties or mitigation banks. The Constitution gives Congress exclusive authority to determine how to spend funds deposited in the Treasury.⁵⁷ The "power of the purse" is a well-settled component of separation of powers. To protect this power against intrusion from the Executive Branch, Congress has enacted such statutes as the Miscellaneous Receipts Act and Antideficiency Act.⁵⁸ The Miscellaneous Receipts Act provides that government officials "receiving money for the Government from any source shall deposit that money with the Treasury."⁵⁹ The Antideficiency Act prohibits government officials from expending funds (or incurring financial obligations) in

⁵⁶ Search for Map 3.2 and Map 3.3 in GRSG DEIS 2024_Vol 2_App01_Maps Part6_508 to see how the range has been subdivided and the TAWS results.

⁵⁷ See Article I, Section 8 Clause 1 (Taxing and Spending Clause); Article I, Section 9, Clause 7 (Appropriations Clause).

⁵⁸ See generally Todd David Peterson, Protecting The Appropriations Power: Why Congress Should Care About Settlements at the Department of Justice, 2009 B.Y.U. L REV. 327, 332-52 (2009) (explaining how Executive attempts to evade Congress' appropriations authority led Congress to enact the Miscellaneous Receipts Act and the Antideficiency Act).

⁵⁹ 31 U.S.C. § 3302(b).

excess of appropriations.⁶⁰ The Miscellaneous Receipts Act requires any agency receiving funds on behalf of the United States to deposit them in the Treasury. Previous attempts by agencies to divert money away from the Treasury to third parties have been deemed improper and inconsistent with the Congressional intent of the Act, absent express authorization from Congress.

In situations analogous to the types of compensatory mitigation recently promulgated by BLM in the Conservation & Landscape Health Rule, the Office of Legal Counsel (OLC) has raised legal concerns, finding that it is improper for agencies like the Department of Justice to require payments to third parties for the settlement of claims related to injured waterfowl.⁶¹ Likewise, questions could be raised if BLM similarly begins demanding payments to mitigation banks or third parties for the benefit of the Greater Sage Grouse. BLM should further clarify what types of compensatory mitigation it seeks in order to avoid the appearance of trying to circumvent Congress's clear power over the budget and appropriations.

i. BLM must be transparent, making all science and data on which it bases its analysis available to the public.

The Draft RMP/EIS covers a vast scope of rangeland making it challenging for stakeholders to properly identify and assess the differences between the alternatives being proposed and their respective management measures. Furthermore, these management measures may differ by state, adding another layer of complexity. The BLM's approach of consolidating 77 RMP amendments into one action also makes it difficult to identify and understand the rationale behind each of the proposed alternatives.

The TAWS developed by the USGS as an advisory regulatory tool. *See* Appendix A. To AXPC's knowledge the data used as inputs to the TAWS is not readily available and stakeholders do not have access to TAWS to see how this data is then used by the software to reach its conclusions/analysis.

Additionally, it is not clear where all of the data came from to create the GIS map layers for the Draft RMPA/EIS. When looking at the GIS map layers provided by BLM, it does not appear that Greater Sage Grouse is actually located throughout the entire range. In fact, some areas identified in the BLM's GIS maps layers appear to be completely unrelated to Greater Sage Grouse and instead focus on resources like archaeological sites or raptor's nests.

The GIS Mapping Layers for all alternatives appear to be based on additional resources beyond Sage Grouse leks and habitat. It is hard to determine if these areas were truly intended to be part of the management described within the alternatives as Sage Grouse habitat or if there is some error. When comparing GIS layers for sage grouse leks and habitat from the proposed RMP to sage grouse habitat identified by the Wyoming Game and Fish department and the Governor's

⁶⁰ 31 U.S.C. § 1341; see also 31 U.S.C. §1301(a) ("Appropriations shall be applied only to the objects for which the appropriations were made except as otherwise provided by law.").

⁶¹ *See* Effect of 31 U.S.C. § 484 on the Settlement Authority of the Attorney General, 4B Op. O.L.C 684, 684-85 (1980) (*available at* https://www.justice.gov/olc/opinions?f%5B0%5D=field_opinion_post_date%3A1980&f%5B1%5D=field_opinion_post_date%3A1980-06).

Executive Order there is some correlation. However, there are additional habitat designations presented in the proposed RMP which do not include known Greater Sage Grouse habitat at all. For example, there are several polygon features that do not correlate with any known lek or habitat data but appear to be based on raptor nests such as golden eagles and burrowing owls. This is not appropriate for inclusion in Sage Grouse management plans. In addition, there are line features that include major stipulations in the draft RMP that correlate to historic trails – again, not appropriate for inclusion as Sage Grouse habitat. Further, a proposed no surface occupancy (“NSO”) stipulation seems to have been applied randomly to the edges of Environmental Impact Statement project areas – again not correlated with known Sage Grouse habitat or lek data.

