August 27, 2019

VIA OVERNIGHT DELIVERY & EMAIL

Donald N. Gonzalez
Vale District Manager
Bureau of Land Management
100 Oregon Street
Vale OR 97918
BLM_OR_VL_SEORMP@blm.gov

Re: Southeastern Oregon Draft Resource Management Plan Amendment and Draft Environmental Impact Statement

Dear Mr. Gonzalez:

On behalf of the Oregon Natural Desert Association ("ONDA"), Audubon Society of Portland, Center for Biological Diversity, Defenders of Wildlife, Northwest Environmental Defense Center, Oregon Wild, Sierra Club Oregon Chapter, Western Watersheds Project, and The Wilderness Society,[1] please accept, fully consider, and specifically respond to these comments on the Bureau of Land Management's ("BLM") proposed plan amendment for the Southeastern Oregon Resource Management Plan ("SEORMP").[2]

INTRODUCTION

The SEORMP governs management of about 4.6 million acres of public land in southeast Oregon's high desert. This region stretches from the remote Sheepshead and Trout Creek Mountains of the northern Great Basin, to the broad expanses of sagebrush dissected by the Owyhee Wild and Scenic Rivers canyonlands, to the southeastern front of the Blue Mountains, where the Malheur River emerges to join the Snake River. These are some of the most remote and wild landscapes in the lower 48 states. In fact, more than half of this remarkable landscape has been recognized by BLM and citizens alike as having irreplaceable wilderness values.

[1] We provide contact and other information for each of the groups joining these comments, in Appendix A.

[2] *See* BLM, Notice of Availability of the Draft Southeastern Oregon Resource Management Plan Amendment and Draft Environmental Impact Statement for the Malheur Field Office, Vale District, Oregon, 84 Fed. Reg. 25304 (May 31, 2019).

This vast expanse of sagebrush steppe is a vitally important part of our national heritage. It is home to more than 350 species of fish and wildlife. This includes threatened, endangered, and sensitive species such as the Greater sage-grouse, pygmy rabbit, bighorn sheep, pronghorn antelope, lynx, and three species of native trout—redband, bull, and Lahontan cutthroat. These species depend both on native sage-steppe uplands and the infrequent but highly significant perennial and intermittent streams, springs, wet meadows and riparian areas that breathe life into this arid, high desert landscape and feed into hidden canyons of the Owyhee Wild and Scenic Rivers.

In 2002, BLM adopted the SEORMP, a broad-scale land use plan intended to guide management of this area for two decades. The SEORMP provides "by tracts or areas for the use of the public lands." 43 U.S.C. § 1712(a). Among other things, the plan sets allocations and areas available for activities like livestock grazing, motorized vehicle use, and mining, and also areas to emphasize resources like ecological, recreational, and scenic values. These and other decisions made in the plan impact wilderness values, including roadlessness, on the public lands. Yet, BLM had failed to consider the plan's impacts to wilderness.

Under the George W. Bush administration, BLM had been directed to disavow its obligation to consider or manage for wilderness values in public land use planning. In a 2003 settlement agreement with the state of Utah, BLM had agreed to an interpretation of FLPMA limiting the agency to a one-time review, assertedly completed decades ago during a 1970s inventory, of areas with wilderness characteristics. The agency therefore agreed (1) that it would cease recommending lands for permanent preservation as wilderness; (2) that it would not, going forward, "establish, manage or otherwise treat public lands . . . as WSAs or as wilderness . . . absent congressional authorization"; and (3) that it would withdraw its 2001 wilderness inventory handbook, which contained guidelines for further wilderness recommendations. *See Utah v. Norton*, 396 F.3d 1281, 1284–85 (10th Cir. 2005) (describing the history of the litigation leading to the settlement); *see generally Utah v. Norton*, No. 2:96-cv-0870, 2006 WL 2711798 (D. Utah Sept. 20, 2006) (describing the settlement).

In 2003, ONDA challenged BLM's Record of Decision adopting the SEORMP. Among other concerns, ONDA contended that BLM violated NEPA and other laws because the agency had failed (1) to analyze the effects of the plans on lands possessing wilderness characteristics, and (2) to analyze reasonable management options for livestock grazing and motorized use. In 2006, ONDA challenged BLM's subsequently-adopted Lakeview RMP, which had similarly failed to consider impacts to wilderness just like any other resource or value on the public lands.

A district court judge ruled for BLM in both cases, but the Ninth Circuit reversed. *Or. Natural Desert Ass'n v. Bureau of Land Mgmt*. ("*ONDA v. BLM*"), 625 F.3d 1092 (9th Cir. 2010). Because BLM had the authority, under FLPMA, to manage wilderness values on the public lands, it therefore had an obligation, under NEPA, to address "whether, and to what extent, wilderness values are now present in the planning area . . . and, if so, how the Plan should treat land with such values." *Id*. at 1122. BLM also had failed to consider an alternative that proposed closing more than a fraction of the planning area to motorized vehicle use, considering

no alternative that would have closed more than 0.77% of the area to off-road vehicles. *Id*. at 1124.

The Ninth Circuit initially had vacated the SEORMP and directed BLM to prepare a new plan. *See Or. Natural Desert Ass'n v. Bureau of Land Mgmt*., 531 F.3d 1114, 1116 (9th Cir. 2008). After two years of negotiations, however, the parties entered into a settlement agreement on the issue of relief. BLM was allowed to keep the two land use plans in place to guide resource management, but agreed to interim protective measures for wilderness values and to a public process for updating its inventory information and preparing amendments to the two plans. The 2010 Settlement Agreement applies to both the SEORMP and the Lakeview RMP, and it remains in force until BLM issues a new Record of Decision for each plan. *See Or. Natural Desert Ass'n v. Bureau of Land Mgmt*., No. 3:03-cv-1017-JE, ECF 129 (D. Or. Sept. 28, 2010) (order granting parties' motion for voluntary dismissal and incorporating settlement agreement into order so that it is enforceable); *Or. Natural Desert Ass'n v. Gammon*, No. 6:06-cv-523-HO, ECF 99 (D. Or. Nov. 17, 2010) (same in Lakeview case).

At its core, the 2010 Settlement Agreement requires BLM to update its wilderness inventory for both planning areas and to then consider alternatives for both plans that take into account wilderness values and different management options for grazing and motorized use. The Agreement provides for interim protections for wilderness values; coordination with national guidance and coordination between the Lakeview and Vale district re-inventory and plan amendment efforts; application of the regulatory "minimization criteria" for motorized routes and areas designated under the plans; and consideration of areas no longer available for livestock grazing, and mechanisms for voluntary permit relinquishment.

ONDA appreciates the complexity of BLM's task in amending the SEORMP and Lakeview RMP, and in developing and selecting management decisions that, for example, appropriately balance motorized and non-motorized recreational uses and protect important desert resources. We also understand that BLM is not able to turn back the clock and undo decades of damaging livestock grazing and motorized route propagation. Nevertheless, the approach and proposed alternatives articulated in the DEIS and Draft RMP is highly problematic in a number of respects—and would be unlawful if adopted as BLM's final plan amendment.

BLM's problems stem in large part from heavy-handed, anti-conservation directives from the agency's Washington, D.C. headquarters. Public records show that, after their wilderness inventory update identifying 1.2 million acres of lands with wilderness character ("LWC"), local managers at the Vale District and Oregon/Washington State Office had prepared a Draft EIS identifying and evaluating Alternative C as the agency's preferred alternative. Alternative C was advanced as a balanced approach that would "protect and improve natural values while providing for commodity production and other uses." *See* DEIS at 2-21. The agency developed a detailed methodology to highlight 27 wilderness character units (167,550 acres) that would be prioritized for wilderness protection. DEIS Appx. C at C-2. Eighteen of those units are contiguous to existing Wilderness Study Areas.

The local resource advisory council, the SEORAC, had gone even further. That citizen- and stakeholder-driven group recommended an alternative (upon which Alternative D is based)

that would prioritize wilderness protection on 33 units (417,196 acres), while again still providing for commodity production and other uses on these public lands. DEIS at 2-25. The SEORAC too had developed a detailed model to evaluate and prioritize wilderness protection units, focusing on vegetation, hydrologic condition, and connectivity criteria. DEIS Appx. C at C-10.

Up through late 2018, Alternative C was BLM's preferred alternative. The local District and State Office managers had prepared all of their final briefing papers and drafted a Federal Register notice to announce the DEIS's availability and identify Alternative C as the preferred alternative. On September 6, 2018, the State Director approved the Vale District's request for support and approval to move forward with public review of the Draft SEORMP amendment and EIS with Alternative C as the agency's Preferred Alternative.

In a letter dated September 10, 2018, the BLM State Director sent the Draft RMP and Draft EIS to the agency's Washington Office "for review and verification that it is compliant with relevant legal, regulatory, and policy requirements."[3] The State Director explained that BLM had prepared the plan amendment pursuant to the 2010 Settlement Agreement and stated, "I have determined that Alternative C of the Draft RMP/EIS is the Preferred Alternative." She highlighted that the Preferred Alternative prioritized wilderness preservation in 27 units, including 18 units contiguous to existing WSAs; left eight large areas open for cross-country motorized use; limited motorized use to existing routes in parts of the planning area, but did not close any roads; and made no changes to livestock grazing management.

Then, however, the Washington Office informed the State Director that BLM's preferred alternative included "too much conservation." And by "too much" conservation, the Washington Office apparently meant "any" conservation. Records show that Washington Office officials ordered the State Director to change BLM's preferred alternative from Alternative C to Alternative A. Alternative A adds no new RMP-level protections for any of the 76 units (1,236,907 acres) with wilderness characteristics and makes no changes to OHV use allocations or livestock grazing. It instead continues management under the same 2002 Record of Decision that had been found to be unlawful by the Ninth Circuit in 2008, and which BLM had agreed in good faith to revisit in the 2010 Settlement Agreement.

This is deeply disappointing and, if adopted as it currently stands, would be unlawful and certain to be challenged in court. While we appreciate the substantial work BLM has undertaken to re-inventory wilderness values in the planning area and prepare this DEIS, the agency's Preferred Alternative is unacceptable. ONDA is concerned that, despite the passage of nearly two decades, BLM's latest product suffers from the same fundamental flaws as the original plan and environmental review the Ninth Circuit held to be arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with law—plus new problems. For example:

[3] Memorandum from J.Connell (State Director, Oregon/Washington) to Assistant Director, Resources and Planning (Sept. 10, 2018).

- The DEIS suffers from a variety of procedural violations under NEPA and other laws, including a stale scoping review, an artificially narrow statement of purpose and need, and a failure to deal meaningfully with ongoing and new issues directly affecting and affected by the plan amendment, such as climate change, mining, and fire and invasives.

- The DEIS fails to include an adequate cumulative effects analysis, for example ignoring or omitting wilderness resource management across all of southeastern Oregon, and the importance of roadless areas, unfragmented sagebrush plant communities and large areas of potentially ungrazed lands to carbon sequestration and climate change resiliency.

- Data and information errors and omissions, including incomplete or inadequate baseline information, frustrate the public's ability to understand and provide meaningful input on the proposed actions—and therefore BLM's ability to make an informed and defensible decision.

- The DEIS fails to comply with binding requirements under the 2010 Settlement Agreement, including failing to adequately describe each wilderness unit in the Affected Environment section of the DEIS, failing to address wilderness character factors including manageability, intersection with other resource values and uses, and congressional release of WSAs, failing to apply the minimization criteria on both an area-wide and route-by-route basis, failing to prepare a travel management plan, and failing to provide an alternative that identifies areas immediately no longer available for grazing use.

- BLM's proposal prioritizes motorized use over resource protection and opportunities for quiet forms of recreation, in violation of the agency's substantive obligation to ensure its route and area designation decisions minimize damage to sensitive desert resources and conflicts with other recreational uses.

- BLM fails to include a common-sense mechanism for voluntary relinquishment of grazing permits, discarding the well thought-out, fiscally-prudent, and conservation-focused relinquishment processes outlined in alternatives vetoed by the agency's Washington Office.

We remain eager to work with BLM to correct these significant deficiencies and help create a management plan and travel network for the SEORMP planning area that protects important desert resources, fairly locates and balances recreational and extractive uses, and honors both the letter and the spirit of the conservation commitments made in the 2010 Settlement Agreement. To that end, please consider the following comments.

DISCUSSION

I. LAND USE PLANNING

As described, senior officials in the Department of the Interior and BLM's Washington Office ordered the State Director to change her Preferred Alternative because, according to those

officials, it had "too much conservation." That type of political meddling is inappropriate and unlawful.

BLM regulations make clear that land use planning is a local- and state-level process. The regulations require the Field Manager to "identify a preferred alternative" that "best meets" applicable agency guidance. 43 C.F.R. § 1610.4-7. The regulations do not provide for Washington Office review and approval. In fact, they make clear that the "decision to select a preferred alternative remains the exclusive responsibility of the BLM," and that the draft plan and draft EIS shall be forwarded to the State Director "for approval, publication, and filing with the Environmental Protection Agency." *Id*.; *see also id*. § 1601.0-4(c) (State Directors in charge of approving "resource management plans, amendments, revisions and related environmental impact statements"), §§ 1610.4-8, 1610.5-1(a) (after publication of draft plan and draft EIS, "Field Manager shall evaluate the comments received and select and recommend to the State Director, for supervisory review and publication, a proposed resource management plan and final environmental impact statement").

After "supervisory review" of the proposed plan, the State Director "shall publish the plan and file the related environmental impact statement." *Id*. § 1610.4-8; *see also id*. § 1601.0-4(b) ("supervisory review" by State Director includes "plan approval"). The State Director is solely responsible for issuing final approval of the plan. *Id*. § 1610.5-1(b). Only if there is an administrative protest does the plan go to the BLM Director in the Washington Office. *See id*. § 1610.5-2 (protest procedures); *see also id*. § 1610.5-2(b) (following a protest, the "decision of the Director shall be the final decision of the Department of the Interior").

Here, following these land use planning regulations, the Vale District, in coordination and cooperation with the public, the local SEORAC, and a range of stakeholders, prepared a draft EIS and draft RMP, identified Alternative C as the BLM's preferred alternative, and forwarded those documents to the State Director for approval and publication. The State Director agreed with her local field manager's recommendation and approved the Vale District's draft plan.

The Washington Office's interference with her decision and directive that she change her decision is inconsistent with the regulations, which clearly task the local Field Manager and the local State Director, who possess the necessary expertise to develop and select the appropriate preferred alternative for Oregon, to exercise that authority. *See, e.g.*, *W. Watersheds Proj. v. Fish & Wildlife Serv.*, 535 F. Supp. 2d 1173, 1187–89 (D. Idaho 2007) (listing decision held unlawful where Interior Department official improperly interfered with agency findings on "best available science"). In *Center for Biological Diversity v. U.S. Fish & Wildlife Serv.*, 2005 WL 2000928 (N.D. Cal. Aug. 19, 2005), for example, the court set aside a U.S. Fish and Wildlife Service decision under the Endangered Species Act due to an "irregularity" in the agency process. The court cited pressure from an appointed official in the Department of the Interior to reach an "ordained outcome" regardless of the best science (as was required under the statute at issue). *Id*. at *15. This is just what happened here: Washington Office officials ordered an "ordained outcome," forcing the State Director to change her preferred alternative.

II. MEANINGFUL PUBLIC REVIEW AND INFORMED AGENCY DECISIONMAKING

A. BLM Must Reinitiate Scoping and then Revise or Supplement the DEIS

As we most recently brought to your attention by letter dated June 19, 2019, ONDA is concerned that BLM did not re-scope the proposed plan amendment and that the agency abandoned several issues it previously told the public it would address in this process. Because BLM made substantial changes to the proposed action since it was last publically scoped and because there are significant new circumstances and information relevant to environmental concerns and bearing on the proposed action and its impacts, BLM should re-scope the plan amendment and supplement the DEIS.

BLM initiated scoping for the SEORMP plan amendment on April 8, 2010.[4] ONDA submitted scoping comments by letter dated July 7, 2010. BLM then issued a Scoping Report for the SEORMP in 2012 (BLM 2012d).[5] That was more than seven years ago. A lot has changed since then—from the rapid decline of the Greater sage-grouse, to unprecedented sagebrush habitat loss and fragmentation from wildfire, to new and emerging scientific studies and research on climate change, habitat connectivity, juniper management and other issues, to the agency's recognition of more than a million acres of roadless areas within the planning area, to important new departmental-level policies and directives, to more widespread land health standards violations than previously recognized and disclosed a decade ago. Indeed, BLM stated to the public in its 2012 Scoping Report that some of these issues, like climate change, would be included among the "nine main issues" the agency would address in the DEIS. (The report also had indicated that the DEIS would be released for public review in Fall 2014.)

For example, management is dramatically different today than in 2010 for the Greater sage-grouse and its habitat—not just within the planning area but throughout the bird's range in Oregon and beyond. The sage-grouse continues to struggle in Oregon: its statewide population dropped by 7.7% in 2017, then by another 10.2% in 2018, and then by another 24.9% in 2019. By the end of 2018, the Oregon Department of Fish and Wildlife had estimated that the Oregon statewide sage-grouse population has now dropped to about 18,421 individuals. This is far below the State of Oregon's population goal and is 37% below the 2003 baseline population estimate of 29,237 individuals. Earlier this year, BLM altered sage-grouse management in Oregon again, by eliminating scientific research areas—including some in the SEORMP planning area—that had been set aside to understand the impacts of livestock grazing on critical sagebrush plant communities.

---

[4] Notice of Intent To Prepare Amendments to the Southeastern Oregon Resource Management Plan (RMP), Malheur County, OR, and the Lakeview RMP, Lake County, OR, and Associated Environmental Impact Statements, 75 Fed. Reg. 17,950 (Apr. 8, 2010).

[5] BLM, *Scoping Report, BLM Vale District, Malheur and Jordan Resource Areas, Southeastern Oregon Resource Management Plan Amendment and Environmental Impact Statement*, Oct. 2012, https://www.blm.gov/or/districts/vale/plans/seormpa/files/ValeScopingReport.pdf.

Given the changes in sage-grouse ecology, science, and management since 2010, consideration of sage-grouse issues should be elevated in a Supplemental Draft EIS. Reliance on the 2015 and 2019 ARMPA amendments is not enough because neither of those amendments considered, for example, the role and effects, with regard to sage-grouse populations and habitat, of the 1.2 million acres of roadless and wilderness character units BLM has since recognized in the SEORMP planning area.

ONDA is similarly concerned with BLM's failure to prepare a travel management plan as part of this amendment. A travel plan, including application of the regulatory minimization criteria, is now *seventeen years overdue* for the 2002 SEORMP. BLM in its land use planning handbook suggests that it may defer travel management planning in certain circumstances. In this instance, however, a multi-decade delay is unreasonable—particularly now that BLM has undertaken a planning area-wide route inventory as part of its wilderness inventory process. *See also* Settlement Agreement ¶ 26.a (requiring BLM to rely upon a "complete inventory update[] for the entire planning area prior to developing alternatives for and analyzing the effects of ORV, travel, and transportation management").

Moreover, it is inconsistent with the 2010 Settlement Agreement's explicit requirement that BLM—as part of this land use plan amendment process, not a deferred, travel planning process—"shall" adhere to 43 C.F.R. § 8342.1. Settlement Agreement ¶ 26.c (referencing both 43 C.F.R. §§ 8342.1 and 8342.2(a)). That regulation requires BLM to apply the "minimization criteria" on a route-specific level in order to assess the effects of area *and* route designations.

Given the years-long delay in SEORMP travel planning, and compounded by the additional years-long delay since BLM undertook mandatory public scoping pursuant to 40 C.F.R. § 1501.7, the agency must re-scope the plan amendment and prepare a new, revised, or supplemental Draft EIS. *Id*. § 1501.7(c) (agencies "shall revise" scoping determinations "if substantial changes are made later in the proposed action, or if significant new circumstances or information arise which bear on the proposal or its impacts"); *id*. § 1502.9(a) ("If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion"); *id*. § 1502.9(c) (requiring BLM to prepare a supplemental EIS if (*i*) the agency makes "substantial changes in the proposed action" that are relevant to environmental concerns, or (*ii*) there are "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts"); *see also* 43 U.S.C. §§ 1701(a)(2), 1711(a), 1712(c)(4) (FLPMA requirements to "periodically and systematically" maintain a "continuing inventory" of public land resources and other values, and to use that up-to-date information in land use planning). The requirement to supplement applies to both draft and final EISs. 40 C.F.R. § 1502.9(c).

Only through re-scoping and re-doing or supplementing the DEIS can BLM ensure the type of meaningful public participation and informed agency decisionmaking that NEPA requires. *See, e.g.*, *Or. Natural Desert Ass'n v. v. Jewell* ("*ONDA v. Jewell*"), 840 F.3d 562, 568–71 (9th Cir. 2016) (in absence of meaningful public participation during NEPA process, it is "not possible [for BLM] to begin to assess" impacts); *ONDA v. BLM*, 625 F.3d at 1121 n.24, 1122 (BLM's obligation to obtain and disclose environmental information during the public review

process is central to NEPA's principle of "democratic decisionmaking" and NEPA is designed to bring "fairly debatable issues" like these "out in the open" for analysis and discussion).

B. BLM's Statement of Purpose and Need is Unlawfully Narrow

BLM has improperly narrowed the Purpose and Need for the plan amendment. An agency's discretion to determine the purpose and need of a project is not unfettered. The courts will scrutinize and reject a formulation of a project's purpose and need that overly restricts the consideration of reasonable alternatives. In *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, for example, the court explained that the agency's proposed interpretation of its purpose and need was too narrow to satisfy NEPA because it restricted the scope of reasonable alternatives too tightly, down to one or two choices. 177 F.3d 800, 814 n.7 (9th Cir. 1999). Similarly, in *City of Carmel-by-the-Sea v. U.S. Dep't of Transportation*, the court noted, "The stated goal of a project necessarily dictates the range of reasonable alternatives and an agency cannot define its objectives in unreasonably narrow terms." 123 F.3d 1142, 1155 (9th Cir. 1997).

In its Scoping Report, BLM stated that "[t]he overall purpose of this planning effort is to amend the 2002 SEORMP and develop a comprehensive plan to manage the BLM-administered lands in accordance with FLPMA and all other applicable laws, executive orders, regulations, and policies" (BLM 2012d). But the agency significantly narrowed that statement in the 2019 DEIS. Now, the stated Purpose and Need for the amendment is merely "to comply with the provisions of the 2010 Settlement Agreement (Appendix A), which, in relevant part, requires the BLM to undertake an amendment of the SEORMP and [address wilderness, off-highway vehicle, and grazing issues]." DEIS at 1-4.

BLM explains its plan amendment "will only address those issues that relate to the three primary components of the 2010 Settlement Agreement." DEIS at 1-9. "Comments or issues that fall outside the stated Purpose and Need will not be carried forward for analysis in this Amendment." *Id*. In addition to refusing to study issues identified by the public, the agency also apparently abandoned the "several other planning issues that the BLM identified during internal scoping" (BLM 2012d) (listing grazing management in the Owyhee Wild and Scenic Rivers, climate change, wind energy right-of-way allocations, and subsurface mineral management of split-estate lands).

Even if BLM could reasonably limit its Purpose and Need statement to the four corners of the 2010 Settlement Agreement—and we believe it cannot—the agency's reading of the Agreement is flawed. The Settlement Agreement "in no way affects or relieves [BLM] of its responsibility to comply with any applicable federal, state, and local law or regulation." Settlement Agreement ¶ 2. And the Agreement makes clear that it does not "limit or modify the authority accorded to the BLM by FLPMA, any other statute or regulation, or by general principles of administrative law . . . to meet FLPMA's public lands management objectives over time." Settlement Agreement ¶ 32.

In other words, the parties were careful to agree that the Settlement Agreement could not and would not foreclose BLM from complying with land use planning, environmental review, and other legal obligations. Among other reasons, the parties recognized that, while BLM would

prioritize completion of the plan amendments, the agency was unable to commit to a date certain deadline for doing so. *See* Settlement Agreement ¶ 16 (BLM agreed to "place a high priority" on plan amendment processes and complete amendments "as quickly as practicable"). They reasonably contemplated that the passage of time alone might result in new issues that should be considered in the agreed-to plan amendments. And that is precisely what happened. BLM's decision to artificially limit its environmental review to very narrowly defined wilderness, off-highway vehicle, and grazing issues is inconsistent with NEPA and the Settlement Agreement, and other provisions of law including land use planning requirements under FLPMA. The agency must re-scope and redo or supplement the DEIS.

C. BLM Fails to Evaluate Connected, Cumulative, and Similar Actions That Should be Included in this EIS

Similar to its unlawfully narrow statement of purpose and need, BLM also has improperly constrained the scope of actions considered in this EIS. *See* 40 C.F.R. § 1508.25(a). NEPA requires BLM to review all direct, indirect, and cumulative impacts of a proposed action. *See id*. §§ 1508.7, 1508.8, 1508.25. This includes impacts caused by connected, cumulative, and similar actions. *Id*. §§ 1508.25(a)(1), (2), (3). This plan amendment is a "connected," "cumulative," or "similar" action with regard to the soon-to-be-released Lakeview RMP plan amendment and also two proposed "fuel breaks" projects: the programmatic EIS ("PEIS") for a network of fuel breaks in the Great Basin, and the upcoming EIS for the similar Tri-State Fuel Break Project.[6] BLM has improperly segmented its environmental analysis by splintering these related plans and projects into separate analyses.

1. Connected Actions

A "connected" action is one that is "closely related and therefore should be discussed in the same impact statement." 40 C.F.R. § 1508.25(a)(1). Actions are connected if they "[a]utomatically trigger" other actions, "[c]annot or will not proceed unless other actions are taken previously or simultaneously," or "[a]re interdependent parts of a larger action and depend on the larger action for their justification." *Id*.

The purpose of this requirement is "to prevent an agency from dividing a project into multiple actions, each of which individually has an insignificant environmental impact, but which collectively have a substantial impact." *Great Basin Mine Watch v. Hankins*, 456 F.3d 955, 969 (9th Cir. 2006) (internal quotes omitted). The Ninth Circuit applies an "independent utility" test to determine whether actions "are so connected as to mandate consideration in a single EIS." *Id*. "The crux of the test is whether each of two projects would have taken place with or without the other and thus had independent utility." *Id*. (internal quotes omitted).

[6] Notice of Availability of the Draft Programmatic Environmental Impact Statement for Fuel Breaks in the Great Basin; Idaho, Washington, Oregon, California, Nevada, and Utah, 84 Fed. Reg. 29232 (June 21, 2019); Notice of Intent To Prepare an Environmental Impact Statement for the Proposed Tri-State Fuel Breaks Project, Owyhee County, ID, and Malheur County, OR, 81 Fed. Reg. 87954 (Dec. 6, 2016).

Here, the 2010 Settlement Agreement clearly applies to "both" the SEORMP and the Lakeview RMP, requiring BLM to address the same land use planning flaws and to take the same steps to do so. The agreement required the BLM Oregon State Office to issue "State Director Guidance" that applies to both "the Southeastern Oregon and Lakeview RMP amendments that includes the direction to use information from inventory updates to support the amendments." Settlement Agreement ¶ 17; *see also id*. ¶ 26 (providing for State Director guidance (BLM 2010), applicable to both plans, "that provides consistent direction to both the Lakeview and Vale Districts regarding management of ORV, travel, and transportation"), ¶ 28 (providing for State Director guidance, applicable to both plans, regarding development of grazing alternatives). The agreement further provides that, "[t]o ensure maximum consistency among the BLM Districts and Field Offices," the BLM would hold public "calibration sessions" with staff from both districts. Settlement Agreement ¶ 23.

Under these circumstances, the SEORMP and Lakeview RMP plan amendments are "interdependent parts of a larger action." 40 C.F.R. § 1508.25(a)(1)(iii). NEPA requires BLM to prepare a single EIS to comprehensively study, disclose, and discuss related land use planning issues—especially with regard to large roadless areas in both districts that make up significant, newly-identified areas with wilderness character across much of southeastern Oregon. BLM's decision not to do so undermines informed decisionmaking and meaningful public participation, in violation of NEPA. *Id*. § 1508.25.

Similarly, Great Basin Fuel Breaks and Tri-State Fuel Breaks projects are connected to the DEIS for the SEORMP plan amendment. BLM generated the setbacks proposed under alternatives in the DEIS from analyses and information in the fuel breaks projects. BLM would not have developed and included setbacks in the DEIS alternatives but for the fuel breaks projects—making this a "connected" action for purpose of defining the appropriate scope of review in this EIS. *See* 40 C.F.R. § 1508.25(a)(1).

2. Cumulative Actions

A "cumulative" action is one "which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement." 40 C.F.R. § 1508.25(a)(2). In turn, a "cumulative impact" is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. . . . Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." *Id*. §1508.7.

The Ninth Circuit has explained that, for cumulative actions, the analysis be done in a single document when there are "substantial questions" about whether there will be "significant environmental impacts" from a collection of anticipated projects. *See Blue Mountains Biodiversity Proj. v. Blackwood*, 161 F.3d 1208, 1215 (9th Cir. 1998); *Thomas v. Peterson*, 753 F.2d 754, 759 (9th Cir. 1985). In *Blue Mountains*, for example, a single EIS was required to address the cumulative effects of five timber sales in a single watershed. 161 F.3d at 1215.

In some cases, actions have been held not to be "cumulative" within the meaning of 40 C.F.R. § 1508.25(a)(2) because "[w]e simply do not know enough about the cumulative impacts to determine whether they will be significant or whether there are substantial questions as to their significance." *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 1000 (9th Cir. 2004) (also citing *Native Ecosystems Council v. Dombeck*, 304 F.3d 886 (9th Cir. 2002)). That, of course, is not the situation here: where BLM already has acknowledged that the effects from the SEORMP plan amendment, the Lakeview RMP plan amendment, *and* the Great Basin Fuel Breaks, *and* the Tri-State Fuel Breaks project, *all* will have "significant" environmental impacts that require preparation of an EIS.

Further, both the Lakeview RMP plan amendment and the two fuel breaks projects are "reasonably foreseeable" for purposes of cumulative effects analysis under NEPA. Projects need not be finalized before they are reasonably foreseeable. "NEPA requires that an EIS engage in reasonable forecasting. Because speculation is . . . implicit in NEPA," the Ninth Circuit has "reject[ed] any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as crystal ball inquiry." *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1078–79 (9th Cir. 2011) (quoting *Selkirk Conservation Alliance v. Forsgren*, 336 F.3d 944, 962 (9th Cir. 2003)) (internal quotation marks and citation omitted). And so it is here, because "the basic thrust" of NEPA is to require that agencies consider the range of possible environmental effects before resources are committed and the effects are fully known. *City of Davis v. Coleman*, 521 F.2d 661, 676 (9th Cir.1975).

3. Similar Actions

A "similar" action is one "which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography." 40 C.F.R. § 1508.25(a)(3). An agency should analyze these actions in the same impact statement "when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement." *Id*.

At least as to the obvious connections and similarities between the SEORMP plan amendment and the Lakeview plan amendment—which both come as a result of the same 2010 Settlement Agreement and both are guided by the same State Director guidance (BLM 2010)—the "best way" to assess the "combined impacts" of the two plans is to assess them in a single EIS. BLM's failure to do so is akin to impermissibly "dividing a project into multiple actions" *See Great Basin Mine Watch*, 456 F.3d at 969. As both ¶ 23 of the Settlement Agreement and BLM's "Wilderness Inventory Characteristics Review" (BLM 2015b) illustrate, the issue of wilderness characteristics identification and assessment is an overarching issue that cannot be considered in a vacuum. *See, e.g.*, BLM (2015b) at 1 (independent BLM "reviewers determined that several procedures could be conducted that would provide better supporting documentation to future inventory analyses. These procedures are the result of lessons learned since these inventories were first conducted.").

//
//

D. BLM's No Action and Preferred Alternatives are Inconsistent with NEPA and the Settlement Agreement

The No Action Alternative is flawed because it fails to respond to the Settlement Agreement provisions. As a result, subsequent analyses of effects are inaccurate because they only demonstrate relative change compared to an unreasonable no-action scenario. The agreement makes clear that plan amendments are the expected outcome of the process agreed to by the parties and approved by the district court. Core to the agreement is that BLM would amend its unlawful and outdated RMPs to reflect its wilderness values assessment.

While an agency can develop alternatives in an EIS that are not legal, the *preferred* alternative must be a lawful option—and, in this case, it must be a lawful option that also complies with the court-approved Settlement Agreement. While it can sometimes be useful to present a No Action alternative that would be in noncompliance with the triggering mandate to prepare an EIS, that does not apply to the preferred alternative. The scenario of taking no action without compliance, and continuing with the *status quo* management implementation can offer a "benchmark" to assess effects from action alternatives that *are* in compliance in comparison to the no-action scenario. However, the agency must then carefully craft the description of the no-action scenario so that the reader fully grasps its intent and weaknesses. *See* 40 C.F.R. § 1506.2(d) ("Where an inconsistency exists [with any approved plan or law], the statement should describe the extent to which the agency would reconcile its proposed action with the plan or law.").

Here, the DEIS merely defines the No Action Alternative as "no change to the existing plan." DEIS at ES-2. Later, though, the detailed description of the No Action Alternative is inconsistent with the Executive Summary, describing that management continues under the 2002 SEORMP and ROD *plus* the 2010 Settlement Agreement. DEIS at 2-15. Elsewhere, the DEIS references explanations of Settlement Agreement compliance (*e.g.*, in Sections 2.4 and 2.5) that do not appear in the referenced sections. The DEIS seems to assume the Settlement Agreement would be implemented indefinitely into the future. This makes it impossible to present any actual, complete assessment of direct, indirect, and cumulative effects under the No Action Alternative. Please explain how can BLM know (and disclose to the public) likely impacts to resources and other values if inventories and assessments are never finalized and an RMP amendment is never developed.

A more accurate description of the No Action Alternative that it seems BLM is trying to present would be completion of all inventories and resource assessments as required in the Settlement Agreement, continuation of the 2002 SEORMP and ROD, as amended in 2015, and no RMP amendment developed to modify management of wilderness, motorized use, or livestock grazing management. BLM would then have to explain to the reviewing public that, while this no-action scenario is not in compliance with terms of the Settlement Agreement, it represents a meaningful benchmark to compare impacts anticipated under the action alternatives, because it incorporates status quo management. Only then could BLM take the required "hard look" at the direct, indirect, and cumulative effects of the action alternatives.

The DEIS also is arbitrary because BLM's preferred alternative does not comply with the Settlement Agreement and therefore is unlawful. The Settlement Agreement requires BLM to prepare and adopt a plan amendment that uses the updated inventories and assessments, provides processes for future assessments and adaptively-managed resources, and provides objectives with regard to newly-inventoried and -recognized resource values like roadlessness and wilderness characteristics. In particular, because BLM has the authority to manage lands for wilderness characteristics, it has the duty under FLPMA and agency land use planning regulations to assess its lands for such characteristics and to develop management objectives for this resource value. *See ONDA v. BLM*, 625 F.3d at 1122. A preferred alternative that does not include wilderness and related management objectives is unlawful.