It appears that designation of NSO, major stipulation areas and minor stipulation areas considered a multitude of resources other than Greater Sage Grouse, rendering avoidance or mitigation meaningless for the preservation of the species and placing undue restrictions on public lands users. Further, inaccurately designating these areas as Sage Grouse habitat will limit the ability of BLM to appropriately site projects under its multi-use mandate, which could lead to greater impacts to sage grouse at the landscape scale.

As a result, it is difficult to tell how the different proposed alternatives will impact oil and natural gas development throughout the area.

III. CONCLUSION

AXPC appreciates the opportunity to provide these comments on the Draft RMPA/EIS. While AXPC shares BLM’s interest in protecting and conserving public lands, we believe that BLM needs to provide additional analysis and justification for the proposed Draft RMPA/EIS and various alternatives.

At minimum, we believe BLM should revise the proposed Draft RMPA/EIS consistent with these comments, respond to stakeholders’ need for additional details on the proposal, and allow the public a second comment opportunity on the re-proposed amendments.

Sincerely,



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APPENDIX A

Comments on the Targeted Annual Warning System

Summary:

The Targeted Annual Warning System (TAWs) described by Coates et al. (2021, 2022) and Prochazka et al. (2023), appears to provide a potentially objective alternative to the use of arbitrary, population “triggers” for implementing additional conservation measures for Greater sage-grouse (GRSG). However, as currently proposed (Coates et al. 2021, 2022), TAWs is a work-in-progress that will require additional refinement in methodology and greater transparency in data, rationale, and methodologies.

Utilizing a clustering algorithm to group leks based on 2-dimensional graph distance developed by O’Donnell et al. (2019, 2022a, 2022b¹), the authors subdivided the range of GRSG into 485 “neighborhood clusters,” and 6 “climate clusters.” Then they modeled trends at three scales: lek, neighborhood cluster, and climate clusters in order to produce “watches” and “warnings” of potential population declines, or “no watch or warning.” Watches and warnings were assigned based on comparisons of the rate of decrease of leks and neighborhood clusters relative to the climate clusters they are found in, as described by (Coates et al. 2021):

...we developed two categories for multi-year signaling events referred to as ‘watches’ and ‘warnings.’ We assigned watches to populations that had slow signals [of decline compared to climate clusters] over 2 consecutive years. We assigned warnings to populations that had slow signals [of decline compared to climate clusters] in 3 out of 4 consecutive years or fast signals [of decline] in 2 out of 3 consecutive years. Watches may identify the need for intensive monitoring whereas warnings may identify the need for management intervention aimed at stabilizing populations.

The authors described the potential utility of their TAWs system as follows:

Findings herein fill a prominent information gap to help inform current assessments of sage-grouse population trends at nested spatial and temporal scales for the Western Association of Fish and Wildlife Agencies. This study also highlights a ‘targeted annual warning system’ (TAWs) solution for managers that could be used to identify where and when management action is likely to benefit declining populations of sage-grouse at the appropriate spatial scale. The TAWs could potentially be modified to evaluate effectiveness of conservation efforts. Findings are also intended to provide timely scientific information for state and federal land use plans and conservation credit systems.

Coates et al. (2021, Appendix 1) define neighborhood clusters as follows:

Refers specifically to cluster scale 2 of the graph-based clustering algorithm process, the smallest scale to represent a closed population unit minimizing births, deaths,

immigration, and emigration. This cluster represents local aggregations of leks and contrasts population trends at scales conducive to management action.

Coates et al. (2021, Appendix 1) define climate clusters as follows:

Refers specifically to cluster scale 13 of the graph-based clustering algorithm process, whereby population dynamics are likely driven by larger scale variations, such as climate, that affect fluctuations in population abundance that reflect periods of oscillation of sage-grouse and are likely less manageable by direct intervention.

Issues of Significance that preclude use of TAWS as a regulatory decision-making tool:

While Coates et al. (2021, 2022) appears to be a step in the right direction for monitoring and adaptive management of GRSG populations, it is not the silver bullet that it appears to be. The reasons why are detailed below.

1) No probabilistic assessment of confidence in watches or warnings.

As an initial matter, the TAWS needs to incorporate a probabilistic assessment as to how reliable each “watch” or “warning” assignment is.

Significance: Such an assessment would allow managers, decision makers and the public to evaluate the confidence of those assignments, as opposed to assignments being made with an unknown level of confidence (i.e., like those produced from a “black box” analysis).

2) Time lag between annual census data and TAWS results: currently two years and counting.

For TAWS to be a potentially useful adaptive management tool, analyses need to be run annually with the most current and complete data. The original Coates et al. (2021) paper used data gathered through 2019, an updated version (Coates et al. 2022) was released with additional data from 2020 and 2021, and a modified methodology. However, since 2021, numerous populations in core areas have increased, consistent with a natural population cycle following a low ebb in 2019-2020. As of October 2023, there had not been an update using 2022 or 2023 lek count data.