E. The DEIS's Cumulative Effects Analysis is Insufficient

1. Simply Listing all Relevant Factors is Not the Same as an Analysis

The DEIS fails to provide enough information on cumulative effects to allow for meaningful public review and support an informed decision. Although the document offers a table outlining reasonably foreseeable future actions, and a list of past and present actions that have occurred in the last century, these are merely lists of activities. They do not provide the public or the decisionmaker with any detail necessary to understand how these past, present, and future activities have altered or are expected to alter the landscape—so that when combining the effects of these activities with proposed activities under the alternatives, a reasonable comparison of impacts can be determined. There is no way, from the information provided in the DEIS, to assess whether the listed actions have resulted in individually minor but collectively significant cumulative impacts.

An EIS must analyze the direct, indirect, and cumulative impacts from a proposed action. 40 C.F.R. § 1508.25(c). The cumulative impact from an action means "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. . . . Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." *Id.* § 1508.7. Accordingly, "[i]n a cumulative impact analysis, an agency must take a 'hard look' at *all* actions" that may combine with the action under consideration to affect the environment. *Te-Moak Tribe of W. Shoshone of Nev. v. U.S. Dep't of Interior*, 608 F.3d 592, 603 (9th Cir. 2010) (emphasis added).

"Simply listing all relevant actions is not sufficient." *Great Basin Res. Watch v. Bureau of Land Mgmt.*, 844 F.3d 1095, 1104 (9th Cir. 2016). Rather, "some quantified or detailed information is required. Without such information, neither the courts nor the public . . . can be assured that the [agency] provided the hard look that it is required to provide." *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1379 (9th Cir. 1998). To be useful to decision makers and the public, a cumulative impact analysis must include "some quantified or detailed information; . . . general statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 402 F.3d 846, 868 (9th Cir. 2005) (quoting *Neighbors of Cuddy Mountain*, 137 F.3d at 1379–80).

Here, BLM has completed only the first step of the cumulative impacts analysis by identifying the relevant "past, present, and reasonably foreseeable future actions," 40 C.F.R. § 1508.7, that might affect the environment in the area of the plan amendment. However, the discussion of cumulative impacts to other resources in the DEIS falls short. BLM claims the DEIS addresses cumulative impacts in Section 3.8 for each resource, but that section in fact merely repeats the prior listing of projects with no adequate data about the time, type, place, and scale of past and present project implementation. *See* DEIS at 3-20 to -205.

This is like BLM's flawed analysis in *Great Basin Mine Watch*. There, the agency had failed, for example, to include "mine-specific or cumulative data" in its analysis of cumulative impacts to air resources. 456 F.3d at 973. BLM had "merely stat[ed] that ambient air quality data for the region currently reflects impacts of existing mining operations in the airshed," but did not "identify and discuss the impacts that will be caused by each successive project, including how the combination of those various impacts is expected to affect the environment." *Id*. at 973–74 (internal quotation marks and alterations omitted).

Similarly, in *Great Basin Resource Watch*, BLM "did not provide sufficiently detailed information in its cumulative air impacts analysis." 844 F.3d at 1105. Where the agency "made no attempt to quantify the cumulative air impacts of the Project together with" vehicle emissions, a nearby, unrelated mining project, or other activities potentially affecting air resources, such as oil and gas development, its cumulative effects analysis did not comply with NEPA. *Id*. at 1105–06. Here, BLM must revise each of the DEIS's cumulative effects summaries to include detailed descriptions of past and present project activities that have altered the planning area (*i.e.*, the time, type, place, and scale). Only once this information is detailed can BLM then combine the impact information from past and present projects with planned projects under each alternative, for each resource being analyzed, and reasonably foreseeable future actions affecting each alternative and each resource.

2. The DEIS Fails to Consider Actions and Cumulative Effects Identified in the 2002 Plan

BLM's cumulative effects analysis also falls short because the DEIS fails to combine the agency's cumulative effects analysis for the proposed plan amendment alternatives with its cumulative effects analysis for the 2002 SEORMP. This is critical given the passage of two decades since BLM last assessed cumulative effects for the planning area. *See, e.g.*, *Great Basin Res. Watch*, 844 F.3d at 1105 (cumulative air impacts analysis insufficient because "the choice of a baseline value of zero for certain pollutants" made it "impossible for the BLM to take a 'hard look' at cumulative air impacts given its unjustified use of a zero baseline for those pollutants").

3. The DEIS Fails to Address Reasonably Foreseeable Future Actions

The DEIS also fails to address a number of reasonably foreseeable future actions. The DEIS describes "five broad categories" of such actions, including mining, livestock grazing, construction of transmission lines, restoration and invasive species treatments, and fire

rehabilitation treatments. But BLM overlooks other known foreseeable actions that may affect wilderness and other resources and values in the planning area—*e.g.*, road designation and maintenance, recreation activities, mining activities, and fuels management. BLM also overlooks the cumulative effects resulting from wildfire, technology and population trends, and climate change. *See, e.g.*, Appendix C (Kauffman 2019). It is reasonable to assume these present actions will continue to impact the planning area into the future. As described, the DEIS must explain the details (timing, duration, location, and scale) of these reasonably foreseeable future activities for the reviewing public and the decision maker.

4. The DEIS Fails to Assess the Landscape-Scale Cumulative Effects of Protecting or Not Protecting Wilderness Values

Finally, the DEIS fails to assess the cumulative effects of not protecting more than a million acres of wilderness values identified in the LWCs, particularly with regard to issues of climate change and landscape-level roadlessness and preservation of un-roaded landscapes. ONDA discusses these issues in more detail in Section III.

F. Failure to Provide Adequate Information and Data

Information essential to facilitating meaningful public review and ensuring an informed agency decision is missing from the DEIS. This includes route inventory and regulatory minimization analyses necessary to understanding the environmental consequences of the proposed road system (*see infra* Section V); Ecological Site Inventories that are referenced but never described and analyzed in sufficient detail to support meaningful public review; definitions of commonly used terms (*e.g.*, "ecological restoration," "desirable" vegetation, and "proper" livestock grazing); incomplete survey information for weeds/invasives, cultural, visual and other resources (*see infra* Sections XI, XV, and XVI); specific results and summary information on land heath assessments, evaluations, and determinations, and detailed information regarding where assessments have been completed; and discussion of significant new published and relevant scientific papers and reports—particularly new information that has been published since 2002 when BLM last undertook a landscape-scale planning analysis for the SEORMP area—on key topics including livestock grazing, roads and travel management, climate change, fire and invasives, vegetation, and soils. *See* Appendix X (a selection of important new scientific papers and reports that have been published since the 2002 SEORMP Record of Decision and which we ask BLM to consider as part of this planning process).

G. The DEIS Fails to Identify Best Management Practices

The 2002 SEORMP states that "[b]est management practices (BMP's [*sic*]) are those land and resource management techniques designed to maximize beneficial results and minimize negative impacts of management actions." 2002 SEORMP at Appx. O-1. BMPs provide an important common ground framework for what management actions are recommended by the agency to meet specific goals and "are designed to assist in achieving the objectives for maintaining or improving water quality, soil productivity, and the protection of watershed resources."

The DEIS states that "[d]esign features and best management practices required under the 2002 SEORMP and ROD as amended by the 2015 Greater Sage-Grouse ARMPA are unchanged and will continue to apply to future projects." DEIS at 3-7. Appendix O in the 2002 SEORMP lists BMPs for 10 issues: road design and maintenance, surface disturbing activities, rights-of-way and utility corridors, forest management, fire suppression, prescribed burning, livestock grazing management, mining, noxious weed management, and developed recreation. This short list of issues fails to include important categories relevant today and as part of the current plan amendment process. For example, the 2002 SEORMP lacks BMPs for vegetation management, post-fire seeding, or restoration seeding. While the 2015 ARMPA incorporated some additional design features for areas designated as PHMA and GHMA, 545,364 acres within the planning area are left with only the outdated 2002 SEORMP BMPs.

The DEIS should incorporate additional BMPs related to restoration management actions that are based on the best available science. The failure to update and expand upon the limited list of BMPs in the 2002 SEORMP, and to further incorporate BMPs identified in the 2015 ARMPA to the entire planning area, has resulted in the agency arbitrarily ignoring the best available science and significant new information published since 2002 on restoration management techniques for arid landscapes. See Appendix X for a selection of important new scientific papers and reports that have been published since the 2002 SEORMP Record of Decision.

H. Flawed Assumptions that Undermine Meaningful Public Review and Informed Agency Decisionmaking

There are unsupported and flawed assumptions throughout the DEIS. These undermine meaningful public review and informed agency decisionmaking. Many of these issues are discussed further in the referenced sections of the comment letter. Examples include:

- "[S]ince the original 1970s/'80s wilderness characteristics inventory . . . management actions have led to, or been consistent with, the long-term increase in the presence of wilderness characteristics in the planning area." DEIS at 3-21. *See* Section III.C.7 (wilderness issues).

- "Following completion of this plan, an interdisciplinary team *will develop a travel management plan* including public involvement that will identify needs and objectives for each road in the planning area." DEIS at 3-34 (emphasis added). *See* Section V (travel management planning issues).

- "Positive effects could result if grazing continues to be an allocated use, *assuming that the permitted use would be consistent with Standards for Rangeland Health*, land use plan objectives, and other resources that were requested for adjustment in allocation." DEIS at 3-46 (emphasis added). *See* Section VI (livestock grazing issues).

- "If Standards and Guides are not being met and exiting livestock grazing is a significant causal factor, the BLM would implement proper livestock grazing management actions

that lead conditions toward meeting standards." DEIS at 3-50 (emphasis added). *See* Section VI (livestock grazing issues).

- "As soil processes are directly linked to healthy ecological communities, this results in limiting acres of soil functionality and productivity that could be enhanced by restoration and rehabilitation treatments." DEIS at 3-51. *See* Section X (soils issues).

- "Under all alternatives, the actions proposed are consistent with and contributing to achieving desired outcomes and conditions for water resources and riparian/wetland areas identified in the 2002 SEORMP and ROD." DEIS at 3-56. *See* Sections VI & XIX (livestock grazing and fish and aquatic wildlife issues).

- "[T]here were no discernable effects to water quality under any of the alternatives relative to livestock grazing, and therefore, there are no cumulative effects associated with this issue." DEIS at 3-59. *See* Section VI (livestock grazing issues).

- "For this analysis it is assumed if Standards and Guides are not being met and current livestock grazing is the causal factor, the BLM would take corrective/restorative actions to lead conditions toward meeting standards." DEIS at 3-67. *See* Section VI (livestock grazing issues).

- "Therefore, the No Action Alternative and Alternative B would result in reduced vegetation health, because they limit the ability to seed with the most successful methods." DEIS at 3-70. *See* Sections X and XII (soils and vegetation management issues).

- "Public land livestock grazing can be managed to limit the spread of invasive annual grasses and augment other treatments to control invasive species." DEIS at 3-76. *See* Sections VI and XI (livestock grazing and fire/invasives issues).

- "The Preferred Alternative A would allow for the *greatest ecological restoration treatment success* across the planning area as design features would not be required to manage for solitude and VRM Class II objectives. Alternative C would be the second least restrictive followed by Alternative D." DEIS at 3-100 (emphasis added). *See* Sections X and XII (soils and vegetation management issues).

- "The majority of the proposed actions have no impact to special status plants because of protective measures already in place." DEIS at 3-103. *See* Section III.C.7 (wilderness issues).

- "The negative impacts to vegetation and wildlife habitat (due to an increase in invasive annual grasses as a result of wildfire and removal of livestock grazing) would be greater than the benefits of grazing reduction or removal in Alternatives B and D." DEIS at 3-165. *See* Sections VI and XI (livestock grazing and fire/invasives issues).

BLM should prepare a new or revised draft EIS to fix these problems. *See* 40 C.F.R. §§ 1501.7(c), 1502.9(c).

III. WILDERNESS

A. Legal Framework

Among public lands resources, "lands with statutorily-defined wilderness characteristics are of particular importance." *ONDA v. BLM*, 625 F.3d at 1097. Congress identified the conservation of wilderness lands as a "national priority" in the Wilderness Act of 1964. *Id*. (citing 16 U.S.C. § 1131 *et seq*. and *Wilderness Soc'y v. U.S. Fish & Wildlife Serv.*, 353 F.3d 1051, 1055–56 (9th Cir. 2003) (en banc)). FLPMA, enacted in 1976, "interacts with the Wilderness Act to provide the BLM with broad authority to manage areas with wilderness characteristics contained in the federally owned land parcels the Bureau oversees, including by recommending these areas for permanent protection." *Id*.

1. Wilderness Act of 1964

In the Wilderness Act, a "wilderness" is defined, "in contrast with those areas where man and his own works dominate the landscape," as:

> an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this chapter an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

16 U.S.C. § 1131(c).

Following the Wilderness Act and Congress's definition in the FLPMA legislative history, BLM has set out its interpretation of the factors that define wilderness—size, naturalness, outstanding opportunities for solitude or primitive and unconfined recreation, and supplemental values—in its wilderness inventory handbooks (BLM 1978, BLM 2001a, BLM 2012a).

> Because 16 U.S.C. § 1131(c)(1) defines wilderness as an area which "generally appears to have been affected primarily by the forces of nature," the BLM has long treated the presence of roads as cancelling out any other wilderness characteristics an area might otherwise have, as they defeat the "natural conditions" wilderness characteristic.

ONDA v. BLM, 625 F.3d at 1107 (citing 43 U.S.C. § 1782(c) and BLM's 1978 *Wilderness Inventory Handbook*). Thus, BLM has distinguished between "roads" that have been actively maintained by mechanical means from "ways" that exist solely due to the passage of vehicles. *Id*. (citing *Colo. Envtl. Coalition*, 161 I.B.L.A. 386, 381 (2004), and BLM's 1978 and 2001 handbooks). The presence of ways does not render an area "roaded" so as to eliminate that area from further evaluation as wilderness. *Id*.

The BLM has authority, under FLPMA, to manage for wilderness values on the public lands, and therefore an obligation, under NEPA, to consider effects to wilderness when it undertakes actions that may affect those values. *Id*. at 1112; *Or. Natural Desert Ass'n v. Rasmussen*, 451 F. Supp. 2d 1202, 1213 (D. Or. 2006) (applying same principle to site-specific projects).

2. Federal Land Policy and Management Act of 1976

FLPMA requires BLM to manage the public lands consistent with the "principles of multiple use and sustained yield." 43 U.S.C. § 1732(a). To do so, the BLM must make reasoned and informed analyses, balancing competing resource values to ensure that the public lands are managed in a manner "that will best meet the present and future needs of the American people." *Id*. § 1702(c). FLPMA's multiple use mandate requires the BLM to manage the public lands and resources "without permanent impairment of the productivity of the land and the quality of the environment." *Id*.

As part of this multiple use mandate, Congress declared that it is the policy of the United States that the public lands shall

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

Id. § 1701(a)(8) (emphasis added). BLM must "take any action necessary to prevent unnecessary or undue degradation of the lands." *Id*. §1732(b).

FLPMA directs BLM to "develop, maintain, and, when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands." *Id*. § 1712(a); *see also ONDA v. BLM*, 625 F.3d at 1098–99 (describing land use planning under FLPMA). BLM must manage the public lands in accordance with these land use plans. 43 U.S.C. § 1732(a).

To ensure that BLM has adequate information to complete this task, FLPMA directs the Secretary of the Interior to "prepare and maintain on a continuing basis an inventory of public lands and their resources and other values . . . . This inventory shall be kept current so as to reflect changes in conditions and to identify new and emerging resource and other values." 43 U.S.C. § 1711(a). BLM must "arrange for resource, environmental, social, economic, and

institutional data and information to be collected, or assembled if already available." 43 C.F.R. § 1610.4-3.

FLPMA's land use planning regulations also provide for amendment and revision of plans when there is new information or a new or revised policy.

> An amendment shall be initiated by the need to consider monitoring and evaluation findings, new data, new or revised policy, a change in circumstances or a proposed action that may result in a change in the scope of resource uses or a change in the terms, conditions and decisions of the approved plan.

43 C.F.R. § 1610.5-5. Similarly, "[a] resource management plan shall be revised as necessary, based on monitoring and evaluation findings (§ 1610.4–9), new data, new or revised policy and changes in circumstances affecting the entire plan or major portions of the plan." *Id*. § 1610.5-6. While an amendment may go through a less rigorous EA process, a revision requires an EIS and must "comply with all of the requirements of these regulations for preparing and approving an original resource management plan." *Id*.

3. Wilderness Policy

Pursuant to FLPMA and the Wilderness Act, and in response to *ONDA v. BLM*, the Department of the Interior has adopted manuals that guide BLM's inventory and management of wilderness character lands outside of existing Wilderness and WSAs—so-called Lands with Wilderness Character, or "LWCs." In its wilderness inventory manual (BLM 2012a), BLM recognizes that "[m]anaging the wilderness resource is part of the BLM's multiple use mission" and that "[l]ands with wilderness characteristics provide a range of uses and benefits in addition to their value as settings for solitude or primitive and unconfined recreation." BLM 6310 Manual at 1.

BLM's manuals require the agency to be consistent from one area to the next. The manual on considering wilderness characteristics in land use planning (BLM 2012b) requires that the BLM Director shall "[c]oordinate with State Directors on considering and, as warranted, protecting lands with wilderness characteristics in land use plans." BLM 6320 Manual at 1. Similarly, both manuals require that the State Director must "provide for statewide program coordination" and "guidance." BLM 6310 Manual at 1; BLM 6320 Manual at 1. The State Director also must provide support to District and Field Offices "to ensure lands with wilderness characteristics and potential resource conflicts are adequately analyzed." BLM 6320 Manual at 2. There is a clear expectation of state-level oversight and coordination.

Finally, ¶ 23 of the Settlement Agreement—which applies to both the Vale and Lakeview Districts—expressly highlights the issue of consistency: "To ensure maximum consistency among the BLM Districts and Field Offices, the BLM will follow up the 'calibration' workshop it held for personnel involved in inventory updates with one or more field calibration sessions that shall be open to members of ONDA, any interested public, and possible invited experts." In 2010, ONDA participated in the one workshop of which we are aware that BLM undertook to satisfy this provision.

B. Citizen Wilderness Surveys

Since 2002, ONDA has surveyed almost seven-and-a-half million acres of public land in eastern Oregon (ONDA 2007, ONDA 2006, ONDA 2005, ONDA 2004, ONDA 2002b, ONDA 2002a), searching for areas that meet Congress' definition of a wilderness but which are not protected as Wilderness or Wilderness Study Area. The ONDA reports document over 100 vast roadless areas. Today, many of these areas also are recognized for their value as relatively unfragmented sagebrush habitat essential for the survival and recovery of the Greater sage-grouse (*Centrocerus urophasianus*) (hereinafter "sage-grouse"). *See, e.g.*, ONDA Map 6 (showing overlap of sage-grouse habitat with wilderness and special management areas within SEORMP planning area).[7]

Between 2002 and 2008, ONDA filed a series of legal actions following the Department of the Interior's "No More Wilderness" settlement with the State of Utah. After implementing the 2010 Settlement Agreement, reached following the Ninth Circuit's landmark decision in *ONDA v. BLM*, Interior today once again recognizes its responsibility under FLPMA to maintain a current inventory of wilderness character lands, including reviewing citizen submissions like ONDA's (BLM 2012a, BLM 2012b).

ONDA had complained that BLM had not inventoried lands with wilderness characteristics since the agency's initial wilderness inventory in the 1970s. ONDA asked BLM to update its wilderness inventories and consider land use plan and other project impacts to wilderness and roadless areas throughout eastern Oregon. When BLM refused to collect new wilderness data outside of existing Wilderness and WSAs, ONDA undertook its own wilderness surveys (ONDA 2007, ONDA 2006, ONDA 2005, ONDA 2004, ONDA 2002b, ONDA 2002a). In these detailed reports, ONDA documented changes that had occurred on the landscape since November 1980 when BLM completed its field inventories for its original wilderness recommendations. *See, e.g.*, *ONDA v. BLM*, 625 F.3d at 1106–07 (explaining this for ONDA's Vale District report (ONDA 2004) for the SEORMP).

ONDA focused on surveying current road conditions because "BLM has long treated the presence of roads as cancelling out any other wilderness characteristics an area might otherwise have, as they defeat the 'natural conditions' wilderness characteristic." *ONDA v. BLM*, 625 F.3d at 1107; *see also* 43 U.S.C. § 1782(c) (providing that the § 603 review should focus on roadless areas). In its planning, BLM distinguishes "roads" and "ways":

> The word "roadless" refers to the absence of roads which have been improved and maintained by mechanical means to insure relatively regular and continuous use. A *way* maintained solely by the passage of a vehicle does not constitute a *road*.

(BLM 2012a, BLM 2001a, BLM 1978). These definitions are Congress's, provided in the FLPMA legislative history. *See also Or. Natural Desert Ass'n v. McDaniel*, No. 3:09-cv-369-

[7] Unless otherwise stated, all ONDA maps and tables referenced in this letter appear in Appendix H.

PK, 2011 WL 1654265 at *14 n.6 (D. Or. Apr. 28, 2011) (comparing the 2001 handbook definition to the identical definitions used by Department of the Interior in other versions of BLM's wilderness inventory handbooks). "The presence of ways [does] not render an area roaded so as to eliminate that area from further evaluation as wilderness." *ONDA v. BLM*, 625 F.3d at 1107 (internal quotes omitted).

The ONDA reports document that many routes BLM had previously identified as "roads" in the agency's 1970s inventory had reverted to "ways" over the years (ONDA 2007, ONDA 2006, ONDA 2005, ONDA 2004, ONDA 2002b, ONDA 2002a). *See, e.g.*, *McDaniel*, 2011 WL 1654265, at *2; *ONDA v. BLM*, 625 F.3d at 1107.

In 2003, ONDA surveyed over 2.2 million acres of public land in the Vale District (ONDA 2004). Of that area, ONDA identified 1.3 million acres either wholly or partially in the Vale District as having wilderness qualities (ONDA 2004). ONDA also documented high-quality Greater sage-grouse seasonal habitats and connectivity corridors as a "supplemental" wilderness value in almost every roadless unit identified in the report. *See also* Appendix B (highlighting this for Roadless Natural Areas) & Map 6 (illustrating significant overlap between LWCs and sage-grouse habitat areas).

ONDA again urged BLM to consider those wilderness characteristics during its land use and project planning. When the agency refused to do so, ONDA filed suit. As noted, in 2010 BLM agreed, in a court-approved settlement, to revisit its wilderness decisions via land use plan amendment. In some areas, such as the Malheur Field Office, BLM and ONDA are mostly in agreement as to which areas outside of existing WSAs possess outstanding wilderness character. And, in fact, BLM has identified important additional acreages of LWC areas that even ONDA did not identify.

C. Discussion

Pursuant to the 2010 Settlement Agreement, BLM reinventoried the planning area and also considered ONDA's inventory information, completing its inventory update in 2012. The SEORMP planning contains 76 units, composed of 111 parcels and 1,236,907 acres, found to possess wilderness characteristics. DEIS at 3-21.[8] BLM reports that since completion of the inventory update in 2012 and subsequent reassessment, the Vale District has maintained and protected all units by reviewing proposed actions to determine whether implementation could occur without diminishing or eliminating wilderness characteristics, as required by the 2010 Settlement Agreement.[9]

[8] Note, however, that the DEIS provides conflicting numbers. At pages 2-8, 2-19, and elsewhere, the number provided is 1,206,780 acres.

[9] ONDA notes at least one instance in which it put BLM on notice, pursuant to ¶ 35 of the Settlement Agreement, that the agency was in breach of the agreement. Letter from Peter M. Lacy (ONDA) to David C. Shilton (USDOJ) dated Nov. 16, 2012. BLM had been implementing fire rehabilitation actions within LWCs within the area burned by the Long Draw Fire, but had failed to first study impacts to wilderness and alternatives to the proposed actions through the

ONDA appreciates that BLM is largely in agreement with our wilderness inventory findings for the planning area. Of 2,200,000 acres of public land inventoried, ONDA identified 1,306,602 acres (in 43 separate units) as having statutorily-defined wilderness values. In its wilderness report, ONDA called these areas "proposed WSAs" or "proposed WSA additions" (ONDA 2004). As noted, BLM agreed with much of that acreage—the main difference between the agency's findings and ONDA's being that BLM identified about twice as many (*i.e.*, smaller) roadless units.

1. BLM Wilderness Characteristics Inventory Conformance Review

Paragraphs 23 and 24 of the 2010 Settlement Agreement require BLM to "calibrate" its wilderness findings between the Vale and Lakeview districts, and also to adjust its planning process to consider any new or further guidance from the Washington Office. In 2012, BLM issued new wilderness handbooks. Handbook 6320 (BLM 2012b) governs considering lands with wilderness character in land use planning.

BLM completed its report reviewing the Vale and Lakeview Districts' conformance with agency wilderness inventory procedures in December 2015. It released the report to the public in late-April 2016. The report revealed a few problems with BLM's inventory process. The EIS must explain how BLM has addressed these problems in finalizing and updating its wilderness evaluations and LWC determinations and in evaluating LWC management in this plan amendment.

- Insufficient Field Analysis: The review team examined about 30% of the inventory units in each district, but only ground-truthed about 5% of the units. The report contains no evidence that the team ever left the road—and few if any indications that the team ever ventured off unit boundary roads. It is all but impossible to assess solitude and naturalness from boundary roads. These already-disturbed places are likely to be the spots where most evidence of human activity occurs—things like powerlines, seedings, water developments, fences, and so forth. This problem is particularly acute with regard to very large units that are 10,000 and 20,000 acres or more.

- Photographic Documentation: One major shortcoming identified by the reviewers is that BLM failed to include sufficient photographic documentation to support its findings—particularly its negative, or "no wilderness," findings—with regard to naturalness, solitude, and recreation. A BLM finding of "no solitude" or "not natural" for a 25,000-acre unit based only on a smattering of photographs taken from vehicle windows is vulnerable as an arbitrary and capricious basis for a "no wilderness" determination. There

---

Long Draw Fire project's NEPA process. *See* Settlement Agreement ¶ 19 (until BLM has completed the RMP amendment, "if a project is proposed or scheduled for implementation in either of the respective planning areas and would be in an area that BLM has found to possess wilderness character, the BLM will analyze the effects on wilderness character through *each project's* NEPA process") (emphasis added).

are a number of such very large units. *See* Appendix B (ONDA wilderness evaluation report).

- Speculative Future Maintenance: Speculation about future maintenance is not a valid factor in determining whether a route is, today, a road or a way (primitive route). BLM has contended that routes are roads so long as they "would be maintained in the future" if they "became impassable" or "if needed." Organic Act Directive ("OAD") 78-61 explains that a route that has been mechanically improved to insure regular and continuous use, but which has not yet required mechanical maintenance, may qualify as a road. What BLM ignores, however, is that, according to its own wilderness inventory handbook, "routes constructed by mechanical means but that are no longer being maintained by mechanical methods are not wilderness inventory roads" (BLM 2012a). That is the case in most instances where ONDA photographs show routes that are not being maintained. *See* Appendix B. Whether or not BLM might mechanically improve or maintain these routes in the future, they are not presently being maintained. As a result, *for wilderness inventory purposes*, these are ways, and BLM's reliance on speculative future maintenance is inconsistent with its own guidance.

  We note that the BLM handbook (BLM 2012a) also states (p.13), somewhat in contradiction:

  > A route, or a segment of a route, which was mechanically improved to permit the passage of vehicles, but which to date has not needed any further mechanical improvement or maintenance to facilitate the relatively regular and continuous passage of vehicles, can be a road in those circumstances where the road would be maintained if the need were to arise.

  The report states that this kind of route must be "sufficiently high priority to support a reasonable expectation that timely repairs would ensure its relatively regular and continuous use."

  In one example, the BLM report finds a route that does not "pass the maintenance test" (p.29) because, explains BLM, if access were ever needed to maintain fences or reservoirs, "it could be accomplished without maintenance since the flat terrain and lack of rocks precludes the need for maintenance." This suggests that BLM must, in its wilderness inventory updates and evaluations, and as part of this EIS, identify whether such future maintenance would have to be via mechanical means or whether non-mechanical maintenance would suffice. This is a crucial distinction BLM does not make on its forms or analyses.

  This is a particularly important point to consider with regard to many routes that cross large or rolling sagebrush flats—where a route could be (re)made to be passable simply by moving some rocks with hand tools rather than requiring mechanical maintenance.

- Outside Sights and Sounds: The reviewers cite the 2012 handbook's explanation that outsight sights and sounds must be "pervasive and omnipresent" (BLM 2012a). The handbook does not provide examples on this point. Some of the sights and sounds cited by BLM are more convincing than others—*e.g.*, compare a powerline to extensive fencing to a major federal highway (I-84) to a rural state highway. BLM must provide a reasonable explanation for carving out such sights and sounds from the larger of ONDA's proposed wilderness areas.

- Road/Way Determinations: The report includes many statements like this (p.28): "The boundary road on the southeast, which we travelled along, was contested by ONDA, but there is no question that it is a road." The reviewers almost never explain why there is "no question" about certain BLM findings—thus leaving it to BLM to now produce a reasonable explanation here. Appendix B highlights examples where there is no such reasonable explanation.

- Inclusion of Distance (Large Size) in Assessing Solitude: The reviewers take BLM to task for failing to consider that a unit that lacks spectacular vegetative screening or topographic relief can still provide opportunities for solitude based on its sheer size. This is true of non-LWC units like the Alcorta Rim Roadless Natural Unit and the Deadhorse Roadless Natural Unit. *See* Appendix B.

- FAMS: The report correctly commends the Vale District for ignoring routes' FAMS designations, and criticizes the Lakeview District for relying heavily on it. A route's assigned "maintenance level" in a BLM transportation plan or database is not a valid factor in determining whether it is a road or a way. This has nothing to do with a route's present, actual, on-the-ground condition, and whether there is evidence of mechanical improvement and maintenance today. This justification is arbitrary for the same reason as speculation about future maintenance.

- Motorized Recreation Bias: The report notes that present visitor use is not necessary in evaluating opportunities for primitive and unconfined recreation. Just because BLM only sees hunters and ATV drivers using an area does not mean that outstanding opportunities for quiet recreation do not exist. And thus, ONDA does not in its reports (and BLM in its evaluations and determinations) need to provide proof that such recreation is presently happening—only that such outstanding *opportunities* exist.

- Traffic: The report notes that "traffic" on interior primitive routes is unlikely to be a legitimate reason to support a "no solitude" finding in these very remote places.

- Disclose and Discuss: Under NEPA, an agency must disclose and discuss "responsible opposing views" including information that is different from or undermines the agency's findings or position. 40 C.F.R. § 1502.9(b). The reviewers state that in some cases BLM only briefly acknowledged receiving ONDA photographs but included "little or no evidence . . . regarding how the information was considered." BLM is required by law to do more than simply say that "information was received" and "we disagree with it." We have pointed out places where BLM fails to respond to existing evidence and the ONDA reports. *See* Appendix B.

- Unauthorized Activity: The report states (p.36) that unauthorized activities, such as trespass, should not be used as a factor for determining wilderness character.

- Comparison: Citing BLM's national inventory guidance, the report states that comparison of one potential wilderness character area to other areas on the District is not valid. (This problem is pervasive in the Lakeview District wilderness evaluations.) The report also explains (p.13) that "[e]ntire landscapes can be judged as providing outstanding opportunities (*e.g.*, large lava beds that provide for lava tube exploration and geologic study, or trophy mule deer or bighorn sheep hunting areas), and the inventory units within them can claim their share of those outstanding opportunities."

2. BLM Must Update its Wilderness Inventory Evaluations to Correct Inaccurate Assumptions and Account for New Information

ONDA has reviewed the DEIS's Appendix B and BLM's wilderness evaluations. We appreciate the Vale District's work here. However, we also have identified and documented new information on current resource conditions and lands with wilderness characteristics—roadless natural areas—within the planning area. As required by FLPMA, NEPA, the 2010 Settlement Agreement and other authority, please consider during this SEORMP plan amendment process the information we provide in ONDA's Appendix B to these comments. In that report, you will find these and other issues applicable to LWC units and routes.

As described in the unit-specific sections in our report (Appendix B), there is little or no evidence that the subject routes were created or improved by mechanical means. Even if we accept for the sake of argument that some of the routes were mechanically constructed decades ago, that they have not required any further mechanical maintenance in decades, in some cases nearly 40 years (*i.e.*, since BLM's 1980 wilderness inventory), is critical: whatever valid purposes these routes are serving today, their current condition, maintained solely by the passage of occasional BLM or permittee or recreationist vehicles, has been and continues to be sufficient to serve those purposes.

We urge BLM to reexamine its naturalness findings used in making many of its LWC determinations. In some instances, BLM identifies human-made or -caused features such as water storage tanks, fences, juniper treatments, or seedings at a roadless area boundary, and cites these as impacts to naturalness. The agency also sometimes considers naturalness in a segmented, piecemeal fashion rather than over the entire roadless area, and should take another look at the larger context of surrounding and adjacent wilderness-quality and other specially-designated areas. Typically, BLM also applies an "overly strict" approach to assessing naturalness in these same areas. As described in more detail in Appendix B, BLM should revisit no-wilderness determinations where the agency inappropriately relied upon "substantially unnoticeable" human-made features such as fencing, spring developments, and barely visible linear disturbances as undermining overall unit naturalness.

Finally, to be clear: it has always been, and remains, ONDA's position that it is not seeking to close or block use of disputed routes. ONDA seeks only to protect their primitive condition in order to preserve unique and irreplaceable wilderness values—and Congress's

ability to someday recognize these vast roadless areas as wilderness. As we describe elsewhere in this letter, even a decision to protect wilderness values in LWCs does not, in itself, bar BLM from exercising appropriate management flexibility to, for example, restore vegetative communities or deal with weeds and invasive species. After all, those types of management actions will only *enhance* existing wilderness values in these large roadless areas. In short, identification and protection of LWCs is critical to preserving finite, wilderness-quality public lands that are of utmost significance to our National heritage.

3. Failure to Include Objectives for Lands with Wilderness Character

The 2002 SEORMP failed to "provide specific objectives for managing lands with wilderness characteristics in the planning area." *See* DEIS at 2-1; *see also ONDA v. BLM*, 625 F.3d at 1102–03. Now, BLM again fails to include any LWC-related objectives for Preferred Alternative A. DEIS at 2-1. Identifying a resource or value, but then including no direction or objective whatsoever for it, is inconsistent with FLPMA, BLM's land use planning regulations and guidance, the existing 2002 SEORMP, and the Settlement Agreement. The Preferred Alternative is not multiple-use management, but rather *total exclusion* of one use or value—and by failing to include objectives for LWC, the Preferred Alternative would amount to the same type of "head in the sand" management that the Ninth Circuit a decade ago held to be arbitrary, capricious, an abuse of discretion and otherwise not in accordance with law.

Under FLPMA, BLM must prepare and revise "land use plans which provide by tracts or areas for the use of the public lands." 43 U.S.C. § 1712(a). The plans must follow the principles of multiple and sustained yield. *Id*. § 1712(c)(1); *see also id*. § 1732(a). This means "management of the public lands and their various resource values" in a way that "will best meet the present and future needs of the American people." *Id*. § 1702(c). While BLM has certain land use planning discretion to balance multiple uses, it must ensure that its approved management is "without permanent impairment of the productivity of the land and the quality of the environment." *Id*. In managing the public lands, BLM is required to "take any action necessary to prevent unnecessary or undue degradation of the lands." *Id*. § 1732(b).

To fulfil these mandates, FLPMA requires BLM to gather and use up-to-date inventory information. *See id*. § 1711(a) (continuing inventory obligation); *see also* 43 C.F.R. § 1610.4-3. After all, there is no way to know whether land use allocations and management decisions will result in "permanent impairment" or "unnecessary or undue degradation" without having accurate, current information on hand. But the task is not complete merely by collecting information. That is, there is no way to assess that information and to adaptively manage lands and resources without goals and objectives to guide that process. *See* 2002 SEORMP at *vi*, 16–27, 111–113 (discussing implementation and monitoring, management framework, goals and objectives, and adaptive management) (BLM 2002). The SEORMP is "based on adaptive management" that, "supported by monitoring or additional information . . . will result in attainment of short- and long-term trend toward meeting objectives." 2002 SEORMP at 111; *see also* DEIS at 2-4 ("The 2002 [SEORMP] and the 2015 and 2019 Greater Sage-grouse Approved Resource Management Plan Amendments are based on adaptive management").

As BLM has explained, land use plan decisions fall into two categories: desired outcomes (goals and objectives) and allowable (including restricted or prohibited) uses and actions anticipated to achieve desired outcomes (BLM 2005a) (land use planning handbook). Land use plans "must identify desired outcomes expressed in terms of specific goals and objectives" (BLM 2005a). Objectives identify "specific desired outcomes for resources" and "are usually quantifiable and measurable and may have established timeframes for achievement" (BLM 2005a). As BLM earlier explained, "Objectives are defined as indicators used to measure progress toward attainment of goals." 2002 SEORMP at 111.

Here, BLM has recognized 76 roadless areas, covering a total of 1,236,907 acres of public land, possessing the statutorily-defined characteristics of a "wilderness." DEIS at 3-21. Because this important, finite, and irreplaceable resource is *present* in the planning area, BLM cannot simply ignore it as it does under Preferred Alternative A. *See ONDA v. BLM*, 625 F.3d at 1122. As the Ninth Circuit pointed out, BLM's land use planning handbook advises that if wilderness characteristics are present in the planning area, the plan should:

> Identify decisions to protect or preserve wilderness characteristics (naturalness, outstanding opportunities for solitude, and outstanding opportunities for primitive and unconfined recreation). Include goals and objectives to protect the resource and management actions necessary to achieve these goals and objectives. For authorized activities, include conditions of use that would avoid or minimize impacts to wilderness characteristics.

Id. at 1116 (quoting 2005 Handbook, Appx. C. at 1, 12). By including no goals and objectives whatsoever with regard to roadlessness, wilderness characteristics and areas recognized as LWC, BLM's preferred plan is no different than the unlawful 2002 plan.

Indeed, the DEIS explains that under alternatives (like Preferred Alternative A) that do not protect wilderness units, BLM would "analyze the effects to the [wilderness] resource" in project-level planning—*but only* "if the issue is necessary to make a reasoned choice between alternatives and/or the issue has the potential for significant impacts." DEIS at 3-22. Without land use plan direction in the form of concrete objectives, the public (and future BLM decision makers) has no way of knowing what might be deemed (or not deemed) "necessary" for making a reasoned choice among alternatives, or what might be deemed (or not deemed) "potential" "significant" impacts.

4. Proposed Setbacks Would Impermissibly Impair Wilderness Values

By contrast, the DEIS does a good job of outlining what actions would be allowed in LWC units that are managed to protect their wilderness values under alternatives B, C, and D. ONDA especially appreciates the information presented in Appendix K, highlighting when and where design features would be required to prevent impacts to wilderness values. This information is critical to assisting the public in conducting a meaningful review of the alternatives and helps to bring clarity to how BLM would manage wilderness values in protected LWC units.

However, ONDA is concerned by the BLM's proposal to create 250-foot setbacks on LWC boundary roads where actions that are not compatible with maintaining wilderness character would be approved. Under alternatives B, C, and D, these setbacks would result in the loss of a staggering 30,127 acres of wilderness character lands in the planning area. This would further fragment and compartmentalize remaining wilderness characteristics—and is an effect the DEIS fails to meaningfully consider. In addition, the DEIS describes that the proposed setbacks would reduce several LWC units that are contiguous to WSAs to less than two acres, and result in the outright elimination of at least one LWC unit. These actions would not only permanently impair the wilderness values in these LWC units, but also the wilderness values of the contiguous WSAs, in violation of FLPMA and other laws. *See, e.g.*, 43 U.S.C. §§ 1701(a)(8), 1702(c), 1702(i), 1712(c),1732(b) (requirements to protect lands, including wilderness characteristics, in natural condition, to prevent permanent impairment of lands and resources, and to prevent unnecessary or undue degradation).

The importance of maintaining connectivity of wilderness characteristics in the planning area has far-reaching implications. In addition to enhancing wilderness values in southeast Oregon, providing for increased opportunities for primitive and unconfined recreation and solitude, the preservation of large, roadless and natural areas, has direct ecological benefits to the region's wildlife and plant communities. For example, migrating species such as ungulates depend on connectivity of the wildlife habitat within LWC units and elsewhere to complete their seasonal movements. Preventing additional fragmentation of wildlife habitat in the planning area also is critical in the face of climate change, where plant and animal species will need to adapt by moving along elevation and other gradients in response to changing resource conditions. *See, e.g.*, USDA *et al*. (2014) (Interior Basin Ecosystem Management Project ("ICBEMP") Strategy requiring BLM to "[r]ecognize the spatial and habitat connectivity within and between watersheds" and that "intact habitat refugia provide lateral, longitudinal, and drainage network connections").

The DEIS suggests that the proposed setbacks would provide increased "management flexibility" along roadways that form the boundaries of LWC units. DEIS at 3-24. However, under Alternatives C and D, BLM proposes only to manage a fraction of the planning area's LWC units for their wilderness character, thereby already providing ample management flexibility along the majority of the boundary roads in the planning area. Last, as discussed in more depth below, the proposed setbacks would not have been incorporated into this plan amendment but for the connected fuel break projects currently in development. *See infra* Section III.C.12.c. For these reasons, BLM should not adopt these setbacks, and should either eliminate the setbacks from alternatives B, C, and D, or create new alternative versions of alternatives B, C, and D without setbacks.

5. Failure to Consider New Wilderness Study Areas and Boundary Adjustments to Existing Wilderness Study Areas

The Wilderness Act did not directly address BLM's management of its lands. FLPMA remedied this deficiency by providing for a review of wilderness resources on BLM lands, *see* 43 U.S.C. § 1782, and by ensuring that lands with wilderness characteristics are regularly inventoried for use in land use planning. *See id*. § 1711(a).

First, FLPMA provided that within fifteen years after October 21, 1976, the Secretary shall review roadless areas of 5,000 acres or more, identified during the Section 201(a) inventory, as having wilderness characteristics described in the Wilderness Act. 43 U.S.C. § 1782(a). The Secretary was required to report to the President with recommendations as to the "suitability or nonsuitability of each such area or island for preservation as wilderness." *Id*.

Upon such recommendation, the President is to advise Congress of his "recommendation with respect to designation as wilderness of each [agency-recommended] area," and Congress may then act to "designat[e] as wilderness" the lands it deems appropriate. *Id*. § 1782(b); *see also Norton v. S. Utah Wilderness Alliance* ("*SUWA*"), 542 U.S. 55, 58 (2004) (explaining that Congress made the judgment that some lands should be set aside as wilderness"); 43 C.F.R. § 6302.11 (explaining that wilderness areas will generally be "open to uses consistent with the preservation of their wilderness character and their future use and enjoyment as wilderness").

In the interim period between the BLM's review of lands identified as having wilderness characteristics and Congress's final preservation decision, BLM must, with a few exceptions not relevant here, manage all the lands it has reviewed "so as not to impair the suitability of such areas for preservation as wilderness," whether or not it believes them to be suitable for such preservation. 43 U.S.C. § 1782(c). These recommended lands, managed under this "non-impairment" standard, are "wilderness study areas" ("WSAs"). *See SUWA*, 542 U.S. at 59.

The Ninth Circuit in *ONDA v. BLM* explained that, importantly, although Section 603 provides a mechanism by which the BLM may submit lands to Congress for legislation preserving them,

> BLM's authority to identify lands with "wilderness characteristics" is not limited to the § 1782 process. Rather, as § 1782 makes clear, it is the 43 U.S.C. § 1711(a) general resource inventory process, which catalogues "all public lands and their resource and other values," *id*., that is to identify lands "as having wilderness characteristics described in the Wilderness Act."

625 F.3d at 1098–99 (citing 43 U.S.C. § 1782(a) and other authorities discussing "the wilderness process as occurring under both §§ 1711 and 1782"). "In other words," wrote the court, "wilderness characteristics are among the 'resource and other values' of the public lands to be inventoried under § 1711." 625 F.3d at 1099; *see also* 43 U.S.C. § 1712(c)(4) (BLM land use plans are to "rely, to the extent it is available, on the inventory of the public lands, their resources, and other values").

The court described the "significance" of FLPMA's recognition of wilderness characteristics as an "other value" to be inventoried under § 1711 and managed under § 1712. *ONDA v. BLM*, 625 F.3d at 1099. In its 1991 wilderness report, BLM had identified about 3,000 acres of land adjacent to WSAs that could be added to them. *See id*. at 1102. Recognizing that "wilderness preservation is part of BLM's multiple-use mandate," BLM in the 2001 final EIS for the SEORMP considered alternatives for protecting the "wilderness characteristics" of this limited additional area. *See id*. (citing 2003 SEORMP ROD at 104 and 2001 FEIS, Vol. I at 627).

In considering adding wilderness character lands to existing WSAs, BLM proposed to manage these areas under a "replicate[d]" non-impairment standard, pursuant to its "broad land use planning authority." *Id*. at 1102–03 (citing 43 U.S.C. §§ 1712, 1732).

What the Ninth Circuit's analysis makes clear is that BLM has the authority to adjust (and expand) WSA boundaries. In Manual 6330 (BLM 2012c), BLM states that WSAs established under 43 U.S.C. § 1782 (Section 603), and WSAs established under 43 U.S.C. § 1712 (Section 202) but that were submitted to Congress, *cannot* have their boundaries altered. But BLM says that any WSAs established under Section 202 and *not* included in the reports submitted to Congress *can* be adjusted through a subsequent land use planning process. (Section 202 is FLPMA's land use planning provision.) ONDA notes that this interpretation is a change from BLM's prior wilderness study area manual, the IMP (BLM 1995), which did not so restrict boundary adjustments.

Importantly, the statute itself says "[a]ny classification of public lands or any land use plan in effect on October 21, 1976, is subject to review in the land use planning process . . . . The Secretary may modify or terminate any such classification consistent with such land use plans." 43 U.S.C. § 1712(d). Based on its use of the word "any," this section of FLPMA indicates that BLM has the *authority* to establish new WSAs *and* to adjust the boundaries of *all* existing WSAs, when it prepares a new RMP or RMP amendment. In other words, the more limited interpretation in the 6330 manual is inconsistent with the statute itself.

Of course, BLM has some discretion to choose which types of WSAs to adjust boundaries on—*i.e.*, Section 202 does not *require* the agency to identify new WSAs in post-Section 603 land use planning processes. But, as established in *ONDA v. BLM*, because BLM has the *authority* to designate and expand WSAs under Section 202 of FLPMA, it therefore has to *obligation* to consider that in this NEPA process. *See* 625 F.3d at 1116 ("wilderness characteristics remain a resource the BLM has authority to manage, and so must address in an EIS concerning areas which may have such characteristics, regardless of whether its 43 U.S.C. § 1782 responsibilities have been satisfied").

Here, while BLM in the DEIS considered whether to manage newly-identified areas with wilderness characteristics as LWCs, the agency failed to consider any alternatives managing them as WSAs or managing the LWCs adjacent to existing WSAs as—as ONDA framed the issue in its 2002 wilderness report—WSA additions (*i.e.*, as boundary adjustments to existing WSAs). This violates NEPA because it eschews important management authority conferred to BLM under FLPMA. *See ONDA v. BLM*, 625 F.3d at 1102–03, 1116.

Moreover, nothing in the Settlement Agreement limits BLM to considering only LWCs, and not WSAs and WSA boundary adjustments. In fact, the term "Lands with Wilderness Character" was only created by BLM *after* the Settlement Agreement was approved. The Settlement Agreement, simply put, requires BLM to update its wilderness inventory, identify lands that possess wilderness character, and then consider whether and how to manage those wilderness characteristics. Designating them as LWC and protecting or managing for wilderness values in LWCs is only one possible way to protect or manage wilderness characteristics. Another way would be to designate them as new WSAs. Another way would be to adjust the

boundaries of existing WSAs and incorporate adjacent LWCs into those WSAs. BLM fails to consider these options in the DEIS.

The agency must include at least two new alternatives that consider these logical management options. If it fails to do so, that would run afoul of NEPA, FLPMA, BLM's WSA management policy in Manual 6330, and the Settlement Agreement. To facilitate meaningful public review, please provide information, in a new or revised DEIS, that identifies and illustrates whether each existing WSA is a Section 202 WSA or a Section 603 WSA. Also identify which WSAs have had prior 202 adjustments, and provide a map and description of the "parcels of public land outside but immediately adjacent to WSA's [*sic*] that have been recommended as suitable for wilderness designation." *See* 2002 SEORMP at 104; *see also* Table 3 (LWC contiguous with section 202 WSA lands). Finally, please also identify and show which LWCs are adjacent to existing WSAs. These types of information will help BLM develop alternatives that consider establishing new WSAs and adjusting boundaries to add to existing WSAs—and, in turn, help the public meaningfully review BLM's environmental baseline and reasonable alternatives to the proposed action.

ONDA has sought to undertake some of this essential analysis. By our calculation, there are a total of 287,392 acres of contiguous LWC (*i.e.*, de facto WSA) in the planning area. *See* Map 2 & Table 2 (illustrating same).[10] BLM must prepared a new or revised draft EIS to consider new WSAs and boundary adjustments to existing WSAs.

6. Failure to Consider Effects of Lands with Wilderness Character With Regard to Non-Recommended Wilderness Study Areas

In its Oregon Wilderness Final EIS (BLM 1989), BLM identified WSAs and included recommendations as to whether each WSA was "suitable" or "non-suitable" for wilderness designation. BLM carried this recommended/non-recommended framework into the 2002 SEORMP. *See, e.g.*, 2002 SEORMP Map WSA-1 & ROD at 15 (only "recommending" 21 of the planning area's 32 WSAs for preservation as wilderness).

In *ONDA v. BLM*, the Ninth Circuit rejected BLM's argument that wilderness inventory and review was a one-time obligation for BLM. *See* 625 F.3d at 1096–99, 1110–17. As the court noted, Congress directed BLM to "maintain" its wilderness and other resource inventories "on a continuing basis." 43 U.S.C. § 1711(a). Only by doing so can the BLM satisfy FLPMA's mandate to keep up to date on "changes in condition" and be able to "identify new and emerging resource and other values." *Id*.

Because section 201 sets no limit on the subject of inventories, and because it requires that inventories be conducted on a "continuing" basis, an interpretation that the BLM's power to

[10] ONDA notes that Table 2 includes the "Lower Owyhee Contiguous" unit (14,439 acres), which BLM determined did not meet the "Naturalness" condition, even though it is technically contiguous with the Lower Owyhee Canyon WSA. ONDA disagrees with BLM about the unit's natural condition.

conduct wilderness inventories expired in 1991 could be upheld only if section 603 severely limits or supplants the section 201 inventory power. Section 603 does neither. *See ONDA v. BLM*, 625 F.3d at 1112–14.

Moreover, nothing in FLPMA provides for designating or distinguishing "recommended" or "suitable" and "non-recommended" or "not suitable" WSAs. All thirty-two WSAs are suitable for preservation as wilderness because they fit the criteria established by Congress under the Wilderness Act and FLPMA. *See* 16 U.S.C. § 1131(c) ("Definition of wilderness"); *see also* 43 U.S.C. § 1782(c) (until Congress acts on the President's recommendations, all WSAs shall be managed so that their wilderness suitability is not "impaired").

ONDA asked BLM during the 2002 SEORMP planning process to re-assess the so-called "non-recommended" WSAs, which the agency carried forward into the 2002 SEORMP. BLM's assessment of wilderness suitability in the 1989 "Oregon Wilderness Final EIS" is outdated and many on-the-ground conditions, planned projects, and other resource values have changed over the decades since that EIS was published. And BLM has never updated its inventory or associated findings—either in 2002 or in this 2019 plan amendment.

For example, many projects such as formerly planned open-pit gold mines, geothermal developments, utility corridors, transmission facilities, and power plants that BLM cited in 1989 as reasons why certain WSAs should not be designated by Congress as wilderness, have never occurred. BLM has not included this important information in the DEIS, despite NEPA's requirement to do so. *See* 40 C.F.R. §§ 1500.1(b) (requiring "that environmental information is available to public officials and citizens before decisions are made and before action is taken"); *see also Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989) (NEPA "ensures that the agency . . . will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger [public] audience").

Because the "non-recommended" labeling is unlawful, BLM should explicitly eliminate that labeling, and reissue an updated Map WSA-1, in this plan amendment. If BLM declines to do so, then it must review the eleven non-recommended WSAs (and any other non-recommended portions of other WSAs) and assess and disclose whether those recommendations still make sense (which, we believe, they will not). Concurrently, the agency *also* must assess whether the newly-recognized, adjacent LWCs should change those earlier labels.

7. The DEIS Falsely Claims that Current Management Has Led to the Long-Term Increase in Wilderness Characteristics

BLM states that "since the original 1970s/'80s [*sic*] wilderness characteristics inventory . . . management actions have led to, or been consistent with, the long-term increase in the presence of wilderness characteristics in the planning area." DEIS at 3-21. This assumption hinges on two things: first, that BLM has consistently and accurately applied agency policy and guidance for inventorying wilderness characteristics under section 201 of FLPMA; and second, that management has led to an increase in the presence of wilderness character over time. This is demonstrably false.

Prior to 2010, the BLM's wilderness characteristics inventory for the Vale District did not recognize a single acre of LWC. In 2004, ONDA submitted a 403-page report documenting over 1.3 million acres of areas that possess wilderness values in the Vale District (ONDA 2004). The dramatic difference in the BLM's inventory (zero acres) and ONDA's inventory (1.3 million acres) called into question the agency's methods and application of law and guidance for inventorying wilderness characteristics.

What changed all of this was *ONDA v. BLM* and the ensuing Settlement Agreement that required the agency to update its wilderness inventory for the planning area. The inventory update process eventually resulted in BLM identifying 1.2 million acres of lands with wilderness characteristics in the Vale BLM District alone—a number very close to the one ONDA came up with in its citizen inventory (following BLM's own inventory handbook methodology and framework) a decade earlier.

BLM's unsupported claim that unspecified "past management" has led to a steady increase in wilderness-quality lands in the planning area ignores the fact that before 2010 the agency's inventory was not an accurate baseline of where wilderness quality lands in fact already existed in the district. Again, prior to 2010, the *only* accurate information BLM had regarding where lands with wilderness characteristics existed in the planning area was the inventory report submitted by ONDA in 2004. And because BLM's 2012 findings essentially mirror ONDA's 2004 findings, the notion that current management lead to an "increase" in wilderness values, is demonstrably incorrect.

8. Failure to Prevent Unnecessary or Undue Degradation and Permanent Impairment of Wilderness Values in Wilderness Study Areas

One of the many reasons BLM should manage the contiguous LWCs described above to protect and preserve their wilderness character is to avoid permanent impairment or loss of finite wilderness values in adjacent WSAs. *See* Map 2. Between the 2010 inventory report and 2018, BLM adjusted WSA boundaries in many instances to incorporate contiguous LWCs. In the Lower Owyhee Canyon Contiguous unit (OR-034-115), for example, BLM updated the unit to delete two parcels that were acquired by land exchange and are within (*i.e.*, completely surrounded by) the existing Owyhee Breaks WSA—and therefore would be managed consistent with the 2002 SEORMP and Manual 6330, "until such time that they are designated or released by Congress."[11] BLM similarly adjusted the external boundaries of Wild Horse Basin contiguous LWCs.

[11] *See also* 2002 SEORMP at 13 ("WSA's [*sic*] designated under authority of FLPMA sections 603 and 202, will be managed in accordance with the 'Interim Management Policy for Land under Wilderness Review' (IMPLWR). Changes in WSA boundaries may be considered for inholdings and minor adjustments of adjacent land. This planning effort will not reopen the initial wilderness review mandated by section 603 of FLPMA, and it will not change existing decisions, signed by the Secretary of the Interior, to recommend areas as suitable for wilderness designation.").

There are at least ten other contiguous LWCs of smaller size that BLM should make WSA boundary adjustments on, and a few others that are a little larger that should qualify. *See* Map 2 & Tables 2–3. In its wilderness evaluations, BLM states that contiguous LWCs enhance wilderness values in adjoining WSAs, and vice versa. Therefore, any degradation in these LWCs will cause degradation to the WSA.

In many cases, BLM states that a prior WSA boundary "is not a qualifying boundary" when drawn, for example, to a fence line or section line. *See, e.g.*, Lower Owyhee Canyon Contiguous OR-034-115, at 6. Therefore, anything within contiguous LWCs cannot be considered as "outside sights and sounds." *See* Manual 6310 (BLM 2012b) (describing "the impacts of sights and sounds from outside the inventory area" with regard to assessing solitude).

Related, the setbacks proposed in alternatives B, C, and D, would reduce the Willow Creek Contiguous B and C parcels to *less than two acres* and would *completely eliminate* the Cow Lakes Contiguous B parcel (denoted as "E" in Table 3-5). *See* DEIS at 3-24; *see also* Map 2 (showing LWCs contiguous with WSAs within planning area). And any setbacks that would occur between contiguous LWC-WSA boundaries would have significant negative impacts to the WSAs. BLM should eliminate the proposed setbacks to avoid unnecessary or undue degradation and permanent impairment of these irreplaceable wilderness values.

9. Failure to Study and Consider Management with Regard to the Ecological Implications of LWC Areas' Roadless and Natural Values

The DEIS states that "there is no direct correlation between wilderness characteristics and ecological integrity." DEIS 3-92, 3-99. While the BLM is correct in stating that ecological integrity is not expressly part of the definition of "a wilderness" in the Wilderness Act of 1964, characteristics such as naturalness and roadlessness are directly relevant to ecological values. *See, e.g.*, *ONDA v. BLM*, 625 F.3d at 1117 ("roadlessness alone may require NEPA consideration in some circumstances"); *see also id*. at 1107 (noting that BLM's wilderness inventory handbooks have long focused on roadlessness in addition to other key factor of wilderness). BLM fails to make this distinction and consider this aspect of preservation of wilderness character in the planning area.

For example, the DEIS describes that management to protect wilderness values proposed in Alternative B would directly benefit the soils, riparian areas, native vegetation, fish and wildlife, and wild rivers in the planning area. DEIS at 3-9. Here, the DEIS makes clear that management that emphasizes preservation of wilderness values in LWC units is directly correlative to preservation of ecological integrity in those areas. Further, the DEIS later contradicts the notion that ecology and wilderness characteristics are not correlated, when it states that management actions "can improve ecologic function and benefit wilderness values." DEIS at 3-31. In this example, the DEIS further supports that there is a correlation, showing that improving the ecological function of an area directly benefits wilderness values of the same area. *See also* Maps 5 & 6 (showing overlap between LWCs and key wildlife habitat within the planning area).

The DEIS also fails to consider The Nature Conservancy's Ecoregional Priority Areas, unique places identified as the most important and the most suitable for the conservation of representative biodiversity and ecoregional portfolios.[12] The portfolios are based on assessments of relatively large geographic areas delineated by large-scale patterns of climate, geology, biodiversity, and other ecological and environmental patterns. If managed appropriately, "a portfolio is intended to maintain the ecological and evolutionary potential and long-term survival of all native life and natural communities, not just those that are rare, threatened or endangered." Preliminary analysis by ONDA shows that thirteen Ecoregional Priority Areas occur within the SEORMP planning area. *See* Map 8. In total, there are 1,095,202 acres of public land within the SEORMP planning area that are within an Ecoregional Priority Area. *See* Table 4. There are 260,275 acres of LWC that are at least partially within an Ecoregional Priority Area. *See* Table 5. This is significant new information BLM failed to consider in the DEIS, particularly as it relates to the ecological values of LWC and other roadless natural areas.

Related, the DEIS fails to analyze the impacts that off-road, or cross-country, motorized use will have on ecological function in areas designated as open to OHVs. For example, preliminary analysis indicates that BLM's open designations overlap with several Ecoregional Priority Areas. *See* Map 9 (showing overlap between Ecoregional Priority Areas and open areas under Preferred Alternative A). Impacts BLM should be analyze include: (1) outstanding opportunities for solitude (in LWCs); (2) outstanding opportunities for primitive and unconfined recreation (in LWCs); (3) riparian vegetation and streams, including streams that contain redband trout; (4) wildlife winter range and corridors, including for Greater sage-grouse, deer and elk; (5) soils, including disturbance, biotic crusts and erosion; and (6) introduction and spread of noxious weeds and invasive non-native vegetation.

BLM's contradictory statements and failure to explicitly identify and consider the positive correlation between managing an area to protect wilderness characteristics (*e.g.*, roadless areas and naturalness), and the ecological integrity of that area, has resulted in a flawed analysis of the affected environment. The agency must consider this issue in a new or revised draft EIS.

10. Failure to Consider an Alternative that Limits Motorized Use to Roads and Trails Existing at the Time Areas Were Recognized as LWC

The August 19, 2010 State Director Guidance regarding preparation of the SEORMP and Lakeview RMP plan amendments (referenced in DEIS, Appx. A , pp. A-8, A-9, and A-10) directs BLM to address three primary issues in response to the Ninth Circuit's holding, and the ensuing Settlement Agreement, in *ONDA v. BLM* and *ONDA v. Gammon*. One of those issues is that BLM must consider a full range of alternatives with respect to motorize use and OHV management, including that BLM must "consider an alternative designating existing Wilderness Study Areas (WSAs) and non-WSA with the BLM-identified wilderness character as *limited to roads and trails existing* either at the time the area became a WSA or when non-WSA lands were recognized as possessing wilderness character" (emphasis added).

[12] *See* The Nature Conservancy, *The Nature Conservancy Ecoregional Priorities*, http://www.landscope.org/focus/understand/tnc_portfolio/.

The DEIS fails to provide and analyze an alternative that meets this legal obligation. Alternative A provides for travel limited to designated routes in WSAs, but not in LWCs. Alternative B provides for closure to all travel in WSAs and LWCs. Alternatives A, C and D provide for travel limited to designated routes in WSAs and "Limited" travel elsewhere, with several areas open to OHV travel. Alternatives A and C allow OHV travel in portions of five and three LWCs respectively. *See* DEIS at 2-15 to -42, and Table 2-5.

The DEIS does not make a clear distinction between "Limited" travel and "Limited to Designated Routes." It defines "Limited" as:

> Motorized vehicle travel within *specified areas* and/or on *designated routes, roads, vehicle ways, or trails* is subject to restrictions. The limited designation (LD) is used where OHV use must be restricted to meet specific resource management objectives. Examples of restrictions may include number or type of vehicles, time or season of use, permitted or licensed use only, use limited to designated roads and primitive routes, or another limitation if restrictions are necessary to meet resource management objectives, including certain competitive or intensive use areas that have special limitations.

DEIS at 3-32 (emphases added).[13] This definition is vague and confusing at best, but obviously provides much wider latitude than "limited to existing roads or trails." BLM must provide clear definitions and then also develop (and make available for public review) an alternative that meets its Settlement Agreement obligation to provide an alternative that limits motorized use to roads or trails "existing either at the time the area became a WSA or when non-WSA lands were recognized as possessing wilderness character." Settlement Agreement ¶ 26.c.

Furthermore BLM must conduct an inventory to determine—as part of the accurate environmental baseline necessary to support this plan amendment—which routes existed at the time of designation, and which ones have been subsequently created. There is no information in the DEIS that indicates such an inventory has been conducted, or even a provision in the DEIS that such an inventory will be conducted. Motorized travel should be prohibited in WSAs and LWCs on any route where there is a question about its date of origin. In fact, we believe it would be unlawful for BLM to designate for motorized use *any* route established after the 2010 Settlement Agreement.

//
//
//
//

[13] But elsewhere in the DEIS, BLM also states (*e.g.*, above Table 3-5), "Current and proposed OHV area designations for off-road motorized use are identified by the following: O = open, L = limited, LD = limited to designated, C = closed." So here, the document is no longer using "LE." In Table 3-8, for example, the DEIS indicates L = "limited to existing or designated."

11. Failure to Support "Social Conflict" Claims

The DEIS claims that managing LWC units to preserve wilderness values would likely lead to increased social conflicts among user groups. But the DEIS provides contradictory and insufficient information to support this idea.

In fact, managing LWC units to preserve their wilderness values can decrease social conflicts. The DEIS provides support for this when it explains that managing motorized designations to protect wilderness values (*e.g.*, naturalness, solitude, and primitive recreation) results in a *lower* conflict among user groups. *See, e.g.*, DEIS at 3-28 ("reductions in OHV open area designations would reduce user conflict among those who prefer nonmotorized activities and those who participate in OHV use, because motorized vehicle users would be limited to at least existing primitive routes in protected units"). Further, the DEIS states that in managing OHV designations, "[a]ll designations shall be based on the protection of the resources of the public lands, the promotion of the safety of all users of the public lands, and the *minimization of conflicts among various users of the public lands*, and in accordance with the following criteria (43 CFR 8342.1)." DEIS at 3-33 (emphasis added). BLM's analysis makes clear that managing to preserve wilderness values in LWC units would likely lead to *reduced*, not increased, conflict among user groups, while also satisfying the agency's own guidance and designation criteria for motorized use.

In addition, BLM received robust input from the Southeastern Oregon Resource Advisory Council ("SEORAC") on wilderness management issues. For over a decade, this diverse group of stakeholders, with representatives from community, commodity, and conservation interests, convened to discuss and develop a methodology for identifying which LWC units should be managed for preservation or emphasis of wilderness values. BLM incorporated the SEORAC's recommendations into Alternative D, identifying 33 LWC units that encompass 417,196 acres of the planning area for protective management. The SEORAC's recommendation shows that preserving wilderness values in LWC units has broad support and, in that local advisory body's consensus-based judgment, would not necessarily lead to increased social conflict.

By contrast, BLM's preferred alternative *is* likely to increase social conflict and result in the agency failing to adhere to its own criteria and guidance. Not only does the preferred alternative ignore local stakeholder input on common sense approaches to managing wilderness values in LWC units, it provides no guidance whatsoever as to how LWC units *would* be managed in the future. *See supra* Section III.C.3 (describing failure to include required objectives in Preferred Alternative). By BLM's own admission, this approach "is likely to generate the most social conflict if implemented." DEIS at 3-145; *compare* 2019 ARMPA FEIS at ES-2 (purpose and need for sage-grouse amendment ostensibly focused on deferring to state and local input and needs).

12. Failure to Study Cumulative Effects

Finally, BLM has failed to adequately assess the cumulative effects of not protecting more than a million acres of wilderness values identified in the LWCs, particularly with regard to issues of climate change and landscape-level roadlessness, preservation of significant un-roaded

landscapes, and preservation of roadless and wilderness values across southeastern Oregon. *See also infra* Section IV (discussing roadlessness) & Section XIII (discussing climate change). As described above, a cumulative impact analysis must include more than a simple "listing" of relevant actions. *Great Basin Res. Watch*, 844 F.3d at 1104. Some "quantified or detailed information" is required and "general statements about possible effects and some risk do not constitute a hard look." *Ocean Advocates*, 402 F.3d at 868.

a. Wilderness characteristics across the Sagebrush Sea in southeastern Oregon

Here, BLM failed to assess the cumulative effects of wilderness preservation—or failure to protect wilderness values and roadlessness—across southeastern Oregon. The agency must assess environmental consequences with regard to identified and recognized wilderness and roadless areas across the Prineville, Lakeview, Burns, and Vale districts. For one thing, the 2010 Settlement Agreement applies to both the Lakeview and Vale districts—and therefore BLM must, at a minimum, consider how its wilderness management in these different planning areas (plus, logically, the intervening Burns District) is affected cumulatively by alternatives that differently manage these places with the same (and geographically connected) values. *See* Map 4 (illustrating wilderness values and key specially-managed areas across the whole of BLM-managed lands in eastern Oregon).

That scale of review also would be consistent with BLM's statewide approach to reviewing wilderness characteristics in the 1991 wilderness EIS. And, of course, roadless units with wilderness values provide large, interconnected areas essential to the survival and recovery of the Greater sage-grouse (in Oregon and beyond). *See, e.g.*, Map 6. For example, what are the cumulative effects of the alternatives outlined here when considered alongside the large roadless areas and substantial lands with wilderness character BLM identified in the Lakeview District? How about when we take into account the interceding Burns District?—particularly, that district's almost complete failure to recognize (let alone consider how to manage for) LWC in the Steens Mountain area, which is significantly out of step with the Lakeview and Vale districts? How about when we include the Prineville District to the north? *See* Map 4.

"Ordinarily, an agency has the discretion to determine the physical scope used for measuring environmental impacts." *Idaho Sporting Cong. v. Rittenhouse*, 305 F.3d 957, 973 (9th Cir. 2002). This is because identifying the geographic scope for an impacts analysis "is a task assigned to the special competency of the appropriate agencies." *Selkirk Conservation Alliance*, 336 F.3d at 958 (citation omitted). However, "the choice of the analysis scale must represent a reasoned decision and cannot be arbitrary." *Rittenhouse*, 305 F.3d at 973. BLM must provide a reasoned decision and support for its chosen level of analysis and demonstrate that it considered the relevant factors. *Id*.