Significance: The current one to two-year lag between data produced and analysis of results raises the question of whether results can ever be produced in a timely manner to be useful to GRSG management.

3) Leks, and so-called “neighborhood clusters” and “climate clusters” are not equivalent to closed populations, as assumed by Coates et al. (2021).

Leks are specific locations where sage grouse traditionally congregate to mate in the spring. Radio tracking and genetic data show that male and female GRSG use of leks is dynamic, and GRSG will move among leks or disperse to increase mating opportunities, in response to local environmental conditions, disturbance and density dependence. Therefore, a decline at one or a

handful of leks is not necessarily an indication that the surrounding *population* has declined, as assumed by Coates et al. (2021, 2022).

The 485 local, *Neighborhood clusters* and 6 *Climate Clusters* evaluated by Coates et al. (2021, 2022) are statistical artifacts of the clustering method and simplifying assumptions used; they are not equivalent to any previously described GRSG populations or subpopulations, nor state-level sage grouse management units.

Significance: Contrary to decades of GRSG literature and basic population biology, Coates et al. (2021, 2022) conflated leks and neighborhood clusters with *populations*, which are at very different scales. This is not simply an issue of semantics; it has implications for how GRSG could be managed in the future. First, inadequate sample sizes (too few leks) will inevitably lead to erroneous conclusions regarding neighborhood cluster trends, resulting in wasted conservation effort and unnecessary regulation. Second, the more subdivided the range of a species is, the more threatened these smaller subunits may appear to be, even though the much larger population is stable. Third, Coates et al. (2021, 2022) ignore decades of data, including recent genetic data, that demonstrate long-distance movements (i.e., movements of 60 – 300 km) by GRSG during dispersal beyond natal leks and during seasonal migrations, and genetic data that reveal low levels of population structure. Those studies include but are not limited to: Patterson 1952; Connelly and Markam 1983; Lyon 2000; Bush et al. 2009, 2010, 2011; Tack et al. 2011; Smith 2012; Reinhart et al. 2013; Fedy et al. 2012; Cross et al. 2017, 2023; and Oyler-McCance et al. 2022. By ignoring this body of literature, Coates et al. (2021, 2022) and O’Donnell et al. (2022b) create a misleading impression that their neighborhood clusters are effectively “closed populations” with little or no emigration or immigration.

4) Neighborhood clusters and Climate Clusters are not congruent with recent genetic data used to define populations and subpopulations of GRSG.

The neighborhood clusters and climate clusters described by Coates et al. (2021, 2022) and O’Donnell et al. (2022b) on the basis of GIS analyses are inconsistent with recent genetic data and analyses published by Oyler-McCance et al. (2022). That study recognized no more than 8 populations of GRSG (including Washington and Bi-State DPS, Figure 3, below) and just 12 subpopulations (Figure 4, below). More specifically, the boundaries of the neighborhood and climate clusters are not congruent with the population and subpopulation groupings based on genetic data. For example,

- Coates et al.’s (2021, 2022) climate cluster “D” extends across northeastern Utah, Northwestern Colorado, the eastern half of Wyoming, western North Dakota, and the greater part of Montana (see below), whereas Oyler-McCance et al. (2022) recognized only four populations across a similar area but those ranges collectively extend well beyond climate cluster “D” and into other climate clusters.
- Similarly, climate cluster “E” in northeastern California, Oregon, Nevada, Idaho, and southwestern Montana overlaps parts of four populations recognized by Oyler-McCance et al. (2022) that also extend into climate clusters “D” and “F.”

- Climate cluster “F” overlaps parts of three of Oyler-McCance (2022) populations.
- Climate cluster “C” comprises a small number of leks in the Jackson Hole, Wyoming area whose genetic affinities are equivocal, as they share characteristics of surrounding areas.
- Other, higher cluster levels (see Figures 4,5, and 6 from O’Donnell et al. 2022b), including clusters 11 and 12, show similar discontinuities with populations and subpopulations recognized by Oyler-McCance et al. (2022) on the basis of genetic data.
- Inexplicably, Coates et al.’s (2021, 2022) and O’Donnell et al. (2022b) designate the California-Nevada Bi-state population, Washington state, and Jackson Hole as separate climate clusters on the basis of previously published genetic data but make no mention of the Oyler-McCance et al. (2022) results, despite all working at the same agency (USGS) and having coauthored papers together. The fact that the research and results by Oyler-McCance et al. (2022) was ignored by Coates et al. (2021, 2022), as well as by the authors of a recently published paper on TAWS, Prochazka et al. (2023), indicates a bias to ignore other science that does not agree with their model and to treat neighborhood clusters as if they were populations.
- The ad-hoc rationale used by Coates et al. (2021, 2022) and O’Donnell et al. (2022b) to designate a group of 17 leks in the Jackson Hole area as a separate climate cluster on the basis of isolation is in error. That is because both Coates et al.’s (2021, 2022) papers erroneously cited Oyler-McCance et al. (2005) as genetic data showing isolation of the Jackson Hole population, despite the fact that Oyler-McCance et al. (2005) never sampled the Jackson Hole area (see Figure 5 of Oyler-McCance et al. 2005 for absence of sampling of Jackson Hole area).