Under NEPA, the relevant factors for determining the proper scope of an environmental analysis include consideration of the proposed action, including the types of species or resource values to be impacted, the features of the land, and consideration of cumulative impacts. *See Selkirk Conservation Alliance*, 336 F.3d at 958; *Kern v. Bureau of Land Mgmt.*, 284 F.3d 1062, 1075 (9th Cir. 2002) (citing 40 C.F.R. § 1508.25(a)). BLM must carefully consider "cumulative

effects in creating the boundary of its analysis." *Selkirk Conservation Alliance*, 336 F.3d at 958. For example, the LWCs at issue here are significant, among other reasons, for their unfragmented sagebrush habitat, including genetic connectivity and migration corridors for sage-grouse and other landscape-scale species. Roadless areas and wildlife habitat do not end at management unit boundaries. As BLM explains in the ARMPA (BLM 2015a, BLM 2019), the sage-grouse, for one, is characterized by landscape-scale habitat requirements that go far beyond district boundaries. These areas are also important as climate change refugia and for maintaining the ecological and evolutionary potential and long-term survival of native life and natural communities. *See* Maps 7–8.

NEPA does not allow BLM to gerrymander or artificially narrow the scope of the analysis to avoid analyzing the cumulative impact of decreased wilderness preservation from other wilderness management decisions (including the threshold decision, on the Burns District in particular, of whether or not to recognize large roadless areas as wilderness) occurring in the same, connected sagebrush landscape. *See Klamath-Siskiyou*, 387 F.3d at 994; *Blue Mountains*, 161 F.3d at 1215. Nor can BLM avoid analyzing the impacts of neighboring plan amendments and projects that may have combined impacts on the same wilderness resource. *See Native Ecosystems Council v. Dombeck*, 304 F.3d 886, 901–02 (9th Cir. 2002) (grizzly bears); *Klamath-Siskiyou*, 387 F.3d at 997 (spotted owl habitat); *Kern*, 284 F.3d at 1078 (Port Orford cedar trees). In short, BLM must consider how the relevant wilderness resources—roadlessness, naturalness, solitude, and so forth—may be cumulatively affected by other land use planning and project decisions affected these resources in the same area and on a larger landscape. *Selkirk Conservation Alliance*, 336 F.3d at 958.

b. Preservation of wilderness character and climate change

Related, BLM also failed to assess the cumulative effects with regard to climate change of not protecting wilderness values identified in LWC units—both in the SEORMP plan amendment area and in the larger appropriate cumulative effect spanning the Prineville, Lakeview, Burns, and Vale districts. ONDA addresses climate change issues in more detail in Section XIII below, and also in the expert report provided at Appendix C (Kauffman 2019). We note here, though, the important overlap between BLM-identified Climate Change Consideration Areas and wilderness areas (WSA, LWC, and Roadless Natural Areas) throughout the planning area. *See* Map 7.

c. Wilderness character and landscape-scale fuel breaks

Finally, BLM claims there would be no cumulative effects to wilderness characteristics from fuel break implementation in Preferred Alternative A. There is no way to rationally defend that statement, and the DEIS fails to provide any such support for it.

BLM is currently developing multiple proposals to implement a network of landscape-scale fuel breaks within the planning area: the Programmatic EIS for Fuel Breaks in the Great Basin and the Tri-State Fuel Break Project. These proposals are of unprecedented scope and scale. Combined with the proposal under DEIS alternatives B, C, and D to establish 250-foot setbacks on LWC boundary roads, it is reasonable to assume that in the foreseeable future BLM

intends to construct fuel breaks along LWC unit boundary roads in the planning area. The DEIS fails, however, to consider the cumulative effects to wilderness character and roadless areas of constructing a network of fuel breaks—going as far as to claim that there would be *no* cumulative effects to wilderness characteristics from fuel break implementation under the Preferred Alternative A. *See* DEIS at 3-31.

Depending on the methods used (not discussed in any detail in the DEIS), the construction of fuel breaks has the potential to irreparably degrade wilderness character. In Appendix K of the DEIS, BLM identifies vegetation management actions used in the construction of fuel breaks, including drill seeding and disking, as actions that *would* require specific design features in order to *prevent impacts* to wilderness character.

Furthermore, as discussed in more detail in Section XI below on fire and invasives issues, fuel breaks (in addition to being scientifically unproven) have the potential to negatively impact native plant communities and facilitate establishment of non-native species such as cheatgrass. The presence of long, linear corridors of non-native, invasive grass species would likely result in a significant increase of invasive grasses in adjacent LWC units, increasing the demand for restoration actions in areas that BLM has identified as having wilderness values. As we have explained, disturbance associated with or similar to road improvement is an important factor that influences the ability of a road to act as a conduit for invasion by weeds and invasive species. Plant communities adjacent to mechanically maintained or improved roads are more invaded than those adjacent to infrequently used primitive roads (Gelbard & Belnap 2003).

The construction and improvement of roads and roadside fuel breaks can also be an important agent of land cover change. This is because these actions increase the width of roadside verges (zones of weedy vegetation created by road construction, road maintenance, and vehicle disturbances). The result is to convert the impacted area to a roadside plant community that tends to be highly invaded and to act as a conduit for invasion of the neighboring ecosystem. For example, researchers have estimated that construction of just six miles of four-wheel-drive track can convert approximately five acres of native plant community to highly invaded roadside habitat; improvement of this same length of four-wheel-drive track to a graded road can convert about 14 acres (Gelbard & Belnap 2003). Development of fuel breaks can reasonably be expected to have the same impacts as development of roads, converting huge expanses of natural habitat into roadside habitat, which tends to be highly invaded, and to act as a conduit for invasion of adjacent natural ecosystems (Frenkel 1970; Forman & Alexander 1998, Parendes & Jones 2000, Trombulak & Frissel 2000, Forman 2000).

Further, the DEIS directly contradicts the agency's conclusion that construction of fuel breaks would not result in cumulative impacts to wilderness values, stating:

> The proposed fuel break projects (for example, the Tri-State Fuels project) could have incremental, additive impacts to wilderness characteristics, but would be located in the setback areas of Alternatives B, C, and D where units are identified for protection. Analysis of fuel break alternatives would be conducted with the incorporation of design features to avoid impacts to wilderness characteristics under the No Action Alternative, or would not be allowed. Design features in

> Alternatives B, C, and D for protected units would be located in setbacks and would not impact protected units.

DEIS at 3-31. That there would be "incremental, additive impacts" shows that BLM's own analysis has identified the potential for fuel breaks to, by definition, have *cumulative* effects on wilderness values within the planning area and across southeast Oregon. BLM must identify, disclose, and study these cumulative effects in a new or revised draft EIS made available for public review.

IV. ROADLESSNESS

A. Legal Framework

NEPA requires agencies to take a "hard look" at the environmental consequences of a proposed action. *Methow Valley Citizens Council*, 490 U.S. at 349; 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1502.16, 1508.7, 1508.8. The required hard look encompasses effects that are "ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative." 40 C.F.R. § 1508.8.

Roadlessness is a resource like any other. The Ninth Circuit has explained that "roadlessness has environmental significance apart from permanent wilderness preservation." *ONDA v. BLM*, 625 F.3d at 1117 (citing *Smith v. U.S. Forest Serv*., 33 F.3d 1072, 1078 (9th Cir. 1994)); *Mont. Wilderness Ass'n v. Connell*, 725 F.3d 988, 996–97 (9th Cir. 2013) (noting as "correct that increased [road] use has the potential to degrade wilderness values" by "producing new surface disturbances on and adjacent to the routes themselves [and] by interfering with wildlife, naturalness, solitude and opportunities for primitive and unconfined recreation"), 997 n.6 ("route closures have the overall effect of *enhancing* wilderness values) (emphasis in original).

B. Ecological Framework

As discussed in more detail below, in the travel management planning section, roadless areas are critical to the health of functioning sagebrush ecosystems. Roadless areas are most often refuges for native species (Soule & Terborgh 1999, Forman *et al*. 2003, Gelbard & Harrison 2003). Studies have shown that maintained roads and even primitive four-wheel-drive tracks contain significantly greater abundances of weeds and exotic species, and lower abundances of natives, than areas distant and isolated from roads and primitive routes (Gelbard & Harrison 2003, Gelbard 2003, Davidson & Fox 1974, Brooks 1995, 1999). Declines in the abundance of exotic species with increasing distance from roads and ORV trails have been observed in Glacier National Park (Tyser & Worley 1992), the Mojave Desert (Johnson *et al*. 1975), the state of California (Frenkel 1970, Harrison *et al*. 2002, Williamson and Harrison 2002), and in forests from the eastern United States (Watkins *et al*. 2003) to Australia (Amor & Stevens 1976, Milberg & Lamont 1995).

Roads, trails, and rights-of-way are acutely effective at spreading invasives. Cheatgrass, for instance, is strongly associated with roads and travel routes, where regular ground

disturbance from travel and maintenance activities confer a competitive advantage over native species (Banks & Baker 2011, Bromberg *et al*. 2011, Gelbard & Belnap 2003, Gelbard & Harrison 2003). Cheatgrass seeds readily attach to vehicle tires and hiking shoes (West *et al*. 2015), and cheatgrass has been found to invade along both two-track roads and paved vehicle routes (Gelbard & Belnap 2003). In addition, livestock use tends to be concentrated around roads (Getz & Baker 2008). Roads with wider disturbed verges have greater cover of cheatgrass and other weeds (Gelbard & Belnap 2003). From disturbed roadways and trails, invasive annual grasses can colonize adjacent habitats (Gelbard & Belnap 2003). As Shinneman *et al*. (2018) explain, fuel breaks of all types are prone to weed invasion.

C. Discussion

BLM must consider impacts to roadlessness just like any other resource or value on the public lands. *See ONDA v. BLM*, 625 F.3d at 1122 (wilderness just like any other value for which BLM has management authority). This is particularly so where, as here, BLM has identified more than one million acres of never-before recognized wilderness and roadless natural areas. *See* Maps 1 & 3, Table 1; *see also* Map 9 (illustrating areas left completely open to motorized use, overlapping with Ecoregional Priority Areas). The DEIS states that it will consider "resource(s) . . . affected [by] lands with wilderness characteristics," but then fails to recognize roadless areas (which also comprise unfragmented wildlife habitat and migratory and genetic connectivity corridors) as perhaps the most obvious such resource. *See* DEIS at 1-9.

Accordingly, BLM should consider the 76 wilderness character units and the additional 62 roadless natural areas identified during the wilderness re-inventory process as a critical part of the environmental baseline for this NEPA review. The EIS also should study the positive effects of management actions and alternatives that would protect roadlessness. For example, as discussed above, roadless areas are critical refuges for native plant species (Gelbard & Harrison 2003) and are vital to species like the Greater sage-grouse which rely upon unfragmented, relatively ecologically intact habitat for their wide-ranging, seasonal life cycle. *See, e.g.*, Maps 5–6 (highlighting overlap between roadless areas and key wildlife habitats). They provide corridors for landscape-scale migration and for the crucial exchange of genetic material.

V. TRAVEL MANAGEMENT

A. Legal Framework

Under FLPMA, BLM must manage the public lands consistent with the "principles of multiple use and sustained yield" and "take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. §§ 1732(a), (b). To ensure it has adequate information to do so, BLM must "prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values." *Id*. § 1711(a). This inventory "shall be kept current so as to reflect changes in conditions." *Id*.

To fulfill these FLPMA requirements and to comply with Executive Orders protecting against damage from motorized vehicle use on public lands, BLM must, when designating roads and areas available for motorized use, apply regulatory criteria to "minimize" impacts on soils,

vegetation, wildlife, air, water, and cultural resources. 43 C.F.R. §§ 8340.0-8, 8342.1(a)–(c); *see also* Exec. Order No. 11644, 37 Fed. Reg. 2877 (1972), *as amended by* Exec. Order No. 11989, 42 Fed. Reg. 26,959 (1977). Executive Orders 11644 and 11989 impose a substantive obligation on the BLM to *locate* designated routes to *minimize* damage to natural and cultural resources and conflicts with other existing or proposed recreational uses.

BLM must discuss the basis for the conclusion that each route designation minimizes impacts in accordance with the regulation. *WildEarth Guardians v. Mont. Snowmobile Ass'n*, 790 F.3d 920 (9th Cir. 2015); *see also S. Utah Wilderness Alliance v. Burke*, 981 F. Supp. 2d 1099 (D. Utah 2013); *Ctr. for Biol. Diversity v. BLM*, 746 F. Supp. 2d 1055, 1080 (N.D. Cal. 2009). The agency cannot assess routes in a general sense. Rather, it must analyze each on a "route specific level" in order to "assess the effects of route designations." *S. Utah Wilderness*, 981 F. Supp. 2d at 1104–06; *see also WildEarth Guardians*, 790 F.3d at 930–31 (agencies "must provide a more granular minimization analysis" and must "apply the minimization criteria to *each area* . . . designated"). Even a detailed survey and inventory of routes is still inadequate if "there is nothing in the record to show that the minimization criteria *were in fact applied* when . . . routes were designated." *Ctr. for Biol. Diversity*, 746 F. Supp. 2d at 1079 (emphasis added).

Despite its long-standing legal obligation, BLM has struggled to properly apply and implement the minimization criteria in its land use planning and travel management decisions. Federal courts have repeatedly sent BLM, Forest Service, and Park Service management plans back to the agencies for failure to satisfy their obligation to minimize resource damage and user conflicts.[14]

B. Ecological Framework

"There is no dispute that ORVs profoundly change the lands across which they travel." *ONDA v. BLM*, 625 F.3d at 1123. Roads and trails diminish habitat connectivity and decrease the patch size of habitats (Forman *et al*. 2003, Gelbard & Belnap 2003, Reed *et al*. 1996). Off-trail

[14] *WildEarth Guardians*, 790 F.3d at 929–32; *Friends of the Clearwater v. U.S. Forest Serv.*, No. 3:13-cv-00515-EJL, 2015 U.S. Dist. LEXIS 30671, at *37–52 (D. Idaho Mar. 11, 2015) (Forest Service's conclusory statements failed to show how it selected motorized routes with the objective of minimizing their impacts); *The Wilderness Soc'y v. U.S. Forest Serv.*, No. CV08-363-E-EJL, 2013 U.S. Dist. LEXIS 153036, at *22–32 (D. Idaho Oct. 22, 2013) (remanding travel plan where Forest Service relied on unsupported conclusion that route closures and elimination of cross-country travel minimized impacts); *Defenders of Wildlife v. Salazar*, 877 F. Supp. 2d 1271, 1304 (M.D. Fla. 2012) (record failed to demonstrate how Park Service decision to reopen trails was made with the objective of minimizing impacts); *Cent. Sierra Envtl. Res. Ctr. v. U.S. Forest Serv.*, 916 F. Supp. 2d 1078, 1094–98 (E.D. Cal. 2012) (Forest Service failed to show that it actually aimed to minimize environmental damage when designating ORV routes); *Idaho Conservation League v. Guzman*, 766 F. Supp. 2d 1056, 1071–74 (D. Idaho 2011) (record did not reflect whether or how the Forest Service applied the minimization criteria); *Ctr. for Biol. Diversity,* 746 F. Supp. 2d at 1071–81 (record provided no indication that BLM considered or applied minimization criteria).

recreation by motorized users can fragment habitat and create corridors for spread of exotic plant species (Knick *et al*. 2011). Development of infrastructure for any purpose (e.g., roads, pipelines, powerlines, and cellular towers) results in habitat loss, fragmentation, and may cause sage-grouse habitat avoidance. Additionally, infrastructure, including roads, can provide sources for the introduction of invasive plant species and predators (USFWS 2013).

Unpaved roads "fragment sagebrush landscapes as well as provide disturbed surfaces that facilitate spread of invasive plant species." (Connelly *et al*. 2004) (also stating that "[r]oads and other corridors promote the invasion of exotic plants"). The "expansion of road networks contributes to exotic plant invasions" through motorized use and maintenance activities. 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocerus urophasianus*) as Threatened or Endangered, 75 Fed. Reg. 13,910, 13,930 (Mar. 23, 2010).[15] These activities can result in the conversion of barely-discernable tracks to full-scale roads. And the SEORMP apparently designates, by default and with no further analysis or information in the DEIS, unknown numbers of primitive and otherwise un-surveyed routes in the planning area as open to unspecified construction and mechanical maintenance—potentially the sort of major upgrading, or outright creation of new roads (via "maintenance") that could damage or destroy roadless areas and wilderness values. *See* 2002 SEORMP/ROD at Appx. O (best management practices for road design and maintenance).

In places like the SEORMP planning area, roads are "major conduits" for the establishment and spread of weeds, and a single weed is capable of dispersing tens of thousands of seeds over large areas (Gelbard & Belnap 2003). Manier *et al*. (2011) found that two-track jeep trails were the single greatest vector of invasive weeds spread among all human disturbances measured. Weeds "are not limited to roadsides, but also encroach into surrounding habitats" and represent "one of the highest risk factors for sage-grouse" because they out-compete sagebrush and other native plants and cannot be effectively controlled once they become established. 75 Fed. Reg. at 13,930, 13,935–37.

Roads often become travel corridors for predators, to the detriment of prey species (like sage-grouse). In addition, dust can inhibit the growth of forbs, sagebrush, and other plants important to the sage-grouse diet. The National Technical Team (2011) recommended that upgrades to existing vehicle routes should not be permitted in priority habitats. The Oregon Department of Fish and Wildlife recommended beginning in 2005 that BLM avoid establishing new roads "through occupied sage-grouse habitat, especially nesting and brood-rearing areas" (Hagen 2011); *see also* Maps 6 & 9 (identifying priority sage-grouse habitat areas and associated road and motorized use concerns).

"In addition to the physical impact of motorized vehicles on natural features of land, such vehicles transform remote areas into motorized recreation zones, substantially altering the outdoor recreation experiences of ORV users and non-users alike." *ONDA v. BLM*, 625 F.3d at 1123. Recreational conflict is well documented in the social sciences literature (Manning 1999). People undertake recreational activities in order to achieve solitude, commune with nature, or

[15] Also cited generally herein as USFWS (2010).

escape from the stresses of everyday life. The mere presence and/or behavior of other parties encountered when quietly recreating outdoors can affect an individual's perception of how well they achieved their desired experience for the trip (Lindberg *et al*. 2005). Perceived conflict occurs most often between different types of recreationists than between recreationists engaging in the same activity. Moreover, research demonstrates that user conflict is often "asymmetrical," with most recreationists engaged in traditional activities perceiving conflict caused by those using newer technology, such as all-terrain vehicles (Vaske *et al*. 2000). For these reasons, "[s]triking the proper balance with regard to ORV use is thus of considerable importance to the BLM's land management planning." *ONDA v. BLM*, 625 F.3d at 1123.

C. Discussion

BLM has failed to demonstrate compliance with NEPA, FLPMA and the minimization criteria, as well as related Settlement Agreement requirements. Critically, BLM must study reasonable alternatives and prepare a travel management plan now; the agency cannot defer that task to an unspecified, later time. And BLM's travel management alternatives and designations must also involve a more granular, route-by-route analysis. Only then can the agency minimize environmental impacts as required by law—both on an area-wide basis and a route-specific basis.

1. BLM Must Prepare a Travel Management Plan as Part of this Plan Amendment

BLM describes route designation (and, apparently, assessment) as "implementation-level travel management planning actions." DEIS at 3-31. The agency states that it will develop a travel plan at an unspecified future time. DEIS at 3-31; *see also* DEIS at 3-34 ("OHV areas and trail designation will be reviewed by developing travel management areas and route-by-route reviews with consideration to wilderness characteristics and other resources as part of future travel management planning."). Nowhere in the DEIS, though, does BLM provide any reasonable explanation justifying deferring travel management planning in this already decades-overdue plan amendment. Neither does BLM identify or explain what has been governing travel management, including motorized use and mechanical maintenance, for the past 17 years in the SEORMP planning area. *See, e.g.*, DEIS at 3-31 to -34. This is inconsistent with applicable law and guidance.

BLM's travel management handbook (BLM 2012b) makes clear that BLM should consider and begin the process of travel planning in "the pre-planning phase" of a land use plan revision. Accurate route inventory and data gathering is essential. Here, BLM has been working on the SEORMP since the late-1990s, and on this plan amendment since 2010. That is more than enough time to complete (let alone begin) the travel planning process. The agency's handbook explains that "possible reasons" for not completing a travel management plan concurrently with a land use plan "might be size or complexity of the area, controversy, incomplete data, or other constraints" (BLM 2012b).

None of those reasons appear to be present here; nor does BLM invoke any of them in the 2012 Scoping Report or in the 2019 DEIS. For example, while the planning area is large, BLM

had completed a full wilderness inventory—which includes gathering survey data on the threshold issue of presence or absence of roads and their condition on the ground—by 2012. BLM completed additional route analysis and management prescriptions in the ARMPA in 2015. *See* DEIS at 3-32. As explained, the 2010 Settlement Agreement clearly contemplates and requires route-by-route minimization analysis and travel planning. The only "controversy" here is BLM's continued and unexplained failure to prepare a travel management plan.

BLM fails even to consider middle-ground approaches that may be reasonable. For example, the handbook (BLM 2012b) suggests that "[i]f sufficient travel and transportation information is available for a smaller area or sub-unit within the planning area, such as a TMA, consider completing the TTM planning as part of the RMP and deferring the remainder of the RMP planning area to an implementation level travel management plan(s)." Here, BLM might at least have considered routes identified within inventoried LWCs or in specific, ARMPA-designated habitat and management areas. *See, e.g.*, DEIS at 3-32, 3-34 (merely referencing area-wide designations under the 2015 ARMPA).

Even in situations where BLM *can* reasonably defer travel management planning, "then the RMP serves to document the decision-making process used to develop the initial network; provides the basis for future management decisions; and sets guidelines for making transportation network adjustments throughout the life of the plan" (BLM 2012b). But here, BLM has failed even to complete these necessary tasks, as described in the agency's own handbook:

- BLM must produce a map of the "known and existing network of transportation linear features, including modes of travel." There is no such map in the DEIS's Appendix M.

- BLM must "[d]efine the goals for the use, location, and development/decommissioning to implement the long-term, final transportation system." The DEIS includes only a brief description of how travel management generally would be affected by BLM management actions (DEIS at 3-35 to -36), otherwise only vaguely stating, "Following completion of this plan, an interdisciplinary team will develop a travel management plan . . . that will identify needs and objectives for each road in the planning area." DEIS at 3-34.

- The DEIS also fails to "[c]learly state the process of moving from an interim designation of 'limited to existing roads, primitive roads and trails,' to a designation of 'limited to designated roads primitive roads and trails' upon completion of TMPs." *See* DEIS at 3-34 (no such process described).

- BLM has failed to identify any "uncompleted travel and transportation tasks." The DEIS contains no disclosure or description of additional data needs, the status of the agency's baseline route inventory, and whether there would be additional scoping for travel planning.

- The DEIS fails to provide a "schedule to complete the area or sub-area road, primitive road and trail selection process." *See* DEIS at 3-34 (vaguely referring to unspecified "future travel management planning" and "route-by-route reviews").

Even if BLM could lawfully defer preparation of a travel management plan, the agency fails to positively identify, disclose to the reviewing public, and show on a clear map, each road, primitive road, and trail currently known and designated (as available for motorized use and/or mechanical maintenance) within the planning area.

In short, BLM cannot lawfully adopt a plan amendment for the SEORMP unless and until the agency discloses this baseline information and prepares a travel management plan. And without such a plan, or even identifying the designated routes and their condition on the ground, BLM is unable to accurately assess the environmental consequences of its proposed plan amendment, including whether the proposal will be consistent with the 2010 Settlement Agreement.

2. Data Quality and Environmental Baseline Concerns

The DEIS provides a bare-bones table stating that there are 12,579 routes within the planning area. DEIS at 3-33 (Table 3-7). There is no indication where the table's numbers come from, nor what assumptions may have been applied to the data or any underlying inventories or analyses used to create the table. There is no explanation as to what currently governs travel management in the SEORMP area. There are no maps and tables identifying these routes. The DEIS contains no description of the accuracy of this information for the planning area and offers no comparison to the BLM Oregon GTRN database. BLM must present more accurate data and maps to depict the actual extent of existing roads, trails, and other routes in the planning area. Absent a complete description of existing routes BLM lacks a sufficient baseline for analysis and cannot accurately portray the magnitude of impacts from travel management decisions. *See* DEIS at 1-11 (recognizing that "[a]ccurate information is a core element of analyzing the impacts of the alternatives in this Amendment").

For example, the Ninth Circuit recently rejected BLM's argument that it could change its definitions of "roads" and "trails" without providing a reasoned explanation to the public. *Or. Natural Desert Ass'n v. Rose*, 921 F.3d 1185, 1189 (9th Cir. 2019). BLM's potential authority to designate routes does not alter its obligation to provide an accurate baseline of environmental conditions before making such designation decisions. If anything, that heightens BLM's NEPA obligation to establish an accurate baseline of route conditions because of the vast range of conditions on the ground that might be considered a "road." The key question here is whether—for purposes of complying with NEPA—BLM has accurately verified and made available for public review baseline information describing the actual condition on the ground of its proposed roads. In reviewing the DEIS, the answer to that question clearly is "no."

It is critical for BLM to establish an accurate baseline and make that information available to the public for review. *See Methow Valley Citizens Council*, 490 U.S. at 349 (describing that NEPA's dual purposes are to "ensure that agencies carefully consider information about significant environmental impacts" and to "guarantee relevant information is available to the public"). At most, the DEIS at Table 3-7 offers a list of the *potential categories* of driving routes in the SEORMP planning area. But BLM has failed subsequently to gather the necessary information to understand—and disclose for public review—the actual, on-the-ground condition of each of those routes. Only that information could have allowed BLM to accurately

assess, and the public to understand and comment on in a meaningful way, the environmental impacts of motorized use and mechanical maintenance on both those routes and the area-wide designations contained in the alternatives—particularly as they would impact the fragile ecology and wild landscapes of southeastern Oregon.

The Ninth Circuit has explained that "a NEPA analysis should be informed by the laws driving the federal action being reviewed." *Mont. Wilderness Ass'n*, 725 F.3d at 1002 (citing *ONDA v. BLM*, 625 F.3d at 1109). FLPMA requires BLM to minimize the impacts on soils, vegetation, and other resources of each designated route in order to "prevent unnecessary or undue degradation." 43 C.F.R. §§ 8340.0-8, 8342.1(a)–(c); 43 U.S.C. § 1732(b). To fulfill that mandate, BLM must "prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values" and to keep that inventory "current so as to reflect changes in conditions." 43 U.S.C. § 1711(a).

Given these requirements aimed at informed land management and resource protection, as well as the Settlement Agreement's plain language directing BLM to consider not just ORV area designations but also route-specific travel and transportation management, it would be arbitrary of BLM not to carefully establish, assess, and make available for public review an accurate, route-by-route environmental baseline of the actual condition of proposed routes on the ground. The Ninth Circuit has made clear that "[w]ithout establishing the baseline conditions which exist [in the project area] before [the project] begins, there is simply no way to determine what effects the proposed [project] will have on the environment and, consequently, no way to comply with NEPA." *Half Moon Bay Fishermans' Mktg. Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988); *see also N. Plains Res. Council*, 668 F.3d at 1085 ("without [baseline] data, an agency cannot carefully consider information about significant environmental impacts").

The Ninth Circuit also has held that BLM cannot so artificially constrain its view of "the environment" in a NEPA review. In *ONDA v. BLM*, for example, the agency "disclaimed any general obligation to analyze the impacts of its Plan on wilderness values" and thus refused to reinventory wilderness values within the planning area. 625 F.3d at 1102–03. BLM went "so far as to suggest that ONDA came up with the very idea of wilderness characteristics." *Id*. at 1110 (quoting BLM's argument that "ONDA seeks to impose its own framework for managing public lands"). The court rejected that notion. Because BLM had the authority under FLPMA to manage wilderness values on the public lands, it therefore had the obligation under NEPA to address "whether, and to what extent, wilderness values are now present in the planning area . . . and, if so, how the Plan should treat land with such values." *Id*. at 1122.

So it is here. Just as BLM in the earlier SEORMP planning process was directed to avoid the inconvenient truth that it must manage wilderness values like any other resource, the agency here would avoid honestly grappling with how to address the wide range of route conditions—including some that are simply not present on the ground—in southeastern Oregon, or the environmental effects of maintaining, improving, or closing those routes. "It is fairly debatable issues of this kind that NEPA was designed to bring out in the open, for analysis and discussion in the service of sound decisionmaking." *Id*.

In short, BLM has a threshold responsibility under NEPA to accurately establish and disclose to the public the baseline condition of every route it wants to include in the "route network" it assumes exists in the SEORMP planning area, before designating them as roads. All the rest of BLM's other procedural and substantive legal obligations flow from this: from assessing the significance of these impacts, to deciding on maintenance, improvements, or closures necessary to protect the environment including wilderness values and roadlessness, to minimizing "unnecessary or undue degradation" to soils, vegetation, and other resources that may be caused by motorized use or mechanical maintenance of each, individual and unique route. NEPA requires that the first step in BLM's decisionmaking process to comply with these other obligations be an accurate description and disclosure of the current conditions of the routes on the ground. *ONDA v. Rose*, 921 F.3d at 1191–92; *Half Moon Bay*, 857 F.2d at 510.

3. BLM Fails to Properly Apply the Minimization Criteria

The DEIS references the minimization regulations and criteria here and there (*e.g.*, DEIS at 1-4, 3-33), but BLM fails to actually apply the criteria, as required by Executive Orders, BLM regulations, and the 2010 Settlement Agreement. *See* DEIS at 3-34 ("OHV areas and trail designation will be reviewed by developing travel management areas and route-by-route reviews . . . as part of future travel management planning").

First, BLM fails to apply the criteria on a route-by-route basis as required under the Executive Orders and regulations. As described, BLM cannot assess routes in a general sense. Rather, it must analyze each on a "route specific level" in order to "assess the effects of route designations." *S. Utah Wilderness*, 981 F. Supp. 2d at 1104–06; *see also WildEarth Guardians*, F.3d at 930–31 (agencies "must provide a more granular minimization analysis" and must "apply the minimization criteria to *each area* . . . designated"). Here, nothing in the DEIS and its appendices, nor even in BLM's wilderness evaluations, provides any route-by-route assessment or application of the minimization criteria. As noted, even a detailed survey and inventory of routes is still inadequate if "there is nothing in the record to show that the minimization criteria *were in fact applied* when . . . routes were designated." *Ctr. for Biol. Diversity*, 746 F. Supp. 2d at 1079 (emphasis added).

The DEIS only addresses area-wide designations. *See* DEIS at 3-31 (stating that "[t]his RMP Amendment makes OHV area allocations of open, limited, and closed" and "does not designate linear assets (routes) and does not propose permanent or temporary road construction, road closures, road maintenance, or road inventories"). Even if it were permissible for BLM to defer route-specific designations or assessment to a "subsequent travel and transportation planning" process, *see* DEIS at 3-31, BLM still cannot comply with the minimization regulations as to its area designations, if it has not applied the criteria on a route-by-route basis.

Put differently, the public and agency decisionmakers need to understand the site-specific—*i.e.*, route-specific—impacts of the routes designated for motorized use and mechanical maintenance in order to intelligently comment on and make area designations. How do we know what the environmental consequences are of an area designated as "open" to motorized use or "limited" to "existing" roads, if the DEIS does not describe the actual condition of the routes in those areas?

Importantly, the Settlement Agreement (¶¶ 26, 26.a) references not just off-road vehicles, but also "travel" and "transportation." These provisions go to the designated road and trail network, not just the open/limited/closed level of ORV-use designation. Subsequent terms make this even clearer. Paragraph 26.b states that BLM shall consider alternatives that vary the "amounts of areas falling within all three ORV allocation types (open, limited, closed) based on a balancing of resource uses and values."

Importantly, ¶ 26.c specifically requires BLM to adhere to 43 C.F.R. § 8342.1, the "minimization criteria" requirement. Again, this regulatory requirement deals with areas *and* trails. It governs not just the area-wide "open," "limited," and "closed" designations, but also the minimization criteria. BLM must, when designating roads and trails, apply regulatory criteria to "minimize" impacts on soils, vegetation, wildlife, air, water, and cultural resources. *See also S. Utah Wilderness*, 981 F. Supp. 2d at 1104–06; *WildEarth Guardians*, 790 F.3d at 930–31.

Finally, ¶ 26.c requires BLM to consider an alternative that limits motorized use to roads and trails existing at the time the area was recognized as an LWC. *See supra* Section III.C.10.

4. Inadequate Range of Alternatives

The Settlement Agreement, ¶ 26, requires BLM to consider not only a "full range of alternatives" that varies the amounts of areas falling into the open, limited, and closed area allocation types, but also at least one alternative that limits motorized use to "roads and trails existing . . . at the time the . . . Non-WSA lands were recognized as possessing wilderness character." BLM must identify any newly-created, post-LWC routes. Such routes must be closed and not designated in the final plan amendment decision. The DEIS fails to identify such routes and therefore also fails to include this required alternative.

The DEIS also falls short because BLM considers only two alternatives with regard to areas closed to motorized use: Alternative B, which closes 54% of the planning area (2,513,839 acres), and Alternatives A, C, D, and No Action, all of which represent no change from the unlawful 2002 SEORMP and all of which close less than 1% of the planning area (15,829 acres). *See* DEIS at 2-41. BLM's analysis for the 2002 SEORMP was unlawful because the agency considered "no alternative that proposed closing more than a fraction of the planning area to ORV use, as opposed to merely designating areas for 'limited' use." *ONDA v. BLM*, 625 at 1123–24. Remember: the court had observed that this very same "0.77%" closed acres would actually *reduce* the "extent of closed areas from that in effect previously." *Id*. at 1124; *see also* 2002 SEORMP at *xxii* (35,193 acres closed to OHV use prior to 2002 ROD). "It is precisely this sort of uncritical privileging of one form of use over another that we have held violates NEPA." *ONDA v. BLM*, 625 F.3d at 1124 (internal quotes omitted).

NEPA requires federal agencies to "study, develop, and describe appropriate alternatives to recommended courses of action." 42 U.S.C. § 4332(2)(E). "[C]onsideration of alternatives is critical to the goals of NEPA even where a proposed action does not trigger the EIS process." *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228–29 (9th Cir. 1988); *see also Citizens for a*

Better Henderson v. Hodel, 768 F.2d 1051, 1057 (9th Cir. 1985) (an EIS must consider "every" reasonable alternative).

Courts have consistently described that an agency's failure to consider a reasonable alternative is fatal to its NEPA analysis. "The existence of a viable, but unexamined alternative renders an environmental impact statement inadequate." *W. Watersheds Proj. v. Abbey*, 719 F.3d 1035, 1050 (9th Cir. 2013) (quoting *Westlands Water Dist. v. US. Dep't of Interior*, 376 F.3d 853, 868 (9th Cir. 2004)); *see also ONDA v. BLM*, 625 F.3d at 1100 (also quoting *Westlands*). Viable alternatives are feasible, meet the stated goals of the project, or are reasonably related to the purposes of the project. *See W. Watersheds Proj.*, 719 F.3d at 1052 ("Feasible alternatives should be considered in detail.").[16] Similarly, where an agency considered only a no-action alternative along with "two virtually identical alternatives," the agency "failed to consider an adequate range of alternatives." *Muckleshoot Indian Tribe*, 177 F.3d at 813.

Here, BLM has essentially considered only an action alternative and a no-action alternative with regard to areas closed to motorized use. *See* DEIS at 2-41 (only considering closing 15,829 acres, which is less than the prior status quo, or 2,513,839 acres in straw-man wilderness protection Alternative B). Although NEPA "does not impose a numerical floor on alternatives to be considered," an environmental review that considers only two reasonable alternatives will rarely satisfy the statute's "hard look" standard. *Native Ecosystems Council v. U.S. Forest Serv.*, 428 F.3d 1233 (9th Cir. 2005) (consideration of only a preferred alternative and a no-action alternative *in an EA* was acceptable under the unique facts of that case).

In this instance, considering the stated purposes and goals of the plan amendment to manage important public lands, address more than a million acres of wilderness character lands, pay particular attention to grazing and motorized use issues, consider the holdings and discussion of the court in *ONDA v. BLM*, and satisfy specific requirements in the 2010 Settlement Agreement, the all-or-nothing approach presented by BLM with regard to areas closed to motorized use cannot be considered reasonable. Consistent with the Settlement Agreement, the Purpose and Need statement recites that BLM will develop "a full range" of "allocation alternatives with respect to off-highway vehicle use, travel, and transportation." DEIS at 1-4. But the alternatives presented are in no way a "full range" of viable options. For example, there is no alternative that closes the entire planning area to motorized use or that even limits the entire planning area to designated or existing routes. *Compare* DEIS at 2-40 to -41 *with* 2002 SEORMP FEIS at *xxii*. And there is no alternative in between the all-or-nothing dichotomy presented for closed areas.

As the Ninth Circuit explained, "[l]imited ORV use is simply not identical to no ORV use." *ONDA v. BLM*, 625 F.3d at 1124. A limited designation "does not provide protection equivalent to a straightforward closure." *Id*. "As they pass through 'limited' areas, both on existing routes and en

[16] *See also* Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 48 Fed. Reg. 18,026 (Mar. 16, 1981) ("In determining the scope of alternatives to be considered, the emphasis is on what is 'reasonable' rather than on whether the proponent or applicant likes or is itself capable of carrying out the particular alternative. Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.").

route to camping sites, ORVs will still churn up mud, transport mud and seeds into the regions through which they pass, and will still significantly affect the outdoor recreation experience." *Id*. The court specified that "the BLM must consider closures of significant portions of the land it manages, including, if found appropriate on remand, lands with wilderness characteristics." *Id*.

Note that the court said closures—plural—and significant portions—plural—not a single, throw-away alternative that the agency apparently never had any intention of adopting. The DEIS's single alternative that would close a "significant portion" of the planning area to motorized use is not enough. Moreover, Alternative B closes not just LWCs but also WSAs—thus the 2,513,839 acres. To comply with the court's opinion in *ONDA v. BLM* and with the Settlement Agreement, BLM should *also* consider an alternative that would close all 76 wilderness characteristics units (1,236,907 acres) to motorized use. This is in addition to alternatives that would close less than all 76 units, but more than the No Action Alternative's default amount of 15,829 acres. *See, e.g.*, *Or. Natural Desert Ass'n v. Singleton*, 47 F. Supp. 2d 1182, 1195 (D. Or. 1998) (range of alternatives for cattle grazing along Owyhee Wild and Scenic Rivers was unlawful because "[n]oticeably absent from the EA is an alternative which simply eliminates cattle grazing, without compromising the rivers' scenic, geologic, wildlife and cultural values. The EA contains no explanation of why this alternative was not considered: certainly it is an obvious 'reasonable alternative.'"). Given their significance, ONDA also believes BLM should consider an alternative that adds closures in Roadless Natural Areas. *See* Map 3.

Finally, BLM must also consider an alternative that would close the 35,193 acres closed to motorized use prior to the 2002 SEORMP ROD. This was the status quo prior to BLM's unlawful Record of Decision adopting the SEORMP in 2002. As the Ninth Circuit noted, the inadequate 15,000-acre options in 2002 "would have *reduced* the extent of closed areas from that in effect previously." *ONDA v. BLM*, 625 F.3d at 1124. In sum, in this DEIS and under the circumstances of this particular plan amendment, BLM's consideration of only one preferred no-action alternative and one non-preferred action alternative for areas closed to motorized use does not satisfy NEPA's bare requirement for a reasonable discussion of all viable alternatives.

5. Greater Sage-Grouse and Other Environmental Concerns

Once the full extent of existing routes has been accurately described, the DEIS must identify effective and lasting travel management designations to eliminate or minimize impacts to sage-grouse habitat and other sensitive resources. The Preferred Alternative in the DEIS fails to accomplish the level of protection necessary to effectively protect sage-grouse habitat, wilderness values and other resources. It includes far too many areas left open to cross-country travel, fails to designate a specific, mapped system of roads and trails, fails to provide any discussion of mechanical maintenance levels and designations including those that may reestablish or upgrade routes, and closes too few acres and routes of and in the most sensitive habitat areas to travel. Seasonal restrictions on travel are also absent from the Preferred Alternative and can be an effective means of protecting sage-grouse and other wildlife habitat without complete closure of an area or route. *See* DEIS at 3-31 to -37; *see also* Maps 6, 8–9 & Tables 5–6.

The majority of sage-grouse habitat is within 2.5 km of a mapped road (Knick *et al*. 2011), and many unmapped roads and ORV or primitive trails crisscross public land in the

planning area. Roads can influence the spread of roadside weed infestations into neighboring lands. Many studies show that the number of weed species in an area increases dramatically with the density of roads (Gelbard & Belnap 2003). Invasive weeds are not a food source for grouse; these weeds can out-compete sagebrush and make habitat more prone to fire. The risk that weeds like this will spread from roads and ORV trails into adjacent ecosystems varies depending on the site. It is highest where motorized vehicles leave designated trails and disturb plants and soils, especially on deeper and more fertile soil types, which tend to be most susceptible to invasion. In addition to the impacts from roads on the spread of noxious vegetation, roads can also directly impact birds though vehicle collisions and fragmentation of habitat.

The DEIS also fails to address binding land use planning principles under the ICBEMP Strategy (USDA *et al*. 2014). BLM must—in this plan amendment and environmental review process—"[a]ddress road-related impacts to water quality, fisheries, and wildlife, while still providing the road network needed for public, tribal, and land management access." With no route-specific information or analysis whatsoever included in the DEIS, it is impossible for BLM to complete this task. *See also* 40 C.F.R. §§ 1500.1(b) (agencies must "insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken" and "[a]ccurate scientific analysis . . . and public scrutiny are essential"), 1500.2(b) (EISs "shall be supported by evidence that agencies have made the necessary environmental analyses"), 1502.15 (requirement to establish accurate environmental baseline), 1502.22 (requirement to include information "relevant to foreseeable significant adverse impacts"), 1502.24 (agencies "shall insure the professional integrity, including scientific integrity, of the discussions and analyses" in an EIS). Consistent with the minimization regulations, the ICBEMP Strategy also requires BLM to "[m]anage for elimination, reduction, and mitigation of adverse effects from roads on aquatic/riparian resources, and address closure and rehabilitation of unneeded roads" (USDA *et al*. 2014). These omissions require BLM to prepare a new or revised draft EIS. 40 C.F.R. § 1502.9(a) (where a draft EIS is "so inadequate as to preclude meaningful analysis").

6. Air Quality Concerns

NEPA dictates that agencies take a "hard look" at the environmental consequences of a proposed action, including its direct, indirect, and cumulative effects. Significant impacts that must be fully analyzed and disclosed in an EIS include those that affect public health or would threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1508.27(b)(2) & (10). This includes compliance with the health-based National Ambient Air Quality Standards, prevention of significant deterioration of air quality, and adverse impacts on air quality related values such as visibility under the Clean Air Act. *See* 42 U.S.C. §§ 7409(b), 7470–79, 7491–92.

As described above, BLM is also obligated to locate motorized routes to minimize damage to air quality, 43 C.F.R. § 8342.1(a), and to prevent unnecessary or undue degradation of public lands, 43 U.S.C. § 1732(b). The DEIS completely fails to address air quality concerns in any meaningful way in relation to its motorized use and travel planning alternatives. *See* DEIS at 3-ii & 3-31 to -36. Absent a thorough analysis of the air quality impacts associated with SEORMP's area and route designation decisions, BLM cannot demonstrate compliance with

these legal obligations. *See also* Map 7 (illustrating overlap between climate change consideration areas and roadless and wilderness areas).

BLM states that air quality is "not affected" by the alternatives. DEIS at 3-20. That assumption is not supportable given BLM's failure to prepare a route-by-route minimization analysis as described above. For example, the DEIS fails to adequately analyze the numerous significant impacts associated with fugitive dust caused by OHV travel and travel on the generally unpaved roads that make up the vast majority of routes in the planning area. These impacts are summarized in the scientific literature (Nauman *et al*, 2018, Field *et al*. 2010). Nor does BLM analyze the various minimization and mitigation measures the agency can take to reduce fugitive dust and other air quality impacts, such as locating motorized routes on less erosive soils, actively reclaiming and revegetating transportation linear disturbances, and imposing speed limits and other limitations on use. *See* BLM Manual 1626, §§ 3.1(B), 4.2 (broad agency authority to impose relevant restrictions on motor vehicle use in limited areas).

BLM must develop specific and enforceable mitigation measures that will ensure the SEORMP travel network complies with Clean Air Act and other legal requirements. ONDA recommends that BLM conduct a comprehensive and updated air quality analysis that demonstrates compliance with the Clean Air Act, NEPA, FLPMA, and the minimization criteria. This will require changes to the current alternatives, including but not limited to development of specific and enforceable minimization and mitigation measures such as closure and revegetation of routes on sensitive and erosive soils and more, and more specific, limitations on OHV use.

VI. LIVESTOCK GRAZING

A. Legal Framework

BLM's land management authority is defined by FLPMA. The statute directs that the Secretary of the Interior, who oversees the BLM, "shall, with public involvement . . . , develop, maintain, and, when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands." 43 U.S.C. § 1712(a); *see also SUWA*, 542 U.S. at 58–60 (describing the land use planning process). BLM "shall manage the public lands" in accordance with these plans." 43 U.S.C. § 1732(a).[17] The plans guide "[a]ll future resource management authorizations and actions . . . and subsequent more detailed or specific planning, shall conform to the approved plan[s]." 43 C.F.R. § 1610.5-3.

BLM sets basic grazing practices and goals in its land use plans. *See* 43 C.F.R. § 4100.0-8 (mandating consideration of grazing management in land use plans); *see also ONDA v. BLM*, 625 F.3d at 1104 (describing BLM land use planning for grazing). Under FLPMA and implementing regulations, BLM may allow livestock grazing on specified allotments on the public lands. *See* 43 C.F.R. Part 4100 (grazing administration); *see also id*. § 4130.2 (management of allotments and issuance of grazing permits); *id*. § 4100.0-5 (defining an

[17] BLM sometimes refers to these plans as "resource management plans" or RMPs. 43 C.F.R. § 1601.0-1. This letter uses "land use plan" and "resource management plan" interchangeably.

allotment as "an area of land designated and managed for grazing of livestock"). BLM authorizes and manages grazing on these allotments through three types of decisions: a permit issued pursuant to 43 U.S.C. § 1752(a) and 43 C.F.R. § 4130.2; an allotment management plan ("AMP") issued pursuant to 43 U.S.C. § 1752(d) and 43 C.F.R. § 4120.2; and variously-named annual decisions.

A grazing permit is "a document that authorizes grazing use of the public lands . . . [and] specifies grazing preference and the terms and conditions under which permittees make grazing use during the term of the permit." 43 C.F.R. § 4130.2; *see also* 43 U.S.C. § 1702(p). A permit grants a site-specific, revocable license to graze and establishes the maximum number, kind and class of livestock, the allotment to be grazed, and the period of use. *See* 43 C.F.R. § 4130.2; 43 U.S.C. § 1752. BLM, like the Forest Service, which also authorizes grazing pursuant to authority conferred at 43 U.S.C. § 1752(d), "sets these parameters based on its assessment of the land's ability to sustain average levels of livestock use according to the applicable land and resource management plan." *Or. Natural Desert Ass'n v. U.S. Forest Serv*. ("*ONDA v. USFS*"), 465 F.3d 977, 980 (9th Cir. 2006). BLM generally issues permits for ten-year terms. *See* 43 C.F.R. § 4130.2(d). Permits "convey no right, title, or interest held by the United States in any lands or resources." *Id*. § 4130.2(c).

An AMP specifies longer-range objectives for each allotment. *See* 43 U.S.C. §§ 1702(k)(1), 1752(d); 43 C.F.R. § 4120.2. As the Ninth Circuit has explained in the analogous forest planning context, "While a forest plan is an overarching land management directive for an entire forest-wide unit within the National Forest System, the AMP is a land management directive for a specific allotment within a national forest that the Forest Service has designated for livestock grazing." *ONDA v. USFS*, 465 F.3d at 980 (citing *Wilderness Soc'y v. Thomas*, 188 F.3d 1130, 1133 (9th Cir. 1999)).

Finally, prior to each year's grazing period, BLM issues an annual grazing authorization to grazing permit holders that "sets the parameters for the upcoming grazing season." *ONDA v. USFS*, 465 F.3d at 980, 983. "Whereas the AMP relates the directives of the applicable forest plan [or equivalent BLM land use plan] to the individual grazing allotment, and the grazing permit sets grazing parameters through a 10-year period, the [annual authorization] annually conveys these more long-term directives into instructions to the permittee for annual operations." *Id*. at 980.

BLM divides grazing allotments into smaller "units" or "pastures." The agency uses annual authorization documents to set forth "annual determinations regarding how much grazing [these] particular units (pastures) within a given allotment can sustain in the upcoming season." *ONDA v. USFS*, 465 U.S. at 984. In these annual decisions, the agency can inform permit holders of required dates for moving cattle onto and off of an allotment, and from one unit to another within the allotment, applicable standards, and any other management requirements. *See id*. at 979–81, 984–85.

The number of livestock authorized for release, combined with the specified time period, are together known as the authorized use. *See also* 43 C.F.R. § 4100.0-5 (defining "active use" as the non-suspended portion of the grazing preference that is "[a]vailable for livestock grazing use

under a permit or lease based on livestock carrying capacity and resource conditions in an allotment" and "actual use" as "where, how many, what kind or class of livestock, and how long livestock graze on an allotment, or on a portion or pasture of an allotment"). The basic measure of use is the "animal unit month" or "AUM," which means "the amount of forage necessary for the sustenance of one cow or its equivalent for a period of 1 month." *Id*.

Through its annual grazing decisions, then, BLM can modify or suspend grazing on specified units or an entire allotment. *See, e.g.*, *Anchustegui v. Dep't of Agric.*, 257 F.3d 1124, 1126 (9th Cir. 2001) (describing contents of an AOI that imposed reduced use levels in response to changed pasture conditions); *see also ONDA v. USFS*, 465 F.3d at 980–81, 989 (describing that annual grazing decisions are intended to be "responsive to conditions that the Forest Service could not or may not have anticipated and planned for in the AMP or grazing permit" and that the permit "does not authorize the permit holder to graze continuously for the permit's ten-year duration" bur rather "only after" annual issuance of the AOI).

In 1995, BLM adopted the Federal Rangeland Health regulations to establish fundamental ecological criteria for the management of livestock grazing on public lands. The regulations require all BLM grazing allotments to meet, or show significant progress toward meeting, four "Fundamentals of Rangeland Health." *See* 43 C.F.R. § 4180 *et seq*. These relate to water quality, riparian habitat, watershed conditions, and species habitat. *Id*. § 4180.1. The regulations provide for evaluation of whether those criteria are met through application of Standards and Guidelines, which the BLM developed on a state-by-state basis. *Id*. § 4180.2(a), (b). *See also* BLM (1997).

Whenever the BLM determines that ecological conditions on an allotment or unit are not meeting one or more of the Standards & Guidelines due to grazing impacts, the agency must revise grazing management "as soon as practicable, but not later than the start of the next grazing year" by adopting changes in livestock numbers, seasons of use, or other terms and conditions that "will result in significant progress toward fulfillment of" the Standards & Guidelines. 43 C.F.R. §§ 4180.1, 4180.2(c). This imposes a mandatory and legally enforceable requirement upon BLM to ensure that grazing management changes are in place before the start of the next grazing season. *Idaho Watersheds Proj. v. Hahn*, 187 F.3d 1035 (9th Cir. 1999).

BLM adopted these land health regulations pursuant to its statutory authority under FLPMA and other statutes. The Supreme Court upheld the agency's broad statutory authority to regulate grazing on public lands in the public interest, including through adoption of the land health regulations in 1995, in *Public Lands Council v. Babbitt*, 529 U.S. 728 (2000). FLPMA requires the BLM to manage livestock grazing on the public lands consistent with the "principles of multiple use and sustained yield." 43 U.S.C. § 1732(a). As described above, FLPMA's multiple-use mandate requires the BLM to manage the public lands and resources "without permanent impairment of the productivity of the land and the quality of the environment." *Id*. § 1702(c). FLPMA requires that the agency "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." *Id*. § 1732(b). BLM also must manage the public lands consistent with land use plans developed pursuant to FLPMA. *Id*. § 1712.

B. Ecological Framework

Livestock grazing is one of the most ubiquitous threats to Greater sage-grouse and the sagebrush plant communities on which this imperiled bird relies. 75 Fed. Reg. at 13,939–42. Grazing cattle consume native plants, trample and destroy soils and fragile spring and riparian areas, and increase the spread of sagebrush-replacing weeds. *Id*. at 13,939–40, 13,942. Cattle grazing in nesting areas during the April-May nesting season can cause sage-grouse hens to abandon their nests. *Id*. at 13,940. The infrastructure of watering systems and barbed-wire fencing needed to manage large herds of cattle in the desert also fragment and destroy sagebrush habitat, artificially concentrating cattle in important sage-grouse habitat areas, dewatering natural springs and water courses, and creating thousands of potential breeding grounds for West Nile virus-carrying mosquitoes as water stagnates in reservoirs, troughs, and even cattle hoof prints (Walker & Naugle 2011). *See also* 75 Fed. Reg. at 13,941. The virus is 100% fatal to sage-grouse (Walker & Naugle 2011). *See also* 75 Fed. Reg. at 13,941, 13,967–68.

Structures such as fences also can inhibit or destroy genetic connectivity between neighboring populations of Greater sage-grouse. In a recent synthesis report, the U.S. Geological Survey ("USGS") noted three new studies that "emphasized the importance of maintaining connectivity between populations to conserve genetic diversity" and that "[w]inter habitats outside of core areas support core area sage-grouse populations" (Hanser *et al*. 2017).

Since that time, yet another paper identified "hub" and "keystone" nodes that facilitate gene flow, demonstrating that the loss of these nodes "could lead to the disintegration of the network into smaller, isolated subnetworks" (Cross *et al*. 2018). Protecting these nodes "will conserve genetic diversity and should maintain network connections to ensure a resilient and viable population over time." The researchers provide "network models [that] can be used to model gene flow, offering insights into its pattern and process, with application to prioritizing landscapes for conservation." In other words, the tools are available for BLM to study this issue. *See* 40 C.F.R. § 1502.22(a) (requirement to gather and evaluate this type of information "essential to a reasoned choice among alternatives").

The shrub-steppe and desert environments of the interior West, including southeastern Oregon, evolved without significant grazing pressure. This is because bison and other large herbivores were relatively uncommon west of the Continental Divide before Euro-American settlement (Mack & Thompson 1982, Warren & Eldridge 2001, Knapp 1996). Consequently, the introduction of livestock devastated native bunchgrasses and paved the way for weed invasion. Historical grazing practices established cheatgrass throughout the Intermountain West (Yensen 1981, Knapp 1996, Chambers & Wisdom 2009, Condon & Pyke 2018). Today, grazing continues to drive annual grass invasions throughout the Great Basin.

Grazing spreads invasive annual grasses by removing native perennial grasses (Reisner *et al*. 2013, Rosentreter 1994, Chambers *et al*. 2007, Belsky & Blumenthal 1997, Briske & Richards 1995), by disturbing soils (Olff & Ritchie 1998), and by damaging biological soil crusts (Belnap 2006, Chambers *et al*. 2014, Reisner *et al*. 2013, Ponzetti, McCune, & Pyke 2007, Warren & Eldridge 2001, Belnap 1995). As summarized by Chambers *et al*. (2014):

> Inappropriate grazing can decrease the relative abundance of palatable grasses and forbs, disrupt biological soil crusts, and increase soil surface disturbance in communities dominated by herbaceous species and shrubs/trees. These changes can increase available soil water and nitrate in the upper profile of cold desert soils. . . . With increasing levels of grazing intensity, bare soil can increase and cheatgrass can become progressively more abundant in interspaces among residual perennial herbaceous species. These changes can lower resilience to fire due to higher or more contiguous fine fuels that result in greater fire severity and extent and high mortality of fire-intolerant trees and shrubs.

Livestock also distribute annual grass seeds across the landscape through their hooves, fur, and digestive tracts (Schiffman 1997, Olff & Ritchie 1998, Chambers *et al*. 2016, Mack 1981, Knapp 1996). According to Bartuszevige & Endress (2008), "[c]attle disperse more than an order of magnitude more non-native grass seeds per animal than do elk or deer." Over 70% of viable seeds in cattle feces were exotic grass species (Bartuszevige & Endress 2008; *see also* Janzen 1994, Getz & Baker 2008). Areas around troughs and watering sites are especially vulnerable to invasion because of the high amount of trampling disturbance

Livestock grazing damages fish habitat by removing streamside vegetation, which leads to soil erosion and collapsed streambanks that leave channels too wide and shallow to maintain the clean, cold water native trout need to survive (Figs. 1–2, below). *See, e.g.*, Appendices D & E (documenting this in the Louse Canyon GMA).

Fig. 1 – An ungrazed section of Big Creek, a tributary to the Malheur River, which flows into the northern end of the SEORMP planning area, shows a biologically diverse assemblage of plants, well-vegetated streambanks, and a complex channel. This photograph illustrates site potential, *i.e.*, "natural" condition, in the watershed.

//
//
//
//

Fig. 2 – A grazed section of Jack Creek, which flows into the upper West Little Owyhee Wild and Scenic River, shows compacted soils, trampled, collapsing banks along a wide and shallow stream course, a lowered water table, and vegetation that is overgrazed and lacking in diversity. This photograph illustrates poor habitat for fish and aquatic species, far removed from a natural condition.

Although grazing management has changed since the initial introduction of livestock, modern grazing systems continue to facilitate the establishment and spread of invasive species. Many BLM grazing permits lack terms and conditions to ensure recovery of native perennial grasses, and allotments still operate under the obsolete 50% utilization standard, which does not allow for perennial grass recovery. Yeo (2005) noted that modern rest-rotation grazing systems continue to suppress annual grass abundance on BLM grazing allotments. Other researchers have hypothesized that moderate grazing and deferment schedules increase cheatgrass abundance (Knapp 1996, Schmelzer *et al*. 2014). Carter *et al*. (2014), meanwhile, found that so-called "holistic" grazing systems confer no environmental benefits and harm native bunchgrass-sagebrush communities. Inconsistencies in monitoring persist within and among agencies, making it difficult to measure current grazing pressure (Condon & Pyke 2018).

C. Discussion

BLM's land health regulations establish ecological criteria for the management of livestock grazing on BLM public lands. The regulations require the BLM to assess conditions on the public lands and evaluate whether ecological land health standards are, or are not, being met in those areas. If standards are not being met, and BLM determines that existing grazing management or levels of grazing use are significant causal factors for the failure, the agency must make grazing management changes on those lands no later than the start of the next grazing season.

To comply with these land health regulations, the Vale District in 2002 divided the lands under its jurisdiction into Geographic Management Areas ("GMAs") for land health assessment, evaluation and determination purposes. *See* 2002 SEORMP Map GMA-1. Under its own guidance for the 1995 Rangeland Health regulations, BLM was supposed to complete its review of every single allotment in the planning area within ten years—*i.e.*, by 2005. And then the agency was supposed to repeat a second round of assessments in the ten years after that, *i.e.*, by 2015. BLM should be in the third iteration now. Despite that, only a fraction of allotments have been assessed. Those that have, however, tell a disturbing story.

Since 1995, only 78 of the 198 allotments within the SEORMP planning area have had a land health evaluation completed. Of those, BLM found that 61 were not meeting the ecological standards. And of the 61 not meeting standards, 59 were found to not be meeting standards due to existing livestock grazing management. *See* EIS at 3-39. **Based on BLM's data, of the allotments that have had evaluations completed, a staggering 75.6% have failed to meet required ecological standards due to current livestock grazing**. *See* Map 10 (illustrating scope and extent of failed standards and incomplete assessments). Based on this information, it is reasonable to predict that of the 120 allotments that still have never been assessed, *90 allotments* are likely to be failing to meet land health standards because of current livestock grazing management.

Despite multiple requests to the Vale District for its land health assessment results, the information has not been forthcoming. The DEIS has failed to provide important data and spatial information that is essential to making informed decisions regarding impacts and remediation related to livestock grazing. The most recent data ONDA has for the SEORMP is from 2012. At that time, evaluations for just 64 allotments were available. Of those 64 allotments, twelve (19%) met land health standards. However, the allotments that met standards were much smaller than most of the allotments that failed to meet the standards. As a result, only 128,692 acres (6%) met standards, compared to 1,862,033 (94%) acres that failed RHA standards. It is likely that greater than 90% of the land area within active BLM allotments is failing to meet mandatory land health standards—clearly showing how badly BLM's current grazing management is failing.

Something needs to change—and dramatically. Permit holders have enjoyed a decades-long free pass here. Given BLM's poor track record for assessing lands, ensuring compliance with essential ecological standards, and making timely changes to grazing, BLM should, in this SEORMP plan amendment, select an alternative that not only provides a clear permit relinquishment mechanism available to every permittee on the landscape, but also make immediate reductions and closures to stop the bleeding. *See* Map 11 (recommended grazing closures based on failed land health standards and highest priority roadless units).

With these thoughts, in mind, we offer the following additional comments related to grazing management issues—

1. The Louse Canyon Habitat Monitoring Project

ONDA conducted field monitoring of upland and mesic area ecological conditions in the Louse Canyon GMA in 2017, 2018, and 2019. These monitoring efforts are part of a multi-year

project documenting ecological conditions in important sage-grouse habitat across southeastern Oregon. The project has two main objectives: to (1) quantitatively document how plant communities in sage-grouse habitat compare to the objectives and standards described in the ARMPA, and (2) document ecological conditions in mesic areas grazed by livestock. *See* Appendix D. ONDA's 2019 field data collection is currently underway. We will analyze and submit this information to BLM following completion of the 2019 field season. BLM must disclose and discuss this important information as part of its environmental baseline and informed analysis. *See, e.g.*, 40 C.F.R. §§ 1502.9(b), (c), 1502.15, 1502.24, 1503.3 (requirements with regard to significant new information, accurate baseline information, scientific accuracy, and responding to comments).

For the upland portion of its study, ONDA focused on the Louse Canyon Community Allotment, a 140,913-acre grazing allotment composed of 10 pasture units. More than 90% of the allotment overlaps with the Louse Canyon Sagebrush Focal Area, one of the six most important areas identified by the USFWS for the long-term survival of the sage-grouse. Using a line-point intercept protocol to examine functional plant groups in upland habitat, ONDA collected data on sagebrush, shrubs, perennial grasses, annual grasses, native forbs, and invasive forbs. The inventories occurred in the spring (May-June) and fall (September-October), to coincide with the sage-grouse breeding and brood-rearing timelines described in the ARMPA (BLM 2015a). The results from the first two years of this study indicate that several pastures within the Louse Canyon Community Allotment are failing to meet perennial grass and native forb objectives described in ARMPA Table 2-2, Habitat Objectives for Greater Sage-grouse.

For the wet meadow habitat portion of its study, ONDA focused on nine mesic areas in the southern portion of the Louse Canyon GMA. These vast wet meadow complexes are extraordinarily important parts of the ecological landscape in this part of the planning area. Using the Robel Pole method, ONDA photographed mesic areas to capture the vertical cover of vegetation and a snapshot of ground cover and soil disturbance. Again, ONDA surveyed in both spring and fall to provide a temporal comparison of mesic area conditions during peak use by livestock. The photographs show widespread heavy utilization, loss of vertical vegetation cover, increased exposed soils, active soil erosion, and heavy trampling of mesic vegetation (Figs. 3–6, below) (examples from full ONDA report provided at Appendix D).

Fig. 3 – Spring and Fall photo points from Disaster Spring, Louse Canyon GMA, 2017.

Fig. 4 –Spring and Fall photo points from New Road Spring, Louse Canyon GMA, 2017.

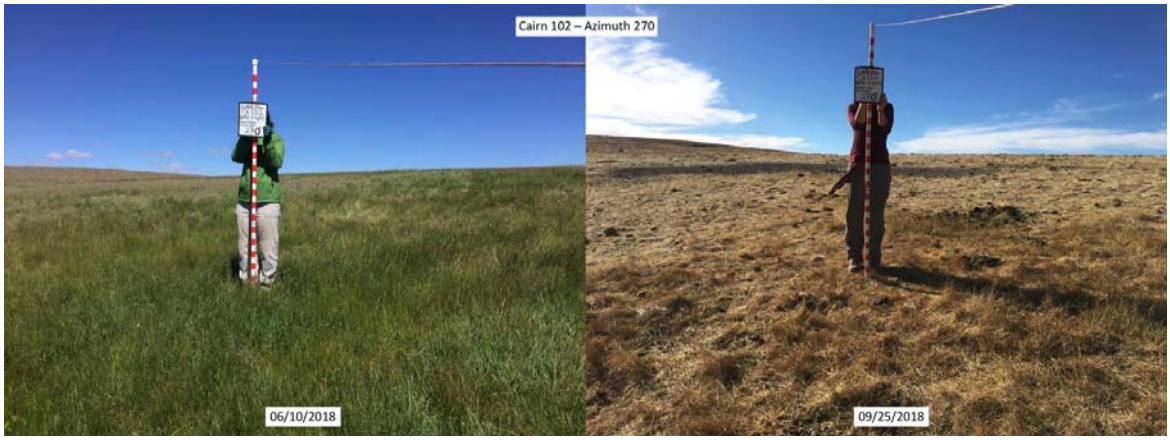

Fig. 5 –Spring and Fall photo points from Cairn Spring, Louse Canyon GMA, 2018.

Fig. 6 – Spring and Fall photo points from Exchange Spring, Louse Canyon GMA, 2018.

BLM should collect like data to gauge ARMPA effectiveness and to inform its environmental review for the SEORMP plan amendment EIS. BLM should address the ONDA data, as well as additional pertinent data BLM has collected, in a new or revised draft EIS. This is directly relevant to BLM's consideration of whether and how to preserve wilderness character and associated ecological integrity (particularly within identified roadless areas within the Louse Canyon Sagebrush Focal Area), and whether and how to manage livestock grazing in the planning area—including whether immediate removal of livestock is warranted in these heavily-degraded areas.

In addition to monitoring ecological conditions during 2017 and 2018, ONDA and our partners have conducted photo monitoring of Louse Canyon GMA since the late 1990s. We have regularly provided this information to BLM. This extensive, georeferenced photographic monitoring data is summarized in Appendix E (attached hereto).

Again, BLM should be collecting similar data to gauge ARMPA effectiveness and inform its environmental review for the SEORMP plan amendment EIS. BLM should address the ONDA data, as well as additional pertinent data BLM has collected, in a new or revised draft EIS, and in the final EIS. This is directly relevant to BLM's consideration of whether and how to preserve wilderness character and associated ecological integrity, and whether and how to manage livestock grazing in the planning area.

2. The DEIS Makes Unsubstantiated Claims About the Undefined Term "Proper Livestock Grazing"

The DEIS uses the term "proper livestock grazing" in numerous places, citing it as a best management practice identified in the 2002 SEORMP and as a management action that would lead toward improving ecological conditions in areas failing to meeting Standards and Guides. BLM even goes so far as to state—without any scientific support whatsoever—that "[p]roper livestock grazing management has positive effects on invasive species control." DEIS at 3-70. However, the DEIS never defines this term or provides any evidence of how "proper livestock grazing" would achieve improved ecological conditions—including any evidence or specific description of the "proper" livestock grazing actions the agency has implemented at any point in the last 17 years pursuant to the 2002 plan.[18]

The DEIS states that "[i]f Standards and Guides are not being met and existing livestock grazing is a significant causal factor, the BLM would implement *proper livestock grazing management actions* that lead conditions toward meeting standards." DEIS at 3-50 (emphasis added). However, the 2002 SEORMP contains no further details that give any more clarity about what the term "proper livestock grazing" means. In fact, the only reference at all to the term "proper grazing" is: "Corridor pastures are generally excluded from livestock use, or used only for trailing purposes, since the areas enclosed are usually too small and narrow for proper

[18] BLM also never defines the vague term "poorly managed livestock grazing," *see, e.g.*, DEIS at 3-84), although perhaps that is what is happening in the 76% of assessed GMAs failing to meet land health standards due to current grazing management.

grazing." 2002 SEORMP at R-10. The 2002 SEORMP's Appendix O (Best Management Practices) similarly provides no further detail on the term or what practices it incorporates or requires.

Regardless, whatever "proper" grazing is, it is clearly not working. Data presented in the DEIS show that management changes that improve ecological conditions have not, in fact, been implemented. As noted above, 76% of the grazing allotments—and a staggering 94% of the acres—assessed within the planning area that have had evaluations completed have failed to meet required ecological standards due to current livestock grazing. *See* ONDA Map 10. These numbers conclusively demonstrate that the "best management practice" of "proper grazing management" that has been in place since 2002 has not and will not lead to meeting land health standards. BLM must go back to the drawing board, because unchanged management is unacceptable and unlawful. *See, e.g.*, 43 U.S.C. §§ 1701(a)(8), 1712(c),1732(b) (requirements to protect lands in a "natural" condition, to prevent "permanent impairment" of lands and resources, and to prevent "unnecessary or undue degradation").

The only way BLM could even begin to substantiate the DEIS's unsupported claims about "proper livestock grazing" would be first to define the term and second to provide evidence of where, exactly, such livestock grazing has been implemented and shown to improve ecological conditions.

3. Ungrazed Reference Areas are Crucial

Livestock exclosures (fenced areas that physically preclude livestock access) are indispensable tools for monitoring recovery and comparing with management effects on vegetation and soils, both in upland and riparian zones. They provide a remarkable contrast to conditions outside their fences. We recommend that exclosures should be installed in all allotments in the SEORMP planning area—and that BLM consider this as part of one or more plan amendment alternatives, especially given that the preferred alternative is considering changing nothing whatsoever with regard to livestock grazing.

Particularly in riparian and other wet areas, within fenced exclosures where livestock are not present, a full range of age classes of woody species is common and there is high diversity of plant species. By contrast, in grazed areas immediately outside such exclosures, the establishment and growth of woody plants is rare to non-existent (Kauffman *et al*. 2003).