Furthermore, this Jackson/Gros Ventre area is separated from the Pinedale to the south by a distance of less than 15km, which is not a barrier to GRSG movement. That conclusion is borne out in population pairwise F_{ST} values in Table 2 of Schulwitz et al. (2014). Those reveal a low level of differentiation, and therefore, a high gene flow (i.e. $F_{ST} = 0.073^2$) between Jackson Hole and North Pinedale to the south, resulting from gene flow or retention of ancestral genetic variation among populations. In fact, the genetic structuring between the Jackson and Gros Ventre areas was higher (0.083), which means there was less gene flow between them than between Jackson Hole and Pinedale, despite Jackson and Gros Ventre being in the same Level 13 climate cluster.

Oyler-McCance et al. (2022) populations.

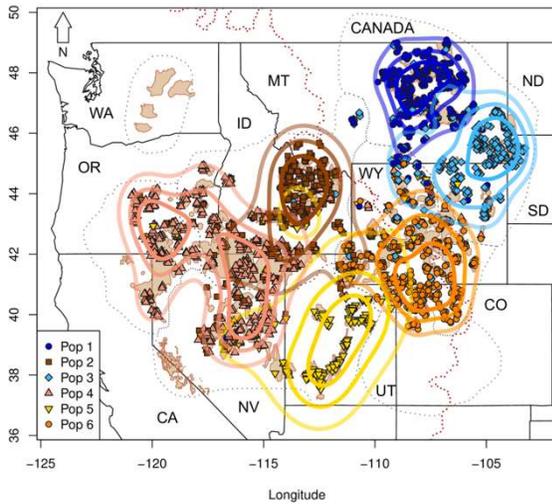


Fig. 3. Boundaries of Greater Sage-grouse subpopulation centers at $K = 6$ from a STRUCTURE analysis using a 25% (darkest polygon), 50% (medium polygon), and 75% (lightest polygon) kernel density estimate to determine genetically distinct groups. The six different colors represent the six clusters identified in the STRUCTURE analysis. The dotted red line represents the Continental Divide. Tan polygons represent Priority Areas for Conservation and dotted black lines represent the seven sage-grouse management zones (MZ). State names are represented by the following abbreviations California (CA), Colorado (CO), Idaho (ID), Montana (MT), Nevada (NV), North Dakota (ND), Oregon (OR), South Dakota (SD), Utah (UT), Washington (WA), and Wyoming (WY).
<https://doi.org/10.1371/journal.pone.0274189.g003>

Coates et al. (2021, 2022) climate clusters.

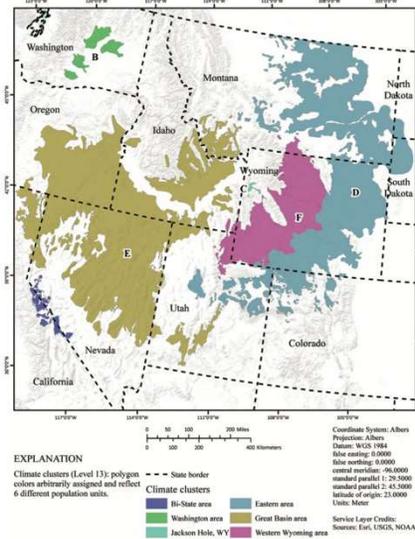


Figure 7. Greater sage-grouse (*Centrocercus urophasianus*) hierarchical population monitoring framework for climate clusters (level 13) in the western United States. A = Bi-State area, B = Washington area, C = Jackson Hole, Wyoming, area, D = eastern area, E = Great Basin area, F = western Wyoming area. Map image is the intellectual property of Esri and is used herein under license. Copyright © 2020 Esri and its licensors. All rights reserved.

Significance: This raises the question: which method is more biologically relevant for defining populations for trend analyses? Genetic data carries the signal of historic and current genetic and demographic connectivity among sage grouse, across the scale of individuals, leks, and populations range-wide. Therefore, it is arguably more biologically relevant than desktop GIS analyses, which are two-dimensional abstractions based on map distances among leks, heavily reliant on assumptions, and whose results are conjectures about what GRSG population connectivity *might* be. Testing the conjectures (neighborhood and climate clusters in Coates et al. 2021, 2022 and O’Donnell et al. 2022b) against genetic data reveals that they are lacking empirical support and that the TAWS clustering of leks need to be revised accordingly (or scrapped).

5) Movement data from nine months of the year as well as genetic data showing long-distance dispersal among leks was excluded.

The sage grouse movement data used in Coates et al. (2021, 2022) and O’Donnell et al. (2022b) only included data from VHF and GPS tracking devices from March 1–May 31. Data from the other nine months of the year were excluded from analyses, as well as long-distance migration and dispersal data from feather and blood samples (Bush et al. 2009, 2010, 2011; Tack et al. 2011).