Similarly, soils in exclosures are not compacted and have high infiltration capacities. The relatively high porosity of these soils also allows for subsurface water movement and helps maintain a hydrologic connection between streams and adjacent flood plains, wet meadows, and riparian areas. This means cleaner, cooler water reaches the stream. This also means there is more water available to plants in the riparian zone. Cattle grazing lowers the water-holding capacity of streamside soils such that there is a decrease in wetland-obligate species, which are in turn being replaced by species adapted to drier conditions (Kauffman *et al*. 2003). The combination of utilization and trampling results in a riparian composition and structure that is vastly different from that of natural conditions.

For example, published research and photographs from Hart Mountain National Antelope Refuge in southeastern Oregon show dramatic recovery of riparian vegetation and channels following the removal of livestock (Beschta *et al*. 2014, Batchelor *et al*. 2015). Consider the two pairs of photographs, below, from Hart Mountain. They illustrate the dramatic changes that have occurred to streambank stability and willow cover following the removal of livestock. Figures 7 and 8 show different portions of Barnhardi Creek after many decades of livestock grazing and trampling effects. Livestock use was terminated in 1990. Figures 9 and 10 show the extensive recovery of riparian vegetation and the increased stability and shading that resulted, even though these sites remained accessible to wild ungulates.

Fig. 7 – 1990 photograph of Barnhardi Creek showing eroding streambank as well as an over-widened and incised channel due to long-term effects of livestock grazing and trampling. Notice also the total lack of shade by willows over the stream.

Fig. 8 – Same location as previous figure, some 23 years after the removal of livestock. Streambanks are well-vegetated and stable and there has been a major increase in willows that provide shade to stream. The stream is not visible due to the increased vegetation cover.

Fig. 9 – 1990 photograph of Barnhardi Creek showing eroding streambank and over-widened and incised channel due to long-term effects of livestock grazing and trampling. Only a single short and heavily browsed willow is visible along the left side of the channel in the middle-left of the photograph.

Fig. 10 – Same location as previous figure, some 23 years after the removal of livestock. Well-vegetated and stable streambanks now occur along this reach and the increased willows are providing significant amounts of shade to the stream. The actual stream is not visible due to the increased vegetation cover. This is example illustrates a natural rate of recovery, and it has occurred in an area utilized by wild ungulates.

These photographs illustrate the magnitude of riparian vegetation recovery, stabilization of streambanks, increased amounts of shading to the stream, as well as an overall improvement in fisheries habitat that can result once the detrimental effects of livestock grazing are removed. These examples also illustrate that recovery is possible with the continued presence of wild ungulates.

Currently, BLM monitoring is unable to ascertain the effects of grazing practices in the planning area because of the absence of controls (*i.e.*, areas where the effects of livestock grazing have been removed). The DEIS indicates at Table 3-9 that there are only seven areas not available for livestock grazing within the planning area. DEIS at 3-38. There are a couple other scattered references to exclosures in the DEIS, but no indication that BLM is conducting any systematic scientific study or research (at the closed areas or anywhere else) to evaluate plant or soil response in the absence of grazing compared to surrounding areas.

For example, the DEIS references "grazing exclosures [that] have been established around specials [*sic*] status plant populations where declines due to livestock use were identified." DEIS at 3-106. Protecting an area or resource being damaged by livestock is, of course, commendable, but to inform ongoing management in surrounding areas BLM must monitor ecological response in the exclosed area and then adjust practices accordingly. By contrast, the DEIS explains that BLM is merely setting apart damaged areas "for the specific purpose of improving or maintaining resource values that cannot be protected through design features of livestock impacts" or for some unspecified reason were determined to be "unsuitable or unavailable" for livestock grazing. DEIS at 3-38.

The plan's failure to include ungrazed reference areas is particularly glaring when combined with BLM's proposal here to *not* include a voluntary permit relinquishment mechanism, and the agency's decision earlier this year to *abandon* its ability to collect essential information in Research Natural Areas that had previously been closed to grazing (BLM 2015a, 2019). The construction of livestock exclosures within units or pastures, or the long-term exclusion of livestock from several individual units or pastures, has been a long-term need for allotments and GMAs throughout the planning area, to clearly demonstrate the effects of contemporary grazing practices and the capability of these practices, if any, to improve vegetation and channels. Without reference areas, BLM in the SEORMP cannot credibly report (or even make assumptions about) trends in upland or riparian/stream recovery. Only a system of large exclosures throughout the planning area could allow BLM to actually understand (1) the magnitude of ongoing grazing/trampling impacts and (2) the recovery potential of degraded upland, riparian, and aquatic ecosystems.

4. The DEIS Fails to Explain the Relationship of the Amended Plan to the Geographic Management Area Process

The 2002 SEORMP adopted the GMA framework to guide inventory, assessment, and management of multi-allotment segments of the planning area. In twenty years, however, the agency has made little progress in completing GMA-based land health assessments and making required changes to grazing management. The DEIS fails to address or explain the continued

relationship (if any) of the GMA framework to ongoing assessment and adaptive management in the planning area. The still-incomplete Louse Canyon GMA process is a good example.

Louse Canyon is a half-million-acre landscape, at the southern end of the SEORMP planning area, crucial to the survival and recovery of the Greater sage-grouse in Oregon and beyond. In 2001, BLM identified severe ecological damage from livestock grazing in the 530,000-acre Louse Canyon GMA. Half the area's streams and 75% of its wet meadow/wetland complexes were "not functioning" properly. The agency prepared an environmental assessment ("EA") pursuant to NEPA and proposed to prop up unchanged cattle numbers with an extensive array of range projects including fences, spring developments, water pipelines, and even mowing sagebrush.

Following litigation filed in 2005, BLM agreed not to implement most of the planned range projects. Grazing continued under a so-called "Interim Strategy." BLM had first implemented this strategy in 2003, intending it to be a temporary adjustment made to satisfy the regulatory requirement to make changes to grazing management prior to the next grazing season. The main effect of the Interim Strategy was to shift grazing earlier into the spring in order to avoid "hot season" grazing later in the summer.

The case was stayed for several years while BLM updated its wilderness inventory. After completing that inventory, BLM issued new grazing decisions in 2010. Those decisions continued to rely upon the outdated 2005 EA. They shifted some of the proposed grazing projects away from newly-recognized areas with wilderness character, but again left grazing levels and period of use unchanged. The proposed projects still included new pasture fences, spring exclosures, spring developments or re-developments, and new pipelines and troughs. The proposal was to build or maintain 37 miles of new fence and 9 miles of new pipelines. Nowhere had BLM evaluated the plan's effects to sage-grouse populations, life history, and seasonal habitats.

After a successful ONDA appeal, the district court in 2012: (1) set aside BLM's March 2010 grazing decisions as unlawful under NEPA, (2) ordered BLM to undertake additional NEPA review including analysis of impacts to sage-grouse, (3) ordered BLM to follow the Interim Grazing Strategy until the additional analysis is completed and new decisions are issued, and (4) enjoined BLM from building any more range projects until the additional analysis is completed and new decisions are issued. After a second ONDA appeal, the Ninth Circuit clarified that although the 2010 permits had been vacated, the prior 2006 permits could spring back to life and be re-implemented. The 2006 permits expired on Feb. 28, 2016.

Grazing is now continuing in the Louse Canyon GMA under permits that have never undergone a NEPA review. During this time, BLM was collecting monitoring information and preparing land health assessments and determinations for the seven Louse Canyon GMA allotments. ONDA also collected field documentation, periodically submitting its data and findings to BLM. In 2015, for example, ONDA outlined continuing concerns in Louse Canyon GMA and the Owyhee Wild and Scenic River corridor. Although under a court order to complete a lawful NEPA review prior to issuing new permits, BLM explained that it had prioritized the

ARMPA over the site-specific Louse Canyon NEPA review. Letter from P. Ryan (BLM) to D. Morse (ONDA) (June 16, 2015).

BLM completed its ARMPA for Oregon in 2015. It did not undertake any site-specific NEPA review prior to releasing cattle the next spring in 2016. Since completion of the ARMPA until now—and including through this plan amendment process—there still has been no opportunity for public participation specific to the Louse Canyon GMA grazing plan. The DEIS does not discuss how the GMA process interacts with the SEORMP, other than to repeat that the "current evaluation schedule is approximately every 10 years in accordance with the GMA process identified in the 2002 SEORMP and ROD." DEIS at 3-39. The DEIS does not explain that BLM has completed review and processing on almost none of its designated GMAs to date—suggesting this is a flawed assumption that undermines the accuracy of the DEIS's baseline and analyses. *See also* DEIS at 2-3 (referencing priority completion of land health assessments, but silent as to GMAs).

5. The DEIS Fails to Address the Impacts of Existing and Reasonably Foreseeable Range Projects

As described in the preceding section, BLM is in the process of preparing a new NEPA review of proposed management actions to address the widespread failure of allotments and pastures within the Louse Canyon GMA to meet Standards of Rangeland Health due to current livestock grazing. Based on the limited discussions ONDA staff has had with BLM, we are especially concerned with the agency's anticipated reliance on a series of rangeland projects to address what can really only be addressed through significant reductions in grazing. The recommended actions appear to rely largely on range projects and infrastructure to address the identified issues rather than reductions in numbers or closures. This looks to be essentially the same approach BLM attempted two decades ago in the face of widespread failures first documented in 2000 and 2001. Unchanged management since that time has led to continued declines in ecological health.

The DEIS must address the impacts of the reasonable foreseeable and existing range projects to give the public a better understanding of the cumulative impacts that range projects and the associated infrastructure is having on the planning area's resources. The DEIS also should explain not only that the 2012 court judgment in *ONDA v. Freeborn* remains in effect, requiring BLM to complete a new NEPA assessment of the impacts of livestock grazing on Greater sage-grouse prior to issuing new grazing permits, but also that BLM is currently enjoined from building or implementing 36.5 miles of barbed-wire fences, 12 miles of water pipelines, 9 cattle troughs, and spring "renovation" projects remaining from the 2005 proposed action. This is part of the environmental and management baseline for a geographically and ecologically significant portion of the planning area. *See also, e.g.*, Map 5 (significant overlap between key fish and wildlife habitat and Louse Canyon GMA), Map 6 (significant overlap between sage-grouse habitat and Louse Canyon GMA), Map 7 (significant overlap between BLM-identified Climate Change Consideration Areas and Louse Canyon GMA), Map 11 (most allotments in Louse Canyon GMA recommended for immediate closure to grazing), Maps 12–13 (showing existing and proposed structures in Louse Canyon GMA that interfere with sage-grouse habitat and movement across landscape).

6. The DEIS Fails to Consider Immediate Closures for Allotments and Units Failing to Meet Land Health Standards

As noted, extraordinary numbers of both grazing allotments assessed and acres grazed within the SEORMP planning area are failing to meet land health standards. Whatever changes to grazing BLM has made, they have not been meaningful changes that are resulting in progress toward meeting ecological standards and guidelines. This is a strong indication that additional tools and alternatives approaches are needed. This includes not just a clear and effective permit relinquishment option, but also immediate closures in key areas that are failing to meet land health standards. *See* Map 11 (identifying allotments recommended for no grazing based on overlap with sensitive priority wilderness, sage-grouse habitat and other resources).

7. BLM Should Manage the Planning Area for the Long-Term Improvement of Ecological Condition

The DEIS acknowledges in many places that in the long term, reducing or removing livestock grazing would lead to beneficial outcomes with regard to things like wildfire risk, health of bunchgrass communities, and reducing the potential for invasive species to spread. But the DEIS fails to incorporate and consider these findings in the Preferred Alternative. *See also* DEIS at 3-100 (stating that no alternative developed "was solely based on ecology integrity and therefore no correlation can be made between an alternative and the need for restoration treatments").

For example, the DEIS states that "[i]n the long term, Alternatives B and D (to a lesser extent) may have the greatest positive effect of improving wildfire risk by reducing the disturbance of grazing from the landscape." DEIS at 3-101. "In the long term, livestock grazing may have detrimental effects of perpetuating the spread of noxious weeds and invasive annuals. . . . [L]ivestock suspension or relinquishment may be beneficial to intact perennial bunchgrass communities and potentially reduce wildfire risk." DEIS at 3-103.

Here, the DEIS identifies key components of a long-term strategy that would reduce threats posed by fire and invasive species and protect intact native communities; yet, BLM fails to then apply these important long-term strategies to a single acre in the Preferred Alternative. By ignoring these factual findings regarding long-term management of livestock grazing, the resistance and resilience of ecosystems within the planning area will degrade, leading to an increased demand for future restoration actions.

The concepts of resistance and resilience relate to the ability of a landscape to withstand disturbance. As Chambers *et al*. (2016) explain, "[r]esistance is the ability of a plant community to retain its existing processes, functions, and structure in the face of stressors, including disturbance and invasive species, while resilience is the capacity of a community to regain its structure, processes, and functions after it's altered by such stressors."

A number of environmental components influence resistance and resilience within sagebrush-bunchgrass ecosystems. Among the most important are native perennial bunchgrasses

and biological soil crusts. Healthy stands of native bunchgrasses and shrubs can successfully resist cheatgrass invasion, provided the site remains free from disturbances like livestock grazing, motorized use and roads, and frequent wildfires (Chambers *et al*. 2007, Chambers *et al*. 2016, Rosentreter 1994, Ray-Mukherjee *et al*. 2011, Knick & Rotenberry 1997).

By removing known stressors to the landscape and adopting a management approach that incorporates actions that improve resistance and resilience over the long term, BLM will reduce threats posed by disturbances (fire and invasive species) and reduce agency workload over time. At a minimum, BLM should adopt this long-term management approach (closing areas to grazing) for key ecological communities where grazing has led to continuing failures to meet land health standards. *See* Maps 8, 11 (priority ecological areas and recommended grazing closures).

8. The DEIS Should Adopt a Common-Sense Mechanism for Grazing Permit Relinquishment

Reaching back to the 19th century, domestic livestock grazing has "done more damage to western federal public lands than the bulldozer and chainsaw combined" (Salvo & Kerr 2002). The federal grazing program costs hundreds of millions of dollars in taxpayer money every year and has always made "negligible contributions" to western state economies and domestic beef supplies (Salvo & Kerr 2002). Voluntary permit relinquishment and retirement just makes sense.

Simply put, BLM's proposal in the preferred alternative to discard the well thought-out, environmentally-protective, and fiscally common-sense relinquishment processes outlined for Alternatives B and D in DEIS Appendix G is arbitrary and capricious. Through their emphasis on identifying and thinking hard about preserving the areas with the highest wilderness and ecological value in the planning area, the parties intended through the 2010 Settlement Agreement to adopt a scheme that emphasizes the importance *in this particular planning area* of preserving these finite and fragile resources when holders of federally-issued grazing permits decide voluntarily to relinquish those permits. ONDA notes, however, that even the processes mapped out for Alternatives B and D are perhaps more complicated than necessary: why not simply employ language that has been used to authorize grazing permit retirement in qualifying areas in the neighboring Owyhee Wilderness area in Idaho (*see* Aug. 28, 2019 comment letter from Western Watersheds Project discussing this suggestion in more detail)?

BLM discounts the value of permit relinquishment generally, reasoning that "[g]iven that a permit has never been voluntarily relinquished in the planning area, the likelihood of a voluntary relinquishment occurring in the future is low." *See, e.g.*, DEIS at 3-54; *see also* DEIS at 3-42 ("There have been no instances of voluntary relinquishment of grazing permits within the planning area over the last 20 years."). That statement makes little sense because neither the 2002 SEORMP nor its precursor Management Framework Plan ever had a permit relinquishment provision. And the current permit relinquishment process and authority that BLM cites is an Instruction Memorandum (BLM 2013) that apparently expired in 2014. *See* DEIS at 2-4 (referring to WO IM-2013-184).

Even if available, that "existing" process is cumbersome and biased in favor of maintaining and perpetuating livestock grazing, rather than re-committing lands to conservation use. For example, the "guiding principles" document associated with the 2013 memorandum explains that the "availability of forage for livestock grazing" is determined through "the Land Use Plan (LUP) process pursuant to Section 202 of the Federal Land Policy and Management Act (FLPMA)." WO IM-2013-184, Attachment 1. "The BLM's receipt of a relinquishment does not close areas to livestock grazing nor does it change the existing land use plan decisions regarding livestock grazing use within the planning area." *Id*. Under BLM's regulations, a land use plan amendment—as required under BLM's 2013 policy—requires BLM to prepare a full EA or EIS. 43 C.F.R. § 1610.5-5.

What incentive is there, then, for holders of permits and private third parties to work together on deals under which permittees can be fairly compensated for their voluntary decision to stop grazing public lands? No buyer will pay a permittee to retire her permit when there is no guarantee that the land will actually remain ungrazed (at least for the remaining life of the land use plan)—let alone when the scheme in fact almost guarantees that the allotment or AUMs shall be re-allocated to another grazing operation. It could be no wonder, then, that there have been "no instances" of voluntary relinquishment in the planning area under the current management framework.

BLM's proposal arbitrarily refuses to consider a common-sense solution that not only would benefit the environment but also allow permittees the option of being bought out and using that cash, for example, to reinvest in ranching by purchasing more private grazing land elsewhere, or to start new businesses like hunting guide services or bed-and-breakfasts (particularly after the passage of legislation protecting the Owyhee region and drawing in even more visitor dollars, *see* Section XV.C, *infra*), or to send their children to college or retire. It also arbitrarily and capriciously rejects the spirit of the 2010 Settlement Agreement to provide for common-sense, flexible, and adaptive management of this remarkable landscape for generations to come. The agency should adopt an alternative that incorporates a common-sense, place-specific permit retirement mechanism directly into the SEORMP.

VII. GREATER SAGE-GROUSE

A. Legal Framework

In 2002, the U.S. Fish and Wildlife Service ("USFWS" or "Service") received the first of several petitions asking the agency to list the Greater sage-grouse as threatened or endangered under the Endangered Species Act ("ESA"). *See* 75 Fed. Reg. at 13,910.[19] In 2005, despite known threats to the bird's persistence, outlined by both state and federal agencies (Connelly *et al*. 2004), the Service decided that protection under the ESA was "not warranted" for the species. 12-Month Finding for Petitions to List the Greater Sage-Grouse as Threatened or Endangered, 70

[19] ONDA, along with Western Watersheds Project and Oregon Natural Resources Council (now Oregon Wild), were among the petitioners.

Fed. Reg. 2244 (Jan. 12, 2005).[20] A federal district court in Idaho reversed that finding due to improper political interference with the listing process and because the Service had arbitrarily ignored the best available science. *W. Watersheds Proj.*, 535 F. Supp. 2d at 1189. The court remanded the matter to the agency to make a new determination.

In 2010, the Service determined that ESA protection was "warranted" for Greater sage-grouse because of loss and fragmentation of sagebrush habitat and the inadequacy of the various state conservation plans then in place. 75 Fed. Reg. at 13,910; *see also ONDA v. Jewell*, 840 F.3d at 565–66. This time, the agency relied upon a newly-published monograph commissioned by the U.S. Geological Survey—*Ecology and Conservation of Greater Sage-grouse: A Landscape Species and its Habitats*—regarding the imperiled status of the sage-grouse and its habitat. The monograph collected unprecedented new research on the bird's life history, habitat needs, and threats to its survival and recovery. Much of the new research showed that sage-grouse are affected by habitat disturbance on far greater spatial scales than previously recognized (Knick & Connelly 2011).

Although the sage-grouse "warranted" protection under the ESA, the Service explained that an immediate listing was "precluded by higher priority" work. 75 Fed. Reg. at 13,910. Again conservation groups challenged the Service's decision, this time securing a settlement requiring the Service to make a final listing decision by the end of fiscal year 2015. *In Re Endangered Species Act Section 4 Deadline Litig. – MDL No. 2165*, No. 1:10-mc-00377-E65 (D.D.C. July 12, 2011) (Dkt # 42-1). By 2013, a team of state and federal experts described "an urgent need to 'stop the bleeding' of continued population declines and habitat losses by acting immediately to eliminate or reduce the impacts contributing to population declines and range erosion" (USFWS 2013).

In 2015, BLM and U.S. Forest Service unveiled a series of sweeping plans—amending 98 land use plans across ten western states—to protect Greater sage-grouse and their sagebrush habitats on public lands throughout the West.[21] The new federal plans represented an important step forward for sage-grouse conservation, and were the main factor cited by the USFWS in revising its earlier decision and determining in late 2015 that an ESA listing was now "not

[20] In determining whether a species should be listed as threatened or endangered, the USFWS evaluates five factors. 16 U.S.C. § 1533(a)(1) (listing (A) the "present or threatened destruction, modification, or curtailment" of the species' habitat or range; (B) "overutilization for commercial, recreational, scientific, or educational purposes"; (C) "disease or predation"; (D) "inadequacy of existing regulatory mechanisms"; and (E) "other natural or manmade factors affecting its continued existence."

[21] BLM manages almost half of the land currently occupied by Greater sage-grouse—and more than three-quarters of the bird's range on federally-managed public lands—with smaller portions managed or owned by Tribes, States, the Forest Service and other federal agencies, and private landowners. *See* 12-Month Findings on a Petition to List Greater Sage-Grouse (*Centrocerus urophasianus*) as an Endangered or Threatened Species, 80 Fed. Reg. 59,858, 59,866 (Oct. 2, 2015).

warranted" for the Greater sage-grouse. 80 Fed. Reg. at 59,871, 59,887. Then-Secretary of the Interior, Sally Jewell, described the new plans as an "epic conservation effort [that] will benefit westerners and hundreds of species that call this iconic landscape home, while giving states, businesses and communities the certainty they need to plan for sustainable economic development" (USFWS 2015).

The federal plans spawned a steady stream of lawsuits from industry groups and state and local governments.[22] In general, the groups were concerned that the plans place too many restrictions on activities such as oil and gas development, mining operations, and livestock grazing. Some of these plaintiffs reprised a theme that the new plans unfairly imposed top-down management from Washington, D.C., ignoring local conditions and local input.[23] In all of these lawsuits, the plaintiffs asked the courts to enjoin implementation of and vacate the BLM's sage-grouse plans.

Concerned that this would leave the bird unprotected save for inconsistent state plans generally not binding on federal public lands, several conservation groups moved to intervene in the anti-grouse plan suits. Several other conservation groups filed their own lawsuit highlighting shortcomings in the federal plans. *W. Watersheds Proj. v. Schneider*, No. 1:16-cv-00083-BLW (D. Idaho filed Feb. 25, 2016). These groups argue that the plans do not adequately identify and protect priority habitats—failing, for example, to identify winter concentration areas and essential migratory corridors. The groups also point to the plans' failure to adopt larger disturbance buffers around all-important breeding areas, to impose more concrete standards for sagebrush habitat integrity, and to eliminate vegetation treatments that degrade sagebrush habitat.

---

[22] *Cahill Ranches, Inc. v. BLM*, No. 1:17-cv-960-CL (D. Or. filed June 19, 2017); *Bd. of Cnty. Commr's of the Cnty. of Garfield, Colo. v. Zinke*, No. 1:17-cv-01199-WYD (D. Colo. filed May 15, 2017); *Harney Soil & Water Conservation Dist. v. U.S. Dep't of the Interior*, No. 1:16-cv-2400-EGS (D.D.C. filed Dec. 7, 2016); *W. Energy Alliance v. U.S. Dep't of Interior*, No. 16-cv-112 (D.N.D. filed May 12, 2016); *Am. Exploration & Mining Ass'n v. U.S. Dep't of the Interior*, No. 16-cv-737 (D.D.C. filed Apr. 19, 2016); *Wyo. Coalition of Local Gov'ts v. U.S. Dep't of Interior*, No. 2:16-cv-41 (D. Wyo. filed Mar. 1, 2016); *Herbert v. Jewell*, No. 2:16-cv-101 (D. Utah filed Feb. 4, 2016); *Wyo. Stock Growers Ass'n v. U.S. Dep't of Interior*, No. 2:15-cv-181 (D. Wyo. filed Oct. 14, 2015); *Otter v. Jewell*, No. 1:15-cv-1566 (D.D.C. filed Sept. 25, 2015); *W. Exploration, LLC v. U.S. Dep't of the Interior*, No. 3:15-cv-491 (D. Nev. filed Sept. 23, 2015).

[23] *See, e.g.*, *Cahill Ranches*, No. 1:17-cv-960-CL, Dkt # 1, ¶ 1 (D. Or. June 19, 2017) ("This is a classic case in which a federal agency, driven by pressure to make a decision at a national level, ignores a decision by the same agency at the local level on the same matter. . . . The headquarters' decision was made without any apparent consideration of the local allotment-level decision, the localized facts supporting the local decision, and without any explanation that supports the reversal of position.").

Conservation groups later filed additional lawsuits targeting Department of the Interior guidance that would eliminate the 2015 plans' requirement to prioritize oil and gas leasing outside of sage-grouse habitat. *Mont. Wildlife Fed'n v. Zinke*, No. 4:18-cv-69-BMM (D. Mont. filed Apr. 30, 2018); *W. Watersheds Proj. v. Zinke*, No. 1:18-cv-187-REB (D. Idaho filed Apr. 30, 2018). In 2018, the district court in Idaho issued a preliminary injunction ordering BLM to stop conducting oil and gas lease sales under the 2018 guidance and instead follow the prior policy, issued in 2010 under the Obama Administration. *W. Watersheds Proj. v. Zinke*, 2018 WL 4550396 (D. Idaho Sept. 21, 2018). As a result, BLM announced it would remove over 1 million acres of sage-grouse habitat from planned lease sales in five Western states. *See, e.g.*, https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/regional-lease-sales/wyoming (last visited Dec. 10, 2018) (announcement postponing leasing on 578 parcels totaling about 775,000 acres in Wyoming).

For some time, Oregon was the only state whose BLM sage-grouse plan was not subject to any direct challenge in federal court. Among other reasons, BLM's plan for Oregon resulted in large measure from collaborative work undertaken by the Governor of Oregon's Sage Grouse Conservation Partnership, or "SageCon."[24] The SageCon group sought to coordinate federal, state, and local efforts to address the multiple threats to sage-grouse across the eastern Oregon sagebrush landscape, while also expressly supporting community sustainability. A broad cross-section of stakeholders—including state and local governments, ranchers, landowners, conservation groups and others—worked to create a plan that most felt was an important first step in the difficult task of saving the Greater sage-grouse from extinction. Eventually, however, not even the Oregon plan would escape challenge. *See Cahill Ranches, Inc. v. BLM*, No. 1:17-cv-960-CL (D. Or. filed June 19, 2017).

B. Ecological Framework

1. Sage-Grouse Ecology

The Greater sage-grouse is a sagebrush "obligate," meaning it cannot survive without a healthy sagebrush ecosystem to provide its food, cover, and varying seasonal habitats year-round (Braun *et al*. 2005, Connelly *et al*. 2011, Dobkin & Sauder 2004). *See also W. Watersheds Proj. v. Salazar*, 843 F. Supp. 2d 1105, 1111–12 (D. Idaho 2012) (describing sage-grouse life history and habitat characteristics). The bird also is described as a "landscape-scale species" because it requires vast, contiguous areas of sagebrush for long-term persistence. 75 Fed. Reg. at 13,957. Because of the region's harsh and arid conditions and the bird's reliance on different features of the land at different times of the year, home or migratory ranges for sage-grouse can span up to hundreds of square miles. *Id*. at 13,916.

The sage-grouse's life cycle revolves around the seasons. In the early spring, sage-grouse breed at relatively open sites of low grasses called "leks." The males perform an eye-catching courtship dance, which involves spreading their spiked tail feathers and then inflating brightly

[24] *See* Sage-Grouse Conservation Partnership (SageCon), http://orsolutions.org/osproject/sagecon.

colored air sacs on their chest, generating a popping sound that can be heard from nearly two miles away.[25] Like salmon returning from the ocean to spawn in the very stream reach in which they hatched years before, sage-grouse faithfully attend the same leks year after year (Connelly *et al*. 2011).

Sage-grouse hens then disperse to nest, some traveling more than 12 miles from the lek. They nest under taller stands of sagebrush, which are vital both as food sources and for concealment from predators. After chicks hatch in May, they eat flowering plants and insects throughout the early brood-rearing period. As the summer progresses and conditions become hotter and drier, sage-grouse move from sagebrush uplands to lower, wetter sites like natural springs and wet meadows. By the late-summer and fall, as other plants and grasses wither or are consumed by other creatures, sage-grouse shift their diet entirely to sagebrush (Braun *et al*. 2005, Connelly *et al*. 2011). *See also* 75 Fed. Reg. at 13,915–16.

The birds continue to depend on sagebrush throughout the winter for both food and cover. They select winter sagebrush stands based on topography and the availability of sagebrush protruding from the snow (Braun *et al*. 2005, Connelly *et al*. 2011). At high-elevation sites—where deep snow might otherwise bury sagebrush and preclude over-wintering—sage-grouse seek out windswept ridges where high winds prevent heavy snow accumulation, leaving sagebrush exposed (Hagen 2011, Connelly *et al*. 2011). Sage-grouse typically live between three and six years, but researchers have recorded individuals up to nine years of age. 75 Fed. Reg. at 13,916.

Importantly, the birds not only move among these seasonal habitats centered around leks, but also migrate across so-called "connectivity corridors" to reach neighboring areas of habitat they need to survive (Hagen 2005). *See also* 75 Fed. Reg. at 13,923–24. Migration across these corridors allows local sage-grouse populations to intermix—which is key to promoting genetic diversity and protecting against inbreeding that is detrimental to the species's survival (Knick & Hanser 2011, Oyler-McCance & Quinn 2011) (including genetic research confirming "unique genetic clusters" in neighboring "populations geographically adjacent to one another").

Scientists have identified two remaining strongholds of contiguous sagebrush habitat left in North America—one centered on the area where southeastern Oregon, southwestern Idaho, and northern Nevada meet, and a second centered on southern Wyoming. 75 Fed. Reg. at 13,918–19, 13,957–58. The Service has explained that, like maintaining habitat connectivity, conservation of these stronghold areas is "essential for the long-term persistence of greater sage-grouse." *Id*. at 13,923, 13,945.

Recent studies have confirmed this. The Greater sage-grouse in the SEORMP planning area belong to the biologically-defined Northern Great Basin population, one of the most important core populations within the species's western stronghold (Garton *et al*. 2011) (describing this population). *See also* 75 Fed. Reg. at 13,919 (USFWS describing that the

[25] *See* https://youtu.be/cLnbiTkj1TQ (last visited Dec. 10, 2018) (video of the renowned sage-grouse courtship dance).

"Northern Great Basin Management Zone," where the Owyhee region is located, is significant because it holds "core populations" that "have the highest reported densities" of birds). The 2011 sage-grouse monograph contained an unprecedented population viability analysis that showed a 100% probability that this population will decline below 500 birds—the minimum size to maintain population viability—in just 100 years if the lands' carrying capacity continues to decline (Garton *et al*. 2011). This area lies in the heart one of two Sagebrush Focal Areas BLM identified in the ARMPA.

In 2015, Garton *et al*. refreshed their research and concluded that populations throughout Oregon have continued to decline—and more steeply than previously determined. By that time, the Northern Great Basin population had dropped to an estimated minimum population size of 6,580 males. That was a 34% decline from the reconstructed estimate of 9,927 males based on lek counts in 2007 (Garton *et al*. 2015, Fig. 5f). The prior six years showed a decline to reach "abundances lower than ever observed before and approximately 23% of average values close to 28,618 males counted in the 1970s and 1980s" (Garton *et al*. 2015).

Similarly, Braun *et al*. (2015) reported chick-to-hen ratios well below thresholds considered by Oregon's Department of Fish and Wildlife ("ODFW") to be necessary to sustain a stable population.[26] In 2011, the ODFW explained that published guidelines indicate that a chick-to-hen ratio of 2.25 is required for stable or increasing sage-grouse populations (Hagen 2011). ODFW suggested that number could be as low as 1.56 "needed for a stable population" in Oregon. The ODFW *Strategy*'s Table 10 shows that the Vale District was at 1.58 (average over the period 1993–2009). That was before wildfires of unprecedented scale in modern history impacted approximately 323,760 ha of the Whitehorse unit in 2012. The most recent information in the ODFW-Braun report documents a ratio of 1.7 for this unit—again, well below what is needed for even the possibility of an increasing population. The report shows an even lower ratio of 1.2 for the Owyhee unit.

Unfortunately, this is not an uncommon story. In its annual monitoring report in 2018, the ODFW concluded that sage-grouse populations throughout Oregon continue to decline (ODFW 2018). The state agency estimated that the 2018 spring population in Oregon was 18,421 individuals. This was a 10% decline from 2017 (population estimated at 20,510 birds), following a 7.7% decline from 2016. The 2018 population had now dropped to 37% below the 2003 baseline population estimate of 29,237 individuals (ODFW 2018). We expect ODFW to announce ever more severe declines in its 2019 report later this year. Other states have reported similar declines. *See W. Watersheds Proj. v. Berhardt*, No. 1:16-cv-083-BLW, ECF 182-1 (D. Idaho filed Aug. 19, 2019) (declaration of sage-grouse expert Dr. Clait E. Braun, summarizing most recent sage-grouse lek count data confirming that populations across the West have experienced continual declines since fall of 2015).[27]

---

[26] *See* Table 6 and Appendices B15 and B14, showing a chick:hen ratio of 1.7 for the Whitehorse, Hunt Unit 68, and a chick:hen ratio of 1.2 for the Owyhee, Hunt Unit 67, for the period 1993–2013 (Braun *et al*. 2015).

[27] *See also* Cynthia Sewell, *Idaho sage grouse numbers have dropped 52% since 2016. Will management changes help them?*, IDAHO STATESMAN, Aug. 11, 2019, https://www.eastidahonews.com/2019/08/idaho-sage-grouse-numbers-have-dropped-52-since-

2. Threats to the Sage-Grouse

The sagebrush ecosystem is among the most vulnerable in North America. 75 Fed. Reg. at 13,916, 13,923, 13,957. The sage-grouse is in danger of extinction from fragmentation and loss of its sagebrush habitat and increasing isolation of populations due to human activities, including livestock grazing, energy development and transmission, and ever-expanding motorized transportation networks. 80 Fed. Reg. at 59,871, 59,887. Fragmentation takes many forms, from habitat conversion (*e.g.*, elimination of food and cover as weeds spread and replace sagebrush), to construction of roads, fences, power lines, energy facilities, and other human developments, to wildfires and livestock grazing. *See id*. at 59,887–928 (USFWS comprehensive review of threats to sage-grouse). Any land use that subdivides blocks of intact sagebrush causes fragmentation. *See* 75 Fed. Reg. at 13,927 (defining fragmentation as "the separation or splitting apart of previously contiguous, functional habitat components of a species").