Significance: The authors provide no proof that sage grouse only disperse from March 1 to May 31. Moreover, the genetic data demonstrate that: 1) movements occur among leks, subpopulations, and populations; 2) there is a consistent lack of genetic structure among local leks and clusters of leks; and 3) that sage grouse attending leks are, with few exceptions, genetically unrelated as per Bush et al. (2010, *Birds of a feather do not lek together*). By ignoring the above data and other research, Coates et al. (2021, 2022) and O’Donnell et al. (2022b)

attempted to justify that their neighborhood clusters of GRSG are closed populations, which they are clearly not.

6) Neighborhood cluster trends can be different depending upon the time period used in the analysis.

The Coates et al. (2021, 2022) TAWS approach can produce different results regarding population trends (average annual rate of change, λ) depending upon the number of oscillations (time periods) used in an analysis. For example, Figure 3 from Coates et al. (2022, below) shows neighborhood clusters in Wyoming and Montana as having generally positive rates of increase (as indicated by blue, teal, and green colors) when 1 or 3 oscillations were used to calculate trends, whereas a decreasing trend (indicated by yellow, orange, and red colors) was produced when the analysis used data from 2, 4, 5, or 6 oscillations.

Similar differences can be seen in range-wide results for neighborhood clusters and climate clusters, depending upon the number of oscillations used in the analysis. The fact that results varied depending upon the number of oscillations used is a significant problem because it underscores the arbitrary nature of the results produced by Coates et al. (2021). This same issue is also apparent in Coates et al. (2022), that used updated data from 2020 and 2021 (Figure 2 and 3 for climate cluster and neighborhood clusters respectively).

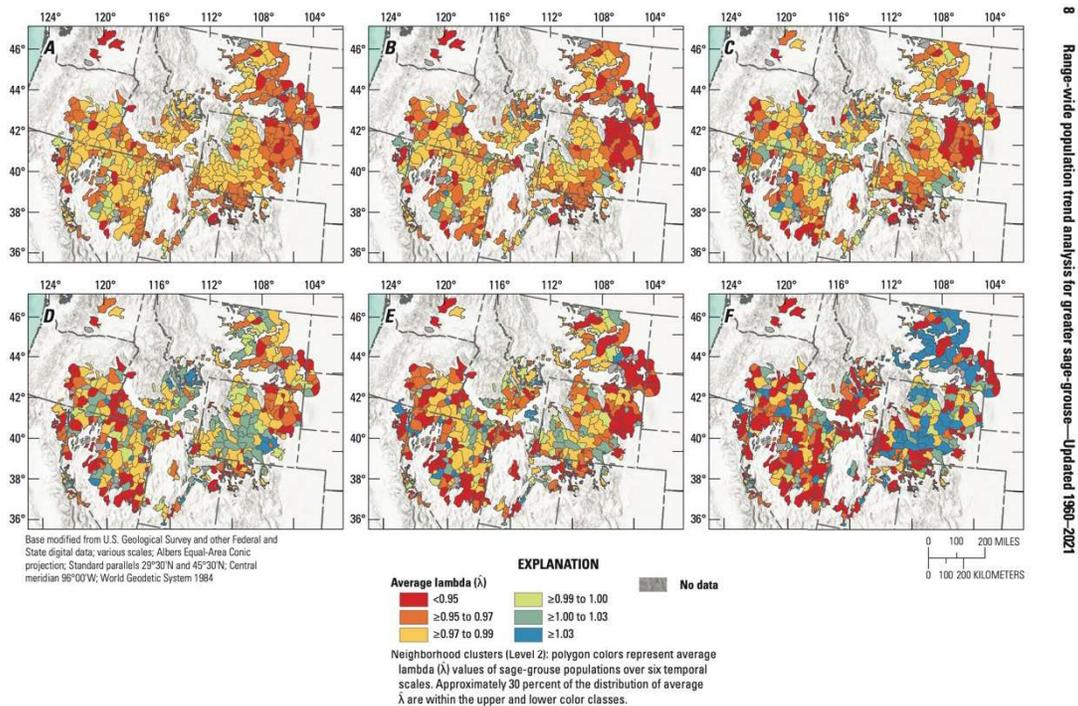


Figure 3. Range-wide spatial estimates of average annual rate of change (λ) in abundance of greater sage-grouse (*Centrocercus urophasianus*) across six temporal scales based on periods of oscillation: A, Long (six periods); B, Medium/long (five periods); C, Medium (four periods); D, Short/medium (three periods); E, Short (two periods); and F, Recent (one period) for each neighborhood cluster. Map image is the intellectual property of Esri and is used herein under license. Copyright© 2020 Esri and its licensors. All rights reserved. Abbreviations: <, less than; \geq , greater than or equal to.