Livestock grazing, for example, is one of the most ubiquitous threats to the sage-grouse. 75 Fed. Reg. at 13,939–42. Grazing cattle consume native plants, trample and destroy soils and fragile spring and riparian areas, and increase the spread of sagebrush-replacing weeds. *Id*. at 13,939–40, 13,942. Cattle grazing in nesting areas during the April-May nesting season can cause sage-grouse hens to abandon their nests. *Id*. at 13,940. The infrastructure of watering systems and barbed-wire fencing needed to manage large herds of cattle in the desert also fragment and destroy sagebrush habitat, artificially concentrating cattle in important sage-grouse habitat areas, dewatering natural springs and water courses, and creating thousands of potential breeding grounds for West Nile virus-carrying mosquitoes as water stagnates in reservoirs, troughs, and even cattle hoof prints (Walker & Naugle 2011). *See also* 75 Fed. Reg. at 13,941. The virus is 100% fatal to sage-grouse (Walker & Naugle 2011). *See also* 75 Fed. Reg. at 13,941, 13,967–68.

2016-will-management-changes-help-them/ (also reporting 8% decline in Nevada population since 2018); Angus M. Thuermer Jr., *Greater sage grouse counts show 3-year downward trend*, WYOFILE, Aug. 6, 2019, https://www.wyofile.com/greater-sage-grouse-counts-show-3-year-downward-trend/; CBS 2 News Staff, *Idaho male sage-grouse counts decline 25% in one year*, IDAHONEWS, July 31, 2019, https://idahonews.com/news/local/idaho-male-sage-grouse-counts-decline-25-in-one-year (Idaho Fish & Game reporting 25% decline in male sage-grouse since 2018); Brett French, *Montana sage grouse population declining*, RAVALLI REPUBLIC, Dec. 20, 2018, https://ravallirepublic.com/lifestyles/recreation/article_c5a6ce82-e518-54b8-85fb-1e1a40187d15.html; Wyoming Game and Fish, *Sage grouse counts likely to decline in coming year*, WYO. GAME & FISH DEP'T, Dec. 18, 2017, https://wgfd.wyo.gov/News/Sage-grouse-chick-production-likely-to-decline-in (Wyoming Game & Fish Department expected decline in 2018 based on an analysis of sage grouse wings provided by hunters); NEVADA DEPARTMENT OF WILDLIFE, NEVADA SAGE-GROUSE LEK COUNTS: EFFORT AND TRENDS, 2017, http://sagebrusheco.nv.gov/uploadedFiles/sagebrusheconvgov/content/Meetings/2017/2017_GSG_Lek_Counts.pdf (reporting 10% decline in male lek attendance between 2016 and 2017).

Energy facilities and the power lines needed to transmit electricity to the grid also harm to sage-grouse. According to the Service, power lines directly affect the birds "by posing a collision and electrocution hazard, and can have indirect effects by decreasing lek recruitment, increasing predation, fragmenting habitat, and facilitating the invasion of exotic annual plants." 75 Fed. Reg. at 13,928. Power poles afford perches for raptors and ravens that "increase a raptor's range of vision, allow for greater speed during attacks on prey, and serve as territorial markers." *Id*. In the sagebrush sea, where natural perches are limited in areas of relatively low, desert vegetation, raptors are quick to populate new stretches of power lines (Hagen 2011). *See also* 75 Fed. Reg. at 13,928.

Indeed, whether or not predators actually move into a developed area, and even where healthy sagebrush remains intact around project infrastructure, these types of human activities will result in a "functional" fragmentation and loss of habitat. This is because sage-grouse exhibit strong avoidance behavior toward vertical structures such as power lines or wind turbines. 75 Fed. Reg. at 13,928. Scientists believe sage-grouse avoid these structures instinctively because the birds know they may provide perches and hunting corridors for predators. *Id*. at 13,928, 13,951. The Service has concluded that power lines are "a particularly strong barrier to movement." *Id*. at 13,928.

Finally, fire is a chief factor associated with sage-grouse declines because it kills many of the sagebrush ecosystem's native plants and recovery requires many decades (Baker 2011). *See also* 75 Fed. Reg. at 13,931–35. It is one of the most significant predictors of whether sage-grouse will abandon their ancestral breeding areas. Studies show that sage-grouse are likely to abandon leks as far as an astounding 33.5 miles from areas that have burned (Knick & Hanser 2011). *See also* 75 Fed. Reg. at 13,931. Thus, even "small increases" in area burned have a "large influence on the probability of lek abandonment" (Knick & Hanser 2011). The frequency and intensity of wildfires in the West has increased dramatically in recent decades in response to many factors (and exacerbated by earth's changing climate), for example the invasion of exotic annual grasses such as cheatgrass, which out-compete sagebrush and other native plants and burn easily. *See* 75 Fed. Reg. at 13,931–35.

3. Sage-Grouse Conservation

One of the great challenges of sage-grouse conservation is to understand and protect not only the seasonal habitat areas the bird needs to survive and reproduce each year—lek sites and nesting, brood-rearing, and over-wintering habitats—but also the bird's migratory and population-level movements (Knick & Connelly 2011). Loss of connectivity between neighboring populations increases population isolation and, therefore, "the probability of loss of genetic diversity and extirpation from stochastic events" such as wildfire or drought. 75 Fed. Reg. at 13,923. Scientists understand that protecting core regions and maintaining genetic connectivity with more isolated sage-grouse populations "may help reverse or stabilize the processes of range contraction and isolation that have resulted in long-term population declines" (Knick & Hanser 2011). *See also* 75 Fed. Reg. at 13,914 (USFWS explaining that sage-grouse "populations follow an isolation-by-distance model of restricted gene flow"—meaning "gene flow resulting from movement between neighboring populations rather than being the result of long distance movements of individuals").

Experts at the U.S. Geological Survey have determined that populations centered on leks within eleven miles of each other are biologically connected. *See* 75 Fed. Reg. at 13,923. They discovered that even small disruptions in lek connectivity resulted in "large increases" in probability of lek abandonment. *Id*. Ultimately, the scientists concluded that maintaining connectivity is "essential for sage-grouse persistence." *Id*.

Some state wildlife agencies have built upon that research. For example, the ODFW in Oregon based its *Conservation Assessment and Strategy* for Greater sage-grouse on what it described as a "Core Areas" framework (Hagen 2011). Similar to the U.S. Geological Survey's work, the ODFW drew circles around lek sites in order to identify statistically significant areas of sage-grouse habitat in Oregon. These are the "areas of greatest biological importance to the persistence [of] sage-grouse populations" (Hagen 2011). By identifying these most important breeding areas, the Core Areas approach allows land managers "to map and analyze the risks and necessary conservation measures" for each Core Area (Hagen 2011).

But the agency recognized that the Core Areas approach tells only part of the story. The ODFW's research showed that this approach, focused solely on local populations' breeding areas, does not capture the sage-grouse's distinct winter habitat areas, or the corridors used by neighboring populations to intermix (Hagen 2011). Thus, the agency also developed a complimentary approach focusing on "connectivity corridors" that link local and regional sage-grouse populations (Hagen 2011). The agency identified just eight corridors in all of eastern Oregon (Hagen 2011) (map at Fig. 27).

These corridors are among the places that the Service has described as "large areas of relatively unfragmented sage-dominated landscapes which are important for maintaining long-term connectivity" between sage-grouse populations. 75 Fed. Reg. at 13,950. According to the Department of the Interior's National Technical Team, connectivity corridors (along with winter concentration areas) are among the "priority habitats" that "have the highest conservation value to maintaining or increasing sage-grouse populations" (NTT 2011).[28] Ultimately, protecting these areas is crucial for sage-grouse to continue moving easily in response to disturbances such as wildfires, disease, or the spread of invasive plant species that can overwhelm the sagebrush ecosystem (Crist *et al*. 2015, Crist *et al*. 2017) ("Without maintaining corridors to larger priority areas or a clustered group, isolation of small priority areas could lead to regional loss of Greater Sage-Grouse.").

//
//
//
//

[28] Interior established and charged this team leading expert sage-grouse scientists with identifying "science-based . . . conservation measures" that are "necessary to promote sustainable sage-grouse populations, and which focus on the threats in each of the management zones" (BLM 2011).

C. Discussion

1. The DEIS Fails to Consider Effects With Regard to Population Viability

The SEORMP planning area contains millions of acres of sagebrush landscapes crucial to the survival and recovery of the Greater sage-grouse in Oregon and beyond. As described above, an unprecedented population viability analysis in 2010 showed a 100% probability that key sage-grouse populations throughout southeastern Oregon—including the Northern Great Basin Population, which includes most of the SEORMP planning area, as well as the main Sagebrush Focal Area identified by the Vale District (BLM 2015a) in the southeastern corner of the state—will decline below 500 birds (the minimum size to maintain population viability) in just 100 years if the lands' carrying capacity continues to decline (Garton *et al*. 2011).

In 2015, the Garton team concluded that populations throughout Oregon had continued a steep decline, plummeting by 34% since 2007 (Garton *et al*. 2015, Fig. 5f). The last six years showed a decline to reach "abundances lower than ever observed before and approximately 23% of average values close to 28,618 males counted in the 1970s and 1980s" (Garton *et al*. 2015). Similarly, as described above, the Braun team reported chick-to-hen ratios well below the 2.25 thresholds considered by the ODFW (Hagen 2011) to be necessary to sustain a stable population: 1.7 for the Whitehorse unit that spans the southern half of the SEORMP planning area, and 1.2 for the Owyhee unit that spans the northern half of the area (Braun *et al*. 2015). These numbers are well below what is needed for even the *possibility* of an increasing population.

As noted above, the most recent ODFW population estimates continue to show grouse numbers plummeting in Oregon year after year. BLM must take a hard look at the environmental consequences of its proposal and alternatives with regard to these drastic population declines.

2. The DEIS Fails to Consider Effects With Regard to Winter Habitat and Connectivity Corridors

BLM's failure to incorporate important habitat and genetic connectivity corridors and identified winter habitat areas in the SEORMP planning analysis means the agency is acting on incomplete information with regard to consideration and conservation of critical sage-grouse habitat. According to the National Technical Team, priority habitat management areas for sage-grouse include not only breeding and late brood-rearing areas, but also winter concentration areas (NTT 2011).

As discussed, a significant challenge in managing sage-grouse populations and habitat is the fact that this species depends upon different types of habitat for each stage of its annual cycle—breeding, nesting, brood-rearing and over-wintering. Each seasonal habitat must provide the necessary protection from predators, required food resources, and thermal needs for the specific stage of the annual cycle (USFWS 2010).

Winter habitat areas are vital to sage-grouse survival (Connelly *et al*. 2011). The ODFW has determined that winter habitat is "critical to the persistence of the species" (Hagen 2011). Doherty *et al*. (2008) concluded that "[i]mpacts to wintering habitat may have disproportionate

effects on regional population size and persistence." The National Technical Team has explained that sage-grouse show high fidelity to winter concentration areas and that "loss or fragmentation [of these areas] can result in significant population impacts" (NTT 2011). Any loss of critical wintering range can be detrimental to sage-grouse populations (Karl & Sadowski 2005, Stringham 2010). Indeed, loss of winter habitat is *irreversible*: as the ODFW notes, "currently there are no studies or methods for restoring or creating winter habitat if it is lost" (Hagen 2011).

In short, failure to specifically consider winter habitat areas in the plan amendment is likely to result in negative impacts to sagebrush habitat and sage-grouse populations. By contrast, conservation-oriented actions such as preservation of wilderness values and unfragmented roadless areas, and adoption of a conservation-focused grazing permit relinquishment mechanism, could have remarkably positive effects on sage-grouse populations and habitat.

The ICBEMP Strategy, National Technical Team report, Conservation Objectives Team (COT) report, PECE policy and ODFW *Strategy* are clear on the importance of connectivity with emphasis on the need to designate, maintain and restore habitat connectivity (USFS *et al*. 2014, USFWS 2013, Hagen 2011, BLM 2011, USFWS 2003). The ICBEMP Strategy, for example, requires BLM—in this land use plan amendment and environmental review process—to "[r]ecognize the spatial and habitat connectivity within and between watersheds" and that "intact habitat refugia provide lateral, longitudinal, and drainage network connections" (USDA *et al*. 2014).

The ODFW *Strategy* expressly "elevates" sage-grouse connectivity corridors to "Category-1" habitat—habitat that the state agency states is "essential for greater sage-grouse populations," cannot be mitigated if lost, and, therefore, is "irreplaceable." (Hagen 2011). According to the National Technical Team, connectivity corridors, along with winter concentration areas, are among the "priority habitats" that "have the highest conservation value to maintaining or increasing sage-grouse populations" (NTT 2011).

The ODFW identified just eight corridors in all of eastern Oregon; several of them are in the SEORMP planning area (Hagen 2011, Fig. 27). These corridors are the places in southeastern Oregon that the USFWS has described as "large areas of relatively unfragmented sage-dominated landscapes which are important for maintaining long-term connectivity" between sage-grouse populations (USFWS 2010). Again, according to the National Technical Team, connectivity corridors, along with winter concentration areas, are among the "priority habitats" that "have the highest conservation value to maintaining or increasing sage-grouse populations" (NTT 2011).

Protecting core regions and maintaining connectivity with more isolated sage-grouse populations may help reverse or stabilize the processes of range contraction and isolation that have resulted in long-term population declines (Knick & Hanser 2011). In short, "[g]enetic connectivity is the glue that holds populations together, and remaining Priority Habitats, though impacted, may help maintain connectivity among populations" (Taylor *et al*. 2012).

Like its failure to identify and consider effects with regard to winter habitat, the DEIS's failure to include connectivity corridors and habitat in its analysis is likely to result in impacts to the species and its habitat. In its 2015 ARMPA, BLM correctly identified the importance of connectivity in Action SSS-12, describing the connectivity map developed by BLM and The Nature Conservancy (Jones *et al*. 2015) and directing that it be "considered"—but BLM in this DEIS fails to consider management actions and alternatives geared toward conservation and enhancement of this key habitat type. The referenced map identifies numerous key habitat connectivity corridors that facilitate movement between seasonal habitats and foster genetic connectivity.

Protecting core regions and maintaining connectivity with more isolated sage-grouse populations may help reverse or stabilize the processes of range contraction and isolation that have resulted in long-term population declines (Knick & Hanser 2011). Suitable habitat is needed to allow for connectivity between different resident populations. Connectivity promotes genetic exchange and reduces complications that may arise from inbreeding (Hagen 2011). Connectivity and core sage-grouse habitat should be conserved, enhanced, and restored to promote movement and genetic diversity, with emphasis on those habitats occupied by sage-grouse (USFWS 2010). The NTT report, COT report, PECE policy and Oregon Strategy are clear on the importance of connectivity with emphasis on the need to designate, maintain and restore habitat connectivity (USFWS 2013, Hagen 2011, BLM 2011, USFWS 2003).

The DEIS's failure to consider impacts to and conservation of connectivity habitat is a considerable omission. As described by Taylor *et al*. (2012), "[g]enetic connectivity is the glue that holds populations together, and remaining Priority Habitats, though impacted, may help maintain connectivity among populations." BLM should include all identified areas of winter habitat and connectivity habitat/corridors in a new or revised draft EIS.

3. The DEIS Fails to Consider West Nile Virus

The DEIS contains a single reference to, and no analysis of, West Nile virus ("WNv"). DEIS at 3-116. As described, the Vale District has long sought to maintain unsustainable cattle numbers by building fences, water developments, and other projects. ONDA understands that BLM intends to propose doing so yet again in the long-failing Louse Canyon GMA. There is no evidence that these projects have worked; in fact, there is ample evidence that they do not work.

a. Evidence shows that heavy use around cattle watering stations is continuing and reasonably foreseeable threat to sage-grouse

As described, water collected in livestock reservoirs and troughs—and even in cattle hoof prints—acts as mosquito breeding grounds, facilitating the spread of West Nile virus (Knick & Hanser 2011). Individual mosquitoes carrying the virus can fly more than 11 miles from these water sources (Walker & Naugle 2011, USFWS 2010).

Sage-grouse experience 100% mortality when exposed to West Nile virus (USFWS 2010). The virus is capable of extirpating a local sage-grouse population following a single outbreak (Walker & Naugle 2011). If they do not die in six to eight days following exposure,

infected sage-grouse may "suffer persistent symptoms that reduce subsequent survival, reproduction, or both" (Walker & Naugle 2011). Empirical infection and mortality rate data demonstrates "projected declines" in sage-grouse population growth because of West Nile virus (Walker & Naugle 2011). The virus can simultaneously reduce juvenile, yearling, and adult survival, "three vital rates important for population growth" (Walker & Naugle 2011). West Nile virus mortality "typically comes at a time of year (July-September) when survival is typically high [], suggesting it is additive to other sources of mortality" (Walker & Naugle 2011).

Artificial water projects "that create mesic zones around stock tanks or ponds as habitat improvements for sage-grouse may inadvertently contribute to the WNV problem, because *Culex tarsalis* readily take advantage of water-filled hoof prints around tanks and ponds for breeding" (Walker & Naugle 2011) (also explaining that mosquitoes "prefer sites with submerged vegetation on which to oviposit and warm, standing water that promotes rapid larval development, including ephemeral puddles, vegetated pond edges, and hoof prints"). Cattle even have been shown to host the virus, adding yet another layer to the WNv threat posed by livestock grazing and artificial water development (Walker & Naugle 2011).

For example, ONDA photographs taken in 2009 three years after BLM "maintained" and "reconstructed" artificial water projects in 2006, show the typical, present-day effects of cattle grazing around these types of watering stations in the SEORMP planning area. Regardless of whether the stations have pumps or valves or design features that purport to keep water flowing in the troughs themselves, their actual effect on the environment is to create muddy, heavily trampled sacrifice zones where thousands of cattle hoof prints stand ready to host untold numbers of potential WNv-carrying mosquitoes. *See* Appendix E & Figs. 11–12 (below).

Fig. 11 – Heavily grazed wet meadow with trampled, hummocked soils and vegetation in stream course near New Road Spring in the Louse Canyon GMA in the southern portion of the SEORMP planning area (Sept. 2015).

Fig. 12 – Heavily grazed and trampled area completely devoid of vegetation surrounding Cairn Spring in the Louse Canyon GMA in the southern portion of the SEORMP planning area (Sept. 2015).

BLM's own 2009 photographs likewise reveal at all seven spring/riparian sites monitored that year heavily trampled areas with standing, stagnating water, devoid of vegetation, eroding or with severe channel head-cuts or obliterated stream channels, and small cages showing the type of vegetation that might have persisted had livestock not been released into the area. In turn, those photographs are virtually identical with BLM photographs from 2000—which BLM characterized as representative of areas "not meeting" ecological standards under the Federal Rangeland Health regulations. *See* Appendix E.

ONDA has provided BLM with a series of maps to illustrate the seriousness of this threat based on the spatial configuration of projects BLM had proposed in the Louse Canyon GMA, and whose spatial configuration directly controls how livestock concentrate to graze in this extremely arid environment. Given that about 90% of sage-grouse nests and habitat used for brood-rearing occurs within 6 miles of leks, there is a clear and inescapable risk of West Nile virus posed to a substantial portion of the region's sage-grouse population by BLM's current and proposed water developments. BLM must therefore take a hard look at how landscape-scale allocations of areas made or left available to livestock grazing implicate West Nile virus concerns for Greater sage-grouse.

b. The spatial configuration of cattle water projects is important

Up to now, BLM's approach has often been to draw small buffers around known lek sites. Even then, that analysis was only for general impacts to sage-grouse, as opposed to *also* specifically evaluating West Nile virus. Small buffers are inadequate. That is because one of the

major challenges in managing sage-grouse and conserving sage-grouse populations is that it is a landscape species that depends upon different types of habitat for each stage of its annual cycle (Connelly *et al*. 2011).

In its Louse Canyon GMA analysis, for example, BLM used a 0.6-mile buffer around water projects to evaluate the impacts of grazing projects on sage-grouse (BLM 2005c). However, almost all of BLM's "maintained" and "constructed" springs, and constructed troughs and pipelines, fell inside the bare minimum 3.0-mile buffer around sage-grouse breeding areas that current science prescribes. *See* Map 13. The DEIS is silent on this issue. BLM must discuss whether its continued grazing management in the planning area will incorporate mandatory buffers around livestock water projects that are adequate to analyze impacts to sage-grouse.

c. Environmental factors also indicate a likelihood of West Nile virus exposure

In addition to distribution of anthropogenic water sources, West Nile virus transmission also is regulated by environmental factors including temperature and precipitation (Walker & Naugle 2011). Mild winters are conducive to early outbreaks in sagebrush habitats (Walker & Naugle 2011). Similarly, higher summer temperatures and drought conditions facilitate greater mosquito activity and more rapid development of the virus (Walker & Naugle 2011). The "risk of exposure to WNV for Greater Sage-grouse may be elevated if WNV outbreaks coincide with drought conditions that aggregate birds in mesic areas or near remaining water sources" (Walker & Naugle 2011).

For most of the past decade or longer, the State of Oregon's Water Resources Department has classified essentially all of eastern Oregon—including 100% of the Louse Canyon GMA and most of the SEORMP planning area—as experiencing "extreme" drought.[29] *See also* Kauffman (2019) (report noting that climate change is "increasing the vulnerability of many forests and rangelands to ecosystem changes and through fire, insect infestations, drought, and disease outbreaks") & Appendix C, Fig. 1 (highlighting hotspot covering much of the SEORMP planning area, where there has been a >3^{o}C rise in the high deserts of southeastern Oregon). Thus, key environmental factors that increase the chances of West Nile virus outbreaks also continue to line up on top of the livestock grazing and water developments that make exposure likely in the absence of meaningful management changes, including, for example, land use plan-level options for permit relinquishment.

d. West Nile virus exposure and mortality is likely under- or un-reported in eastern Oregon

The documented sage-grouse die-offs at the human population centers nearest to Louse Canyon—Jordan Valley and Burns Junction—are significant. Indeed, they were highlighted by the USFWS in its "warranted" decision (USFWS 2010) and by Walker and Naugle (2011). Yet, those two well-documented events cannot be assumed to be the only West Nile virus mortalities

[29] *See* Richard Tinker, *United States Drought Monitor*, Aug. 22, 2019, http://droughtmonitor.unl.edu/.

sage-grouse have experienced in the region since 2002; nor can they be assumed to be representative of the general frequency of West Nile virus infection in southeastern Oregon.

Most West Nile virus mortality in wild bird populations goes unnoticed or unreported. The virus is thought so far to have killed millions of wild birds in North America even though only 48,000 infected dead birds had been reported as of 2005. (Walker & Naugle 2011) (also noting that "the distribution of mortality rates used in simulations may underestimate mortality in wild populations"). Sage-grouse mortality events and die-offs are less likely to be detected and reported in remote, non-human-populated areas like much of the SEORMP planning area (Walker & Naugle 2011) (noting, "Impacts of WNV mortality, and even severe WNV outbreaks, may go undetected without radio-marked individuals . . . and lead to the misperception among managers and policy-makers than WNV is no longer an issue for Greater Sage-grouse").[30] Reports of West Nile virus infection also are thought to be low because the virus kills the birds so that they do not get hunted (Dusek *et al*. 2014).

Given the USFWS's statement that it "expects the severity and scope" of "epidemic WNv[] to magnify within the foreseeable future due the effects of climate change already underway," 75 Fed. Reg. at 13957, and BLM's confirmation this summer of mosquitos in Owyhee County (adjacent to the planning area) carrying the virus, the agency must address this issue in a new or revised draft EIS.

4. The DEIS Fails to Consider How Preservation of Roadlessness and Naturalness in LWCs and Other Roadless Areas Protects Intact Sage-Grouse Habitat

As we have noted elsewhere, roadless areas in natural condition—in BLM-recognized LWCs, Roadless Natural Areas, and other citizen-proposed wilderness areas throughout the planning area—are important to sage-grouse. For example, LWCs are significant for their unfragmented sagebrush habitat, including genetic connectivity and migration corridors for sage-grouse and other landscape-scale species. Roadless areas and wildlife habitat do not end at management unit boundaries. As BLM explains in the ARMPA (BLM 2015a, BLM 2019), the sage-grouse is characterized by landscape-scale habitat requirements that go far beyond district boundaries.

BLM fails in the DEIS to consider the potential value to sage-grouse in preserving wilderness and roadless values in these places. And the agency also did not consider this issue in the 2015 (or 2019) ARMPA, given that it was still working on completing its wilderness re-inventory and evaluations.

---

[30] For example, there are *no* incorporated human settlements within the vast, half-million acre Louse Canyon GMA. Aside from a few scattered ranches, the nearest unincorporated settlements are McDermitt, NV (about 11 mi. away), Basque, OR (18 mi.), and Rome, OR (22 mi.). The nearest incorporated settlement is Jordan Valley, about 40 miles to the north. *See* Oregon State Archives, *Oregon Blue Book*, OREGON SECRETARY OF STATE, 2019, http://bluebook.state.or.us/local/cities/ citieshome.htm.

Simple spatial analyses indicate that this is a major issue BLM should consider in this planning process. For example, Map 6 shows the significant overlap between LWCs and essential sage-grouse habitats throughout the SEORMP planning area. Map 7 shows the significant overlap between LWCs, roadless areas, and the important Climate Change Consideration Areas BLM identified in the ARMPA (BLM 2015a). These are places that are important for maintaining the ecological and evolutionary potential and long-term survival of native life and natural communities. *See also* Map 3 (roadless natural areas in SEORMP planning area), Map 4 (landscape-scale overview of wilderness and roadless areas across across southeastern Oregon), Map 8 (overlap between Ecoregional Priority Areas and roadless and wilderness areas), Tables 1–2 (listing LWCs that overlap with essential sage-grouse habitat areas), Table 5 (listing LWCs that overlap with Ecoregional Priority Areas).

Given the ecological importance of unfragmented sagebrush landscapes to the sage-grouse, it would be arbitrary and capricious if BLM failed to consider how managing to preserve recognized roadless and wilderness areas, including LWCs, in the planning area would benefit this imperiled bird.

5. BLM Should Consider Establishing a Lek Viewing Area for Public Education and Enjoyment

ONDA supports designation of at least one lek viewing area where the public can view and enjoy the mating displays of this magnificent bird. This should be done, of course, in a way that does not cause negative effects to the lekking birds. The public is increasingly interested in seeing sage-grouse in their natural habitat, including during the mating ritual each spring. It makes sense to help facilitate this as long as the lek(s) do not suffer from any vehicle traffic or human activity that is too close to the lek for the birds to tolerate without disturbance. We would like to see BLM (and ODFW) consider identifying a viewing lek, with a permanently emplaced viewing blind equipped by the agencies with spotting scopes, with parking area(s) and approach paths hidden from the view of the lek, and paid or volunteer staff on-site to ensure that low-impact conduct is observed. This would allow visitors to enjoy of lekking displays (including through access to spotting scopes and blinds that they might not otherwise have), while shielding the birds from movement and sounds that may currently be disturbing them.

VIII. OTHER IMPERILED SPECIES

Pursuant to FLPMA, the Endangered Species Act, and other authority, BLM has adopted a "Special Status Species Policy," which is included as part of the agency's 6840 Manual (BLM 2008). The purpose of the Policy is to provide "for the conservation of special status species plants and animals, and the ecosystems on which they depend." *Id*. § 6840.01. The Policy's "objectives" include: "To ensure that actions requiring authorization or approval by [BLM] are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species . . . under the provisions of the ESA." *Id*. § 6840.02.

The ICBEMP Strategy, which is part of the SEORMP, also directs BLM to address special status species when the agency prepare or amends a land use plan (USDA *et al*. 2014).

"The planning process should address the persistence of these species within the Interior Columbia Basin, the ecological conditions needed to support them, and key risk factors that threaten their persistence." To do so, BLM must: (1) emphasize "maintenance or restoration of ecological processes and disturbance regimes upon which special status species depend" and manage habitats "to promote their conservation"; (2) "[c]ontribute to recovery" of special status species; (3) emphasize "habitat conservation measures" that avoid new species listings and contribute to recovery; (4) plan at "the appropriate spatial scale"; and (5) include provisions "to maintain and restore functional critical habitat" (USDA *et al*. 2014).

Aside from the Greater sage-grouse (discussed in detail above), other "special status species" covered by the Special Status Species Policy and ICBEMP Strategy and present within the SEORMP planning area include bighorn sheep, golden eagles, rare bats, spotted frogs, redband trout and Lahontan cutthroat trout. *See* BLM (2008) & USDA *et al*. (2014) ("sensitive" species). Sensitive species shall be afforded at least the same level of protection as ESA "candidate" species. *See* 6840 Manual (BLM 2008) ("protection provided by the policy for candidate species shall be used as the minimum level of protection for BLM sensitive species"). For candidate species, the Policy directs BLM to "ensure that actions authorized, funded or carried out by the BLM do not contribute to the need for the species to be listed." *Id*. § 6840.06. Among other things, BLM must coordinate with the USFWS to determine "population dynamics, current threats, abundance, and habitat needs." *Id*. § 6840.06C.

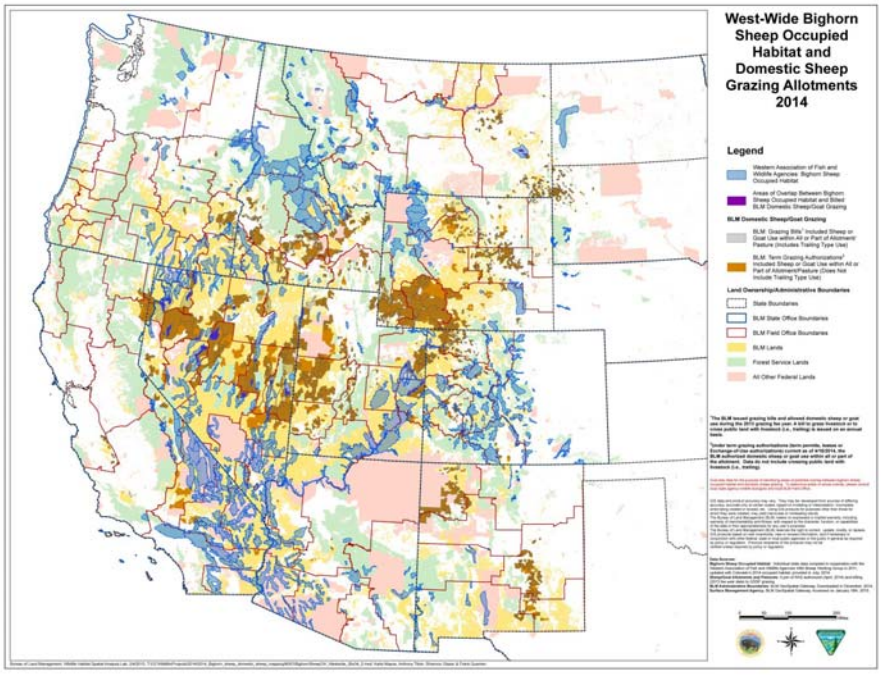

Fig. 13 – Showing overlap of bighorn sheep habitat and domestic sheep grazing allotments on BLM-managed public lands, including SEORMP planning area. Data and maps *available at* https://www.wafwa.org/committees___groups/wild_sheep_working_group/maps/.

Rocky Mountain bighorn sheep (*Ovis canadensis canadensis)* and California bighorn sheep (*Ovis canadensis californicus*) are the two bighorn sheep subspecies that are native to

Oregon. Both subspecies were once abundant and widely distributed across Oregon, but populations severely declined and bighorn sheep were extirpated from the state in the early 1900s due to the loss of habitat, overhunting, competition with livestock for forage, and diseases transmitted by domestic livestock (ODFW 2003).

Although the DEIS does not disclose this information, a preliminary review by ONDA indicates that a number of domestic sheep grazing allotments within the planning area are in close proximity to bighorn sheep habitat. Many of these allotments are within ten miles of that habitat. *See* Map 5 and Fig. 13 (above).

The DEIS acknowledges that there is "extensive scientific research" that supports a "relationship between disease in bighorn sheep populations and contact with domestic sheep." DEIS at 3-116. Please address whether any state or federal agencies in Oregon have their own risk analysis to evaluate the risk of disease. *See* 40 C.F.R. §1502.22(a) (if there is "incomplete or unavailable" information, the agency "shall make clear that such information is lacking" and if such information "relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the [EIS]"). As the Ninth Circuit has summarized:

> Pneumonia-causing bacteria are commonly found in domestic sheep, with the worst outbreaks killing 2.5% of domestic sheep in a herd. The impact of pneumonia on bighorn sheep is considerably more catastrophic. Episodic pneumonia outbreaks appear to be the current limiting factor in bighorn sheep abundance and distribution, both because large-scale die-offs caused by pneumonia kill most or all of a given population, and because female bighorns who survive die-offs experience low reproduction and high lamb mortality rates for years following an outbreak.

Idaho Wool Growers Ass'n v. Vilsack, 816 F.3d 1095, 1100 (9th Cir. 2016).

The DEIS states that there are approximately 600–800 bighorn sheep currently within the planning area and they occupy approximately 1.03 million acres. DEIS at 3-108 to -109. BLM manages California bighorn sheep numbers in accordance with the *Bighorn Sheep and Rocky Mountain Goat Management Plan* (ODFW 2003). That plan indicates that it is supposed to be updated every ten years—so BLM in the 2019 DEIS is still relying on older management strategies, when the research into bighorn sheep mortality from domestic sheep was more limited. *See* 40 C.F.R. § 1502.24 (methodology and scientific accuracy). BLM should explain why the plan has not been updated and whether there are plans to update it. If the sheep management plan is updated in the future, it should later be incorporated into the SEORMP. That may require additional NEPA review. *See id*. § 1502.9(c) (supplementation).

The 2002 SEORMP included direction on how to monitor bighorn sheep and manage them in collaboration with ODFW. The 2002 SEORMP also includes a map showing approximately 2,888,000 acres where bighorn sheep management is to be emphasized. 2002 SEORMP, Map WLDF-2. By contrast, the DEIS states, inconsistently, that bighorn sheep occupy 1.03 million acres; comparing the DEIS's wildlife maps to the 2002 SEORMP map, the

two versions show different bighorn sheep habitat areas. The 2002 map also contains an area where there is potential bighorn sheep range that is "currently unoccupied due to domestic sheep." The 2019 map only shows habitat occupied by bighorn sheep. BLM includes no discussion in the DEIS explaining these discrepancies. The agency must do so in its new, revised, or supplemental draft EIS. This is also an appropriate place for BLM to explain why it no longer lists the California bighorn sheep as a BLM special status species.

Additionally, as you know, there was a California bighorn sheep die-off in 2015 in the Owyhee Unit, which is within the planning area. After the die-off, ODFW stated it would be "stepping up surveys and disease sampling in herds in Oregon's Southeast corner (Whitehorse and Owyhee Units) due to disease."[31] Because it is directly relevant to land management decisionmaking in the SEORMP planning area, BLM's DEIS must disclose and discuss what that research has shown. Currently, the DEIS fails completely to address this bighorn sheep die-off. BLM must provide any and all information and analysis the agency (and cooperating agencies) has done regarding this die-off. The public should be able to review that information and meaningfully comment on it as it relates to the proposed plan amendment—including grazing issues and issues surrounding potential preservation options for the many large, roadless areas the agency has identified that overlap with bighorn sheep habitat. *See, e.g.*, 40 C.F.R. § 1502.9(c)(1)(ii) (supplemental draft EIS required when there "are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts").