Figure 3 (above) is from Coates et al. (2022). Note that trends are different (positive or negative) depending upon the number of population oscillations used in the analysis.

7) False alarms: Warnings were assigned by the TAWS to neighborhood clusters that otherwise have shown positive recent population trends.

Numerous examples may be found in Coates et al. (2021) of warnings being applied by the TAWS to neighborhood clusters that otherwise showed an increasing population trend. An example of these can be seen by comparing warnings designated in Figure 4.50 of Coates et al. (2021) with population trend data in Table 4.14 of Coates et al. (2021) from Wyoming. (For clarity, these are identified in the figure and table below.) Wyoming was chosen for this comparison because it contains the highest densities and number of sage grouse of any state or province.

Significance: These apparent false alarms are problematic because it means that warnings can be erroneously issued based on the short time period that is used to signal a decline, compared to a full population cycle (oscillation) between nadirs. Warnings can be triggered by as short as 2 out of 3 consecutive years for “fast signals” of decline, or watches from 3 out of 4 consecutive years for “slow signals” of decline, when populations are declining in synchrony towards the low ebb (nadir) of their natural population cycle. However, those watches and warnings will be erroneous (like false alarms) when neighborhood clusters are actually increasing over the full population cycle between nadirs (a period between nadirs is referred to as an oscillation), an average of 9.4 years according to Coates et al. (2021). Additionally, warnings largely disappear during the upward trend following a nadir. Therefore, the criteria used in designating watches and warnings is in obvious need of rethinking and revision to prevent the waste of valuable public and private conservation efforts, as well as unnecessary regulation triggered by erroneous warnings.

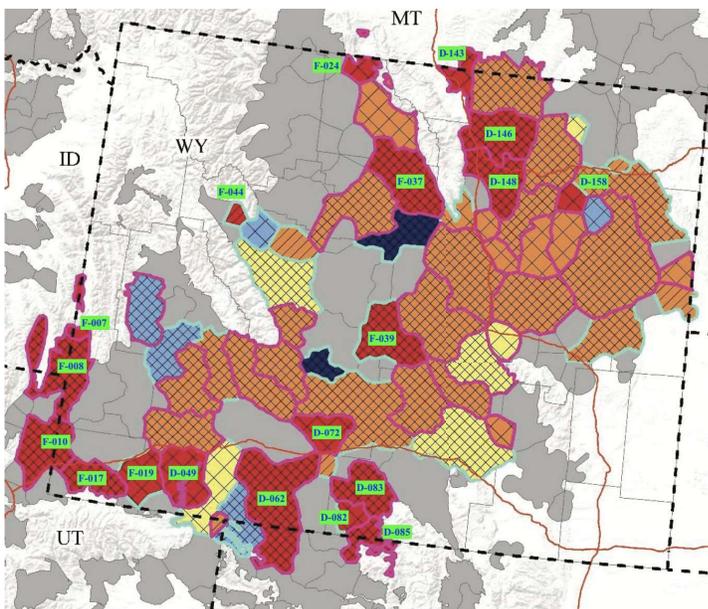


Figure 1. As shown in the figure above, watches and warnings of neighborhood clusters in Wyoming from 1990-2019 (with neighborhood cluster identifiers added to Figure 4.50 of Coates et al. 2021). Recent warnings (2015-2019, p 29) are in dark red with green labels. The

numbered green labels identify neighborhood clusters listed in Table 4.14 of Coates et al. (2021).

Excerpts from Table 4.14 of Coates et al. (2021) (listed below in Table 1) provide a comparison between warnings issued for Wyoming neighborhood clusters from 2015 to 2019 and estimated population trends for each neighborhood cluster that was issued a warning during that time period. Note that five neighborhood clusters that were issued warnings actually had a positive average population growth during that same period (>1.0). Such a discrepancies raise questions of validity of TAWS warnings and the subsequent application of TAWS to GRSG adaptive management.

Additionally, we note how adding two additional years of data (2020 and 2021) resulted in all but two warnings being reversed. Such a shifting of TAWS warnings between “on” and “off,” with no attempt by the TAWS proponents to determine what caused any of those changes, further underscores our concern that this method is not ready to be used in decision making (or results in the restriction of permits or activities while a causal factor analysis is being completed).

We further note that in the Coates et al. (2022) report, only neighborhood clusters D-072 and F-049 retained warnings when analyses were updated with 2020 and 2021 data by Coates et al. (2022). However, it appears from Figure 6 that nine other neighborhood clusters were assigned warnings in Wyoming. Regrettably, Tables 3 and 4 from that report provide no useful information to further evaluate how quickly or arbitrarily neighborhood cluster status can change in either direction without any change in management, especially while the population experiences post-nadir growth.

The fact that neither of the Coates et al. (2021) or (2022) reports contained any detailed annual TAWS information on which neighborhood clusters were issued a watch, warning, or no watch/warning, means that no independent vetting of the method is possible in order to uncover related methodological problems.

We have not yet explored similar issues with the issuance of watches or warnings to neighborhood clusters (or leks) in other states, but reserve the right to do so. The substantive problem with issuing watches and warnings for individual leks is that lek counts can vary both within and between years due to movements of birds among leks in response to environmental factors independent of neighborhood or population size, or land use activities (i.e., presence of predators, wildfire, or flooding).

Table 1. Average annual rate of recent population change, average trend, and TAWS warning status for Wyoming neighborhood clusters in 2019. Neighborhood clusters with positive average trends or having a positive trend value for their 95% upper confidence interval are highlighted in yellow.

Neighborhood Cluster	Average annual rate of population change from most recent population cycle (from Table 4.14 of Coates et al. 2021)	Average trend	TAWS status, from Coates et al. (2021) for years 2015 to 2019	2020-2021 TAWS status, from Coates et al. (2022)
D-062	0.994 (0.964-1.035)	-	Warning	No Watch or Warning
D-072	1.210 (1.162-1.265)	+	Warning	Warning
D-082	0.864 (0.828-0.946)	-	Warning	No Watch or Warning
D-083	0.889 (0.868-0.910)	-	Warning	No Watch or Warning
D-085	0.831 (0.797-0.871)	-	Warning	No Watch or Warning
D-143	0.966 (0.885-1.070)	-	Warning	No Watch or Warning
D-146	1.069 (1.028-1.111)	+	Warning	No Watch or Warning
D-148	0.992 (0.959-1.027)	-	Warning	No Watch or Warning
D-158	0.880 (0.774-0.978)	-	Warning	No Watch or Warning
F-007	0.898 (0.825-0.971)	-	Warning	No Watch or Warning
F-008	0.899 (0.868-0.929)	-	Warning	No Watch or Warning
F-019	1.052 (1.012-1.094)	+	Warning	No Watch or Warning
F-024	1.023 (0.938-1.116)	+	Warning	No Watch or Warning
F-037	1.025 (0.991-1.062)	+	Warning	No Watch or Warning
F-044	0.909 (0.828-0.987)	-	Warning	No Watch or Warning
F-049	0.926 (0.897-0.955)	-	Warning	Warning

8) The results of Coates et al. (2021, 2022) are not reproducible because the raw and final lek count and location data used are not public or available for independent analysis.

Reproducing the results in Coates et al. (2021, 2022) is not possible because the range-wide lek location and lek count data used in those papers (including O’Donnell et al. 2019) are not publicly available.

It is also not possible to obtain the lek location and count data from some states, such as Colorado, because a state statute prevents Colorado Parks and Wildlife (CPW) from releasing wildlife location data collected on private land without the permission of the landowner. Additionally, CPW considers such data gathered by that agency to be proprietary and asserts that its research staff retain the “right” to publish on those data before it can be provided to the public.

Coates et al. (2021) developed open-source software for standardizing and compiling the sage-grouse lek count databases across states, to allow for “repeatable results that can better support scientific integrity.” Indeed, Coates et al. (2021) considered the lek count database to be “a major step forward for studies making use of range-wide lek count data.” However, repeatability and

scientific integrity will not be achieved until the lek count database is made available to other, independent researchers.

Significance: Even in states where data are available for research, such as Wyoming, it is not possible to access the final data set that had been used in Coates et al. (2021, 2022). This data had been edited down using various “rules” in an attempt to produce a lek count data set that was more consistently gathered, as well as ad hoc adjustments to identifying population nadirs in individual neighborhood and climate clusters that were not documented. This lack of data availability essentially renders the results of Coates et al. (2021, 2022) as equivalent to a “black box model” (i.e., a model whose inputs and inner workings are opaque or not readily interpretable).

9) It is possible that trend estimates are biased downwards due to excluding data from recently discovered leks and leks that are reoccupied during population increases.

We strongly suspect but cannot yet confirm (due to raw and/or final data sets not being public), that the rule that excludes leks with less than five years of consecutive count data could exclude recently discovered leks and leks that are reoccupied during the uptick in population density during the increasing portion of population cycles, thus biasing trend estimates downwards.

10) Climate clusters were delineated based on the clustering algorithm and were not based on any uniform response of GRSG populations to regional climate.

Level 13 clusters being termed “climate clusters” is a misnomer because the authors provide only a weak analysis to suggest that their map distance-based clustering algorithms have produced a cluster level (Level 13) where sage grouse neighborhood clusters within would respond similarly to regional patterns of precipitation.

It also appears that precipitation was used as a proxy for climate variation by Coates et al. (2021) despite its known shortcomings and because they chose to ignore a large body of scientific research, spanning decades, involving sage grouse and many other species. As summarized succinctly by McClure et al. (2012):

Among the best measures of changes in global climate patterns are the oceanic oscillations, which are deviations from average oceanic temperatures. In North America, oceanic oscillations that have been linked to changes in the breeding success and distribution of landbirds include the El Niño Southern Oscillation (ENSO, e.g. [Sillett et al. 2000](#)), North Atlantic Oscillation (NAO, e.g., [Nott et al. 2002](#); [Anders and Post 2006](#)), and the Pacific Decadal Oscillation (PDO, [Mantua and Hare 2002](#)). Oscillations in the Pacific Ocean serve as indices that summarize very large-scale climate patterns associated with sea surface temperatures over the southern and central Pacific, which often have a great impact on heat and precipitation load transfers over North America. The PDO describes a pattern of oceanic temperature variation over 20- to 30-year periods, and these long-term fluctuations in ocean temperature affect the climate across much of the northern portion of North America. The PDO has been shown to affect plant phenology and spring

flooding in western North America (Cayan et al. 2001), as well as biomass and community structure of marine ecosystems along the Pacific coast of North America (Hare and Mantua 2000). Landbirds also are affected; Ballard et al. (2003) found that capture rates of passerines at a site in California were correlated with the PDO. Because the PDO affects both insect abundance (Kiffney et al. 2002; Vandenbosch 2003; Thomson 2009) and the timing of spring events (Cayan et al. 2001), the PDO may especially affect migratory or insectivorous bird species. Fluctuations in songbird abundances in North America may therefore best be understood within the context of the PDO (Ballard et al. 2003).

A more recent paper focusing specifically on GRSG trends in Wyoming (but also ignored by Coates et al. (2021, 2022)) identified the importance of the PDO and why it outperforms precipitation as a proxy variable for regional climatic variation (Ramey et al. 2018):

Previous studies of the effect of climatic variation on sage-grouse have used local temperature and precipitation data with mixed results (Blomberg et al., 2012, 2014, 2017; Green, Aldridge & O'Donnell, 2016; Coates et al., 2016; Gibson et al., 2017). However, large-scale climate indices often outperform local data in predicting population dynamics and ecological process (Stenseth et al., 2002; Hallett et al., 2004). The Pacific Decadal Oscillation (PDO), which is derived from the large-scale spatial pattern of sea surface temperature in the North Pacific Ocean (Mantua et al., 1997), is potentially the most important climatic process influencing the sagebrush biome (Neilson et al., 2005). Consequently, the PDO index was chosen as the climate indicator.

Significance: Omission of this body of research, as well as others, in the development, justification, and refinement of TAWS underscores a systematic confirmation bias by the USGS to ignore data and science that does not support their products. It also underscores bias at the BLM to promote the use of biased products as a basis of land management in the current Draft RMPA/EIS.

Conclusion and recommendations regarding TAWS:

The TAWS, with its 485 different neighborhood clusters and 6 climate clusters, adds an additional and methodologically problematic land management category of unproven utility to an already crowded and overlapping field of administrative and land management designations specifically for GRSG. These include: Priority Habitat Management Areas (PHMA), General Habitat Management Areas (GHMA), Habitat Management Areas (HMAs), Core Areas, Connectivity Habitat, Priority Areas for Conservation (PACs), and so on.

The invited reviewers listed in acknowledgements, technical team members and internal USGS peer reviewers of Coates et al. (2021, 2022) did not appear to have identified many of the problems described above. These should have been identified and rectified prior to a public release and certainly before the BLM considers TAWS being used as a basis for management decisions, as the authors propose.

The TAWS is in need of substantial overhaul, greater transparency in methods and data utilized, and a fully independent vetting prior to being considered as a basis for any land management

decisions. Due to all of the issues identified above, the use of TAWS at this point should be nothing more than advisory in nature.

The BLM has not demonstrated that TAWS can be effectively implemented as part of the adaptive management in this Draft RMPA/EIS. More specifically, in the Draft RMPA/EIS:

- The BLM has not provided any specific rationale as to why the proposed TAWS is superior, or even equivalent to, approaches used by states for tracking GRSG population trends.
- The BLM provides no internal decision-making process for concluding a Causal Factor Analysis when there is disagreement among team members.
- The BLM does not provide methodologies or other proof that it can conduct Causal Factor Analysis that reaches a definite conclusion. Moreover, due to the small number of leks in many neighborhood clusters, it is doubtful that there will be sufficient statistical power to determine which factors had contributed to a warning.
- The BLM has not provided a realistic timeline: from completion of lek count data by all states to completion of Causal Factor Analysis for any single neighborhood cluster. As a practical matter, due to the fact that several climate clusters span multiple states, no TAWS analysis can be conducted until data from all states has been collected, vetted and curated by each state, and subsequently reported to the USGS for TAWS analysis.
- The BLM provides no evidence that either it or states have sufficient resources and staff to address multiple simultaneous warnings by conducting multiple Causal Factor Analyses within a reasonable time frame.
- The BLM provides no cost estimate or assurance of funding for TAWS analyses and Causal Factor Analyses.

In practical terms, BLM has failed to demonstrate that it, and the USGS, are capable of implementing TAWS.

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