Under NEPA, the BLM has an obligation to take a "hard look" at whether to supplement an EIS to consider the risk of disease contact to bighorn sheep, including how its proposed management options and issues being considered play into this important issue. After the 2010 scoping process, WAFWA published its 2012 recommendations for bighorn sheep management.[32] This management guidance recommends that resource management plans should "explicitly address the potential for domestic sheep or goats to associate with wild sheep. Land use plans should evaluate the suitability of permitting activities involving domestic sheep or goats to determine the best course of action with respect to wild sheep conservation." While the DEIS generally acknowledges the risk of disease, it discloses no specific information and contains no specific analysis. The only management action addressed, in general terms, is voluntarily permit relinquishment for domestic sheep grazing permits within occupied bighorn sheep habitat. The preferred alternative includes no specific mechanism or process for permit relinquishment specific to sheep grazing. *See* DEIS at 3-116.

BLM's sheep manual (BLM 2016) emphasizes effective separation. The agency cites this manual in the course of generally acknowledging that contact between domestic and bighorn

---

[31] Michelle Dennehy, *Record year for big game hunt auctions, raffles,* ORE. DEP'T OF FISH & WILDLIFE, May 15, 2018, https://www.dfw.state.or.us/news/2018/05_May/051518.asp.

[32] *See* https://www.wafwa.org/committees___groups/wild_sheep_working_group/ (Wild Sheep Working Group). The Wild Sheep Working Group consists of members from state fish and wildlife agencies across the West including two members from ODFW.

sheep leads to disease, but seems to ignore the manual's actual guidelines. The BLM should incorporate the manual into the plan amendment in order to give land managers more concrete and uniform guidelines for bighorn sheep management in this important landscape. For example, the BLM manual recommends working closely with the state wildlife agency, considering relocating domestic sheep and goats, and emphasizing opportunities for voluntary non-use, to avoid conflicts with wild sheep. Given the Owyhee Unite die-off and other potential conflicts in the planning area that ONDA has identified and the relationship of sheep management to the grazing and wilderness issues at the heart of this plan amendment process, BLM must adequately address this issue in a new or supplemental DEIS.

IX. FISH AND AQUATIC WILDLIFE

In 1993, BLM and the Forest Service initiated the Interior Basin Ecosystem Management Project as a "scientifically sound and ecosystem-based strategy for management of eastside forests." Recognizing that the ecosystems of the interior Columbia River basin were in declining health, the ICBEMP strategy would amend land use plans across 64 million acres of federal public lands in the West. The project was based on concerns over "forest and rangeland health, uncharacteristically intense wildland fires, threats to certain fish and wildlife species, and concerns about local community social and economic well-being" (USDA *et al*. 2014). At the time, there was little broad-scale scientific knowledge of the ecological, biophysical, social, and economic conditions, trends, risks, and opportunities within the planning area. The project's main purpose is to restore and maintain long-term ecosystem health and ecological integrity in these landscapes.

In 2003, the regional executives for the Forest Service, BLM, USFWS, National Marine Fisheries Service, and Environmental Protection Agency signed a Memorandum of Understanding completing the Project. The agencies agreed to cooperatively implement The Interior Columbia Basin Strategy (the "Strategy"), which provides "principles that incorporate the science data and resource management information developed by the Project, as well as more recent science, into land use plans . . . and project implementation" (USDA *et al*. 2014).

The agencies most recently updated the Strategy in 2014 (USDA *et al*. 2014). Included there is an Aquatic and Riparian Framework "for developing and incorporating the aquatic and riparian habitat components of land use plans." The Framework "clarifies, interprets, and in some instances, enhances the principles found in the Strategy." The Strategy explains that current land use plans, like the SEORMP, include the "interim" PACFISH and INFISH direction. Until land use plans are amended or revised, management continues under current plans—in this instance, INFISH.

The DEIS does not explain why BLM has not, through this or any other plan amendment or revision, updated the 2002 SEORMP to replace the interim 1995 INFISH direction with ICBEMP's permanent, plan-specific 2014 Strategy and Framework. *See* DEIS at 3-117. This omission is particularly relevant here because several of the Strategy's requirements go directly to provisions in the 2010 Settlement Agreement. For example, the Strategy directs BLM to address "road-related impacts to water quality, fisheries, and wildlife" in developing the land use plan's road network (USDA *et al*. 2014). BLM must manage for "elimination, reduction, and

mitigation of adverse effects from roads on aquatic/riparian resources, and address closure and rehabilitation of unneeded roads"—something the DEIS fails to do. The Strategy requires BLM to recognize the "spatial and habitat connectivity within and between watersheds," a concept intertwined with the large roadless natural areas BLM has recognized and is considering in this plan amendment. It requires BLM to "[r]estore, maintain, or enhance the long-term health and productivity of rangelands by balancing and sustaining soil integrity, natural vegetation, and water, as well as rangeland ecological processes."

The 2014 Strategy also requires BLM, in land use planning, amendment, and revision processes, to "address the persistence of [special status species] within the Interior Columbia Basin, the ecological conditions needed to support them, and key risk factors that threaten their persistence. The DEIS does not do so with regard to Greater sage-grouse, and neither the 2015 nor the 2019 ARMPA mentions ICBEMP even once. Given these failures, BLM must, in a new or revised draft EIS, incorporate the ICBEMP Strategy and Framework into the SEORMP and make that important new land use plan element available for public review.

X. SOILS

A. Legal Framework

1. Establishment of the Soil Survey

Over a century ago, at a time when the United States still had one foot firmly planted in its agricultural origins, Congress initiated a nationwide soil survey in the Agricultural Appropriation Act of 1896. Agricultural Appropriation Act of 1896, 53rd Cong., ch. 169. The soil survey was one of a variety of conservation-minded actions at the close of the nineteenth century that signaled the end of the federal land disposal policy and the beginning of an era of land reservation and withdrawal.[33] The 1896 Act provided funding for an investigation "of the relation of soils to climate and organic life" and "of the texture and composition of soils in field and laboratory." By 1899, the U.S. Department of Agriculture ("USDA") had completed field investigations and soil mapping in portions of Utah, Colorado, New Mexico, and Connecticut (Soil Science Division Staff 2017). The soil survey authority was expanded and vested in the Soil Conservation Service in 1935, and continues today as part of the Natural Resources Conservation Service ("NRCS").

A soil survey describes the characteristics of the soils in a given area, classifies and maps soils according to a standard system, and "makes predictions about the behavior of soils" (Soil Science Division Staff 2017). The USDA has called the soil survey "perhaps the largest and most valuable natural resource database in the world" (USDA 1999). Early soil surveys essentially

[33] Other significant acts at that time included the General Revision Act of 1891, 16 U.S.C. § 471 (1994), which authorized the President to "set apart and reserve . . . any part of the public lands . . . as public reservations," and the Organic Act of 1897, 16 U.S.C. §§ 473–481 (repealed in part, 1976), which authorized protective management of withdrawn forest reserves. *See*, *e.g.*, George Cameron Coggins & Margaret Lindberg-Johnson, *The Law of Public Rangeland Management II: The Commons and the Taylor Act*, 13 ENVTL. L. 1, 3–22 (1982).

served as agricultural tools, helping farmers decide which crops and management practices were most suitable for different types of soils. Beginning in the early twentieth century, more and more scientists were studying soils and developing an increasingly sophisticated understanding of soil formation processes (Soil Science Division Staff 2017). Soil science began to evolve as a discipline of its own, rather than a sub-discipline of geology or agricultural chemistry (Soil Science Division Staff 2017). By the late 1920s, soil surveys were being used for farming, ranching, forestry, highway and airfield construction, residential and industrial developments, and even tax assessment (Soil Science Division Staff 2017).

Despite the increasing scientific sophistication and understanding of soils, the political movement to protect soil degradation was essentially a one-man "crusade" in the first three decades of the twentieth century (Clarke & McCool 1996). A government geologist named Hugh Bennett vociferously argued that soil erosion was destroying American farm productivity, and that a federal soil conservation program was needed. The federal government first recognized these arguments in 1928 when the USDA published Bennett's paper titled, "Soil Erosion, A Natural Menace." It was not until the Dust Bowl years of the early 1930s, however, that Congress paid any further attention to soils.

2. The Soil Erosion Act of 1935

In 1933, President Roosevelt's Secretary of Interior, Harold Ickes, established the Soil Erosion Service in the Department of the Interior. Ickes appointed Hugh Bennett as the first head of the Service, which was to assist farmers in implementing soil erosion control projects and create jobs through the Civilian Conservation Corps. In 1935, Bennett was testifying before Congress on behalf of his cause when the Capitol building was shrouded in a thick dust storm that had billowed across the Nation from two-thousand miles away (Clarke & McCool 1996).

In 1935, Congress enacted the Soil Conservation and Domestic Allotment Act, also known as the Soil Erosion Act or Soil Conservation Act. Soil Conservation and Domestic Allotment Act of April 27, 1935, ch. 85, 49 Stat. 163 (1935) (codified as amended at 16 U.S.C. §§ 590a–590q (2008)). The Soil Erosion Act declares Congress's policy "to provide permanently for the control and prevention of soil erosion and thereby to preserve natural resources, control floods, prevent impairment of reservoirs, and maintain the navigability of rivers and harbors, protect public health, public lands and relieve unemployment." 16 U.S.C. § 590a.

Between 1935 and 1985, Congress amended and added to the purposes of the Soil Erosion Act.[34] A more detailed list of purposes in section 590g includes: (1) "preservation and improvement of soil fertility"; (2) "promotion of the economic use and conservation of land"; (3) reduction of "exploitation and wasteful and unscientific use of national soil resources"; (4) protection of rivers and harbors against soil erosion, to maintain navigability and aid flood control; (5) reestablishment and maintenance of a specified net purchasing power ratio for

[34] 16 U.S.C. § 590g (Apr. 27, 1935, ch. 85, § 7, as added Feb. 29, 1936, ch. 104, § 1, 49 Stat. 1148, and amended June 28, 1937, ch. 395, § 1, 50 Stat. 329; Pub. L. No. 87-703, title I, § 101(1), Sept. 27, 1962, 76 Stat. 605; Pub. L. No. 92-419, title VI, Sec. 606(1), Aug. 30, 1972, 86 Stat. 676; Pub. L. No. 99-198, title XII, § 1253, Dec. 23, 1985, 99 Stat. 1517).

farmers; (6) "prevention and abatement of agricultural-related pollution"; and, (7) "promotion of energy and water conservation through dry land farming." *Id.* § 590g(a)(1)–(7).

3. The Taylor Grazing Act of 1934

In 1934, Congress authorized the Secretary of the Interior to withdraw all remaining public lands into grazing districts and allocate grazing privileges via a preference permit system. 43 U.S.C. §§ 315–315o-1. The Taylor Grazing Act required the Secretary to establish grazing districts based on whether lands are "chiefly valuable for grazing and raising forage crops." *Id.* § 315. The act states that the Secretary "shall . . . do any and all things necessary . . . to regulate their occupancy and use, to *preserve the land and its resources* from *destruction or unnecessary injury*, to provide for the orderly use, improvement, and development of the range." 43 U.S.C. § 315 (emphases added). This section also authorized the Secretary to "continue the study of erosion." *Id.* The act's preamble also mentions soil, with Congress explaining that the Act was passed "[t]o stop injury to the public grazing lands by preventing overgrazing and soil deterioration." Taylor Grazing Act of June 28, 1934, ch. 865, preamble, 48 Stat. 1269.

It is interesting to note that the Congress that enacted the Taylor Grazing Act is largely the same Congress that enacted the Soil Erosion Act just ten months later, in 1935. Between the Taylor Act's application on public lands and the Soil Erosion Act's application on private lands, it appears that Congress intended sweeping and comprehensive protection of the soil resource across the country.

4. Federal Land Policy and Management Act of 1976

As described above, FLPMA governs BLM's management of the public lands, requiring, among other things, that the Secretary "take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b). Although there is not a soil-specific provision in FLPMA itself, BLM's rangeland health regulations, first enacted in 1995, require the agency to make "significant progress toward fulfillment of" specified standards and guidelines. 43 C.F.R. § 4180.2(c). The guidelines, for example, require BLM to maintain and promote "adequate amounts of vegetative cover . . . to support infiltration, maintain soil moisture, and stabilize soils," "subsurface soil conditions that support permeability rates appropriate to climate and soils," riparian-wetland functions including "sediment capture, groundwater recharge, and stream bank stability," and "appropriate kinds and amounts of soil organisms." *Id.* § 4180.2(e).

The standard for upland watershed function in Oregon requires that, "[u]pland soils exhibit infiltration and permeability rates, moisture storage and stability that are appropriate to soil, climate and landform." (BLM 1997). "Potential indicators" for this standard include "[p]rotection of the soil surface from raindrop impact, detention of overland flow, maintenance of infiltration and permeability, and protection of the soil surface from erosion" (BLM 1997). These indicators are measured by a number of factors, including accumulation and incorporation of organic matter in soils, the thickness and continuity of the A horizon,[35] the root occupancy of

[35] Soil "horizons" are layers in the soil that are distinguishable from adjacent layers by a set of properties produced by soil-forming processes, for example texture, color, consistence, structure,

the soil profile, and the absence of accelerated erosion and overland flow (BLM 1997).

5. Public Rangelands Improvement Act of 1978

Enacted two years after FLPMA, Congress in the Public Rangelands Improvement Act ("PRIA") found that "vast segments of the public rangelands . . . are in unsatisfactory condition" and that these conditions could be addressed by an "intensive public rangelands maintenance, management, and improvement program." 43 U.S.C. § 1901(a)(1) & (4). Congress directed the Secretary to manage grazed public lands with the goal of "improve[ing] the range conditions of the public rangelands so that they become as productive as feasible in accordance with the rangeland management objectives established through the land use planning process, and consistent with the values and objectives" of the congressional findings and policies in Section 2 of the Act. *Id*. § 1903(b).[36]

B. Ecological Framework

Soils are critical components to nearly every ecosystem in the world (Buol *et al*. 2011). They are essential ecosystem building blocks at the confluence of the atmosphere, hydrosphere, biosphere, pedosphere, and lithosphere (Jenny 1980). Simply put, soil is "a natural body of mineral and organic matter that changes, or has changed, in response to climate and organisms" (Buol *et al*. 2011).[37] The Soil Survey (Soil Survey Staff 2014) defines soil as

> a natural body comprised of solids (minerals and organic matter), liquid, and gases that occurs on the land surface, occupies space, and is characterized by one or both of the following: horizons, or layers, that are distinguishable from the

---

concretions, voids, pH, boundary characteristics, and horizon continuity (Buol *et al*. 2011). An "A horizon" is a mineral horizon that formed at the surface or below and O (organic) horizon and is characterized by any or all of the following: has humified organic matter mixed with mineral material; is not dominated by properties characteristic of O or E horizons; or, has properties resulting from cultivation, pasturing, or similar kinds of disturbance (Soil Science Division Staff 2017).

[36] In 1977, in between FLPMA and PRIA, Congress passed the Soil and Water Resource Conservation Act ("SWRCA"). 16 U.S.C. §§ 2001–2009. Finding that "[t]here is a growing demand on the soil, water, and related resources of the Nation to meet present and future needs," *id*. § 2001(1), Congress directed the Secretary of Agriculture to conduct a continuing inventory of soil and water resources and to develop soil conservation programs. *Id*. § 2003. The SWRCA, however, essentially applies only to private and non-federal lands. *See id.* § 2005(a) (authorizing Secretary of Agriculture to develop soil and water conservation program for conservation "on the private and non-Federal lands of the Nation").

[37] Depending on who is defining the term (for example, geologists, ecologists, archaeologists, chemists), the term "soil" can have a variety of interrelated definitions. *See*, *e.g.*, Birkeland (1984) at 3.

initial material as a result of additions, losses, transfers, and transformations of energy and matter or the ability to support rooted plants in a natural environment.

Perhaps most useful in terms of understanding how soil forms and is continually affected by its surrounding environment is Hans Jenny's simple soil equation (Jenny 1941), which states that soil is a function of climate, organisms, relief, parent material, and time. In other words, each of these five soil-forming factors interacts with the others, on a site-specific basis, to influence the formation and characteristics of the soil in a given location.

As the numerous definitions of soil suggest, the soil resource is a complex ecosystem component. Soils are central to ecosystem health and are among the most fragile of natural resources. While a clear-cut may regenerate to an old-growth forest in a few centuries, soil formation is far more gradual. Rates of soil formation differ greatly depending on the various soil-forming factors, but those rates may vary from anywhere between half a century to thousands or even tens of thousands of years (Buol *et al*. 2011). Thus, where a soil is significantly eroded or otherwise degraded, it may require a tremendous amount of time to return to a fully developed and "functional" state.

Human land management activities may degrade soils in a variety of physical and chemical ways, including erosion, depletion of nutrients, loss of organic matter, compaction, reduced infiltration and porosity, physical breakdown of soil structure, saturation, and salinization.[38] These various forms of soil degradation may lead in turn to a chain reaction of subsequent environmental problems—for example, water quality and stream habitat degradation from sedimentation, air pollution from wind erosion of exposed soil, and altered vegetation patterns from nutrient depletion. Soil erosion is "considered the greatest threat to long-term sustainability of shrublands" (Miller *et al*. 2011). In short, human impacts on the soil resource are pervasive, and every component of Earth's ecosystems, including those in the SEORMP planning area, is affected in one way or another by the soil resource.

C. Discussion

The DEIS incorrectly assumes that limiting ground-disturbing restoration and rehabilitation activities would lead to negative impacts to soils. In fact, ground-disturbing restoration techniques negatively impact soils. *See* DEIS at 3-49 (recognizing that soils in the semiarid SEORMP planning area are "young and poorly developed" and "[b]ecause soil recovery processes are slow, disruption of soils can lead to long-term changes in ecological condition and productivity"). BLM must reconsider this section based on the best available science.

BLM claims that "limiting restoration and rehabilitation ground disturbing activities (see Action Table, Appendix K.3) . . . would ultimately not benefit soil resources." DEIS 3-50. This is one of the DEIS's main arguments against managing for wilderness values in LWC units. The DEIS fails, however, to adequately consider the impacts ground disturbance can have on arid

[38] For an example of one land use activity's effects on soils, *see* Belsky & Blumenthal (1997).

systems, and fails to analyze the most appropriate rehabilitation activities identified in the scientific literature for arid systems. This, in part, results in a flawed analysis of the potential impacts of management actions to soil, vegetation, and wilderness resources.

Numerous studies have shown that ground disturbance and removal of native vegetation increase the prevalence of invasive exotic species, often by orders of magnitude (Johnston 2011, Roundy *et al*. 2007, Vallentine & Stevens 1994, Wicklow-Howard 1994). Further, studies by both the USGS and BLM have shown that conventional rehabilitation methods, especially following fire, are often too heavy-handed and do not always result in ecological benefits (*e.g.*, Downs *et al*. 2010, Miller *et al*. 2012, Shinneman *et al*. 2018). Accordingly, experts warn against introducing new sources of disturbance to arid and semi-arid ecosystems (Compagnoni 2013, Condon *et al*. 2011).

For example, drill seeding (a ground-disturbing rehabilitation activity identified in the DEIS) breaks up biological soil crusts (Miller *et al*. 2012). Biological soil crusts and other aggregated soil surface conditions have several important ecological functions:

- First, they inhibit erosion (Ravi *et al*. 2011).

- Second, biological soil crusts are the most important source of nitrogen fixation in sagebrush steppe ecosystems. After crusts are lost, cheatgrass depletes the nitrogen, and the system spirals down into barren wasteland, as we see in many places today.

- Third, biological soil crusts are natural fire breaks in the sagebrush steppe. At low elevations in Wyoming sagebrush steppe habitat, biological soil crusts can cover over 40% of the soil surface (Rosentreter 1986).

- Fourth, biological soil crusts inhibit cheatgrass germination. Drill seeding can severely damage the same biological soil crusts that hinder cheatgrass germination and therefore their use can be counterproductive (Serpe *et al*. 2006).

BLM Technical Reference 1730-2 on biological soil crusts (BLM 2001b) dedicates a chapter to management techniques to maintain and improve existing soil crusts. Among the management actions discussed, the chapter highlights that "total protection from disturbance is often the easiest way to maintain or improve biological soil crusts" and that recovery of areas that have been impacted by fire or other disturbance can be further facilitated by the use of "minimal-till or no-till drills or other seeding methods that minimize soil surface compressional impacts" (Belnap *et al*. 2001). The clear emphasis here—to implement restoration or rehabilitation activities that limit impacts to soils and biological soil crusts—is a keystone concept to restoration in arid systems. *See* DEIS at 3-50 ("Prevention of soil degradation is far more cost-effective and time effective than remediation or waiting for natural processes.").

The DEIS states that the Vale District has only two methods for seeding vegetation: "drill seeding and aerial seeding methods." DEIS at 3-63. This limited analysis fails to incorporate the techniques outlined in Technical Reference 1730-2 (BLM 2001b), such as minimal-till or no-till methods, and fails to follow guidelines and recommendations from the best available soil

science. It is not clear why the DEIS makes no mention of these or analogous methods. Given these concerns, combined with the DEIS's recognition elsewhere (*e.g.*, DEIS at 3-50) that soil recovery is slow in the planning area, and in order to facilitate meaningful public review and provide for an informed agency decision, the DEIS must incorporate additional vegetation management techniques that minimize impacts to soils. This additional analysis must be presented in a new or revised draft EIS.

XI. FIRE AND INVASIVES

A. Legal Framework

In 2005, Vale BLM issued a Normal Fire Emergency Stabilization and Rehabilitation Plan ("Fire Plan"), addressing in programmatic terms the "typical" response to a "typical" wildfire (BLM 2005b). The Fire Plan is a helpful starting point to address the issues of post-fire rehabilitation, but by its terms makes clear it does not apply to the types of extraordinary circumstances presented in recent fire seasons. The plan explains that "[a] fire that results in conditions beyond the scope described in the Proposed Action, and requires non-routine treatments or may affect a species listed under the [Endangered Species Act] would involve the preparation of an additional NEPA analysis." Fire Plan at 5. The Fire Plan also makes clear that "new circumstances" that have arisen since BLM prepared the plan in 2005 "may require the BLM to develop a new EA to analyze the impacts of the circumstance that caused the change." *Id*.

B. Ecological Framework

Fire is a chief factor associated with sage-grouse declines because it kills many of the sagebrush ecosystem's native plants and recovery requires decades (Baker 2011, USFWS 2010). It is one of the most significant predictors of whether sage-grouse will abandon their ancestral breeding areas. Sage-grouse are likely to abandon leks as far as an astounding 33.5 miles from burned areas (Knick & Hanser 2011, USFWS 2010). Increased burned area within 33.5 miles of a lek increases the probability of lek abandonment by 800% (Knick & Hanser 2009). For this reason, even "small increases" in area burned have a "large influence on the probability of lek abandonment" (Knick & Hanser 2011).

Current models predict increased wildfire size, frequency, and severity throughout the Great Basin, largely related to positive feedback loops that facilitate the expansion of highly flammable annual grasses (Beschta *et al*. 2012, Chambers *et al*. 2007). In 2012, for example, one of the largest wildfires in Oregon's history burned more than one million acres of essential sage-grouse habitat in southeast Oregon and northern Nevada. Sagebrush fires are nearly all high-severity or stand-replacing, not low- or mixed-severity (Baker 2011, Knick *et al*. 2011). In most sagebrush taxa, the plant is killed because most taxa do not re-sprout after fire. Individual sagebrush plants are able to grow from seed to full maturity in a shorter period, but full coverage of mature plants across a burned landscape is the best measure of actual recovery. Mountain big sagebrush recovers faster than Wyoming big sagebrush. Recovery ranges from a "fast track" to full recovery of mountain sagebrush in 25–35 years and a "slow track" to full recovery in 75–100 years. Wyoming big sagebrush requires 50–120 years for full recovery.

In areas of depleted understories, restoration to reestablish native plants is needed if sagebrush ecosystems are to effectively recover from future disturbance. These areas need rest and recovery. Restoration is likely to be ineffective if the specific causes of degradation or invasion are not identified and remedied. In southeastern Oregon, the most recent research shows that there has been too much fire relative to the historic range of variation (estimated to be 200–350 years). In these areas, cheatgrass invasion and the negative effects of livestock grazing are significant.

Reintroduction of grazing after just two growing seasons, *see* 2002 SEORMP at S-2, but before the native or reseeded plant community has developed, will result in increased levels of exotic grasses and failed rehabilitation efforts. Research suggests that more than the typical two growing season rest period for grazing is necessary burned areas within the planning area. Miller *et al*. (2013) explain that the length of time necessary for a plant community or ecological site to adequately recover before implementing grazing depends on a number of interacting variables including resilience to disturbance and resistance to invasives, fire severity, post-disturbance climate, plant composition of the community prior to disturbance, post-fire grazing management, and additional post-fire disturbances.

C. Discussion

1. BLM Must Assemble an Accurate and Complete Environmental Baseline for Weeds and Invasives

The DEIS acknowledges that BLM "has not surveyed all of the planning area" for weeds and invasives. *See* DEIS at 3-71. In fact, BLM believes its estimations of invasive annual grasses such as medusahead and ventenata are too low. *Id*. This is an extraordinarily important data gap that the agency must fill.

"An agency's obligation with respect to incomplete or unavailable information is spelled out in 40 C.F.R. § 1502.22." *Native Village of Point Hope v. Jewell*, 740 F.3d 489, 496 (9th Cir. 2014) (concerning Bureau of Ocean Energy Management oil and gas leases in Chukchi Sea off coast of Alaska). Under that regulation, "[A]n agency must either obtain information that is 'essential to a reasoned choice among alternatives' or explain why such information was too costly or difficult to obtain." *Id*. at 493 (citing 40 C.F.R. § 1502.22). In *Native Village*, for example, missing information about wildlife population levels and habitat locations was not "essential" at the lease sale stage. There, the agency had promised that compliance with the Marine Mammal Protection Act and Endangered Species Act, later in the process, would provide protections for those animals, and that further environmental analysis would be appropriate at a later [exploration or development] stage "when a project proponent actually submits a plan." 740 F.3d at 497.

Here, by contrast, there is no such later planning process. As BLM acknowledges, weeds and invasive are a serious problem in the planning area. The landscape-scale decisions about wilderness, motorized use, and grazing management that BLM is making in this plan amendment will have major effects with regard to weeds and invasives. Because an accurate baseline is

"essential" to an informed analysis, and BLM has not explained why it cannot complete its surveys prior to issuing a new or revised draft EIS, the agency must gather, disclose, and analyze this important missing and incomplete information. 40 C.F.R. § 1502.22. The current DEIS's failure to do so leaves BLM without a "coherent and up-front environmental analysis to ensure informed decision making to the end that 'the agency will not act on incomplete information, only to regret its decision after it is too late to correct.'" *Blue Mountains*, 161 F.3d at 1216 (quoting *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 371 (1989)).

2. The DEIS Fails to Adequately Address Environmental Concerns and Uncertainty With Regard to Fuel Breaks Projects

The DEIS's characterization of fuel breaks as "ecological restoration" is alarming and is not supported by the best available science. That assertion, in combination with the proposed "setbacks" to LWC boundaries in alternatives B, C, and D, and the fuel break projects currently under development by BLM for public lands within the planning area (the Programmatic EIS for Fuel Breaks in the Great Basin and the Tri-State Fuel Breaks Project), raise significant environmental concerns about the future development of a network of fuel breaks within the planning area.[39]

There is little or no peer-reviewed, published scientific basis for fuel breaks. In fact, U.S. Geological Survey research directly contradicts the concept. According to one recent USGS report (Shinneman *et al*. 2018), there is "relatively little published science that directly addresses the ability of fuel breaks to influence fire behavior in dryland landscapes or that addresses the potential ecological effects of the construction and maintenance of fuel breaks on sagebrush ecosystems and associated wildlife species."

Fuel breaks have been attempted since the early 1990s, with at least 143,000 acres of such treatments on BLM lands recorded in the Fire Treatments Effectiveness Monitoring Program; yet, records are simply too sparse and difficult to analyze to systematically determine the relative effectiveness of these fuel treatments (Shinneman *et al*. 2018). While there are anecdotal reports of fuel breaks stopping fires, at least along significant parts of their length, there is a lack of empirical validation for overall effectiveness of fuel breaks as a means of reducing fire spread (Shinneman *et al*. 2018).

Across the Great Basin and arid west, fuel breaks are largely being proposed along established routes, including paved highways, maintained gravel roads, and primitive two-tracks. The management actions involved in construction and maintenance of fuel breaks would vastly increase the amount of ground disturbance associated with existing routes, and increase both the severity and extent of annual grass invasions. As the USGS (Shinneman *et al*. 2018) has explained, fuel breaks of all types are prone to weed invasion. Further, the potential for both an increase in the severity and extent of cheatgrass, and an increase in motor vehicle use along these

[39] *See* Sections II.C. and III.C.12.c, *supra*, for further discussion related to these two fuel breaks projects.

same routes, has the potential to work counter productively—that is, to *increase* the probability of both human- and naturally-caused fires along routes with fuel breaks.

Moreover, fuel breaks are generally ineffective in the hot, windy, dry conditions in which most large fires—including in the SEORMP planning area—burn (Shinneman *et al*. 2018). Many wildfires that sweep across these arid landscapes are driven by high winds, where embers would be carried beyond fuel breaks. This makes these artificial features useless. In short, current science indicates that fuel breaks *would not* help stop these natural processes and *would* only further fragment sagebrush communities.

As outlined above, there is great uncertainty with regard to the potential impacts of large networks of fuel breaks. Questions related to the ecological processes, such as how fuel breaks would impact seasonal connections between wildlife habitat, population linkages and distributions, genetic connectivity, adjacent plant communities, and a host of related questions, are largely unanswered. Management actions that create disturbance, fragmentation, and the introduction of weeds on 500-foot wide strips of land in otherwise healthy, intact sagebrush communities, are not supported by the best available science. Given the scale of the proposed fuel break networks being considered, the failure to gather essential data on their efficacy will result in uninformed actions that run contrary to the existing scientific literature and have the potential to permanently degrade and alter the sagebrush steppe ecosystem.

3. The DEIS in the Preferred Alternative Fails to Make Grazing Management Changes to Prevent the Spread of Weeds and Invasive Species and Increased Fire Risk

The DEIS states that "[t]he negative impacts to vegetation and wildlife habitat (due to an increase in invasive annual grasses as a result of wildfire and removal of livestock grazing) would be greater than the benefits of grazing reduction or removal in Alternatives B and D." DEIS at 3-165. It also states, without any scientific support, that BLM "assumes" grazing "can be managed to limit the spread of invasive annual grasses and augment other treatments to control invasive species." DEIS at 3-76; *see also* DEIS at 3-81 (citing the "Green and Brown" guide, a 30-page "simple method for managing livestock to control annual grasses" that is largely based upon anecdotal and unpublished work). These findings and assumptions are inconsistent with peer-reviewed, published studies showing that grazing facilitates invasion and establishment of cheatgrass and other non-native invasive species and result in increased risk of wildfire on the landscape.

Grazing spreads invasive annual grasses through three primary mechanisms: by removing native perennial grasses (Reisner *et al*. 2013, Rosentreter 1994, Chambers *et al*. 2007, Belsky & Blumenthal 1997, Briske & Richards 1995); by disturbing soils (Chambers *et al*. 2014, Olff & Ritchie 1998); and by damaging biological soil crusts (Belnap 2006, Chambers *et al*. 2014, Reisner *et al*. 2013, Ponzetti, McCune, & Pyke 2007, Warren & Eldridge 2001, Belnap 1995). As summarized by Chambers *et al*. (2014), grazing can:

> decrease the relative abundance of palatable grasses and forbs, disrupt biological soil crusts, and increase soil surface disturbance in communities dominated by

> herbaceous species and shrubs/trees. These changes can increase available soil water and nitrate in the upper profile of cold desert soils. . . . With increasing levels of grazing intensity, bare soil can increase and cheatgrass can become progressively more abundant in interspaces among residual perennial herbaceous species. These changes can lower resilience to fire due to higher or more contiguous fine fuels that result in greater fire severity and extent and high mortality of fire-intolerant trees and shrubs.

Livestock also distribute annual grass seeds across the landscape through their hooves, fur, and digestive tracts (Schiffman 1997, Olff & Ritchie 1998, Chambers *et al.* 2016, Mack 1981, Knapp 1996). According to Bartuszevige & Endress (2008), "[c]attle disperse more than an order of magnitude more non-native grass seeds per animal than do elk or deer." Over 70% of viable seeds in cattle feces can be exotic grass species (Bartuszevige & Endress 2008, Janzen 1984, Getz & Baker 2008).

Additionally, the removal of livestock following a disturbance, such as fire, can be critical to the resistance and resilience of the affected area's plant and soil communities. A relevant example is the post fire rehabilitation project south of Boise, Idaho, at the Kuna Butte area on the Snake River Plain. Following rehabilitation of the burned area, the site was rested from grazing for nine years. Fifteen years later, another fire burned through this area and no active restoration was necessary for the area to recover (Hilty *et al*. 2004).

The DEIS similarly provides contradictory information regarding the impacts of livestock on invasive species and fire. As discussed elsewhere, the DEIS states that "[i]n the long term, livestock grazing may have detrimental effects of perpetuating the spread of noxious weeds and invasive annuals. . . . [L]ivestock suspension or relinquishment may be beneficial to intact perennial bunchgrass communities and potentially reduce wildfire risk." DEIS at 3-103. Here, BLM clearly articulates that removal of livestock grazing could lead to a decrease in the spread of invasive annuals and reduced potential for wildfire, thereby benefiting vegetation and wildlife habitat. These contradictory conclusions lead to a confusing and arbitrary decision-making process that is difficult for the public to follow and review.

The DEIS must consider the preponderance of evidence related to livestock management, invasive species, and wildfire risk, and incorporate grazing management changes to prevent degradation of native ecosystems. The failure of the Preferred Alternative to make any changes to livestock grazing management both ignores the best available science and the resource data BLM has collected on the ecological impacts grazing is having on the vegetation and wildlife habitat within the planning area. *See also* Appendices D & E ONDA and BLM habitat monitoring information for the Louse Canyon GMA in the southern portion of the SEORMP planning area).

Related, with regard to post-fire rehabilitation and restoration, based on the recommendations of Miller *et al*. (2013), and what we know about ecological conditions in general on grazed areas within the Vale District, it is likely on the sites BLM is dealing with in the SEORMP planning area that deferring grazing during the active growth period for only the first two years, is inadequate. Among other things, having clear and binding permit

relinquishment options available in the SEORMP is a crucial tool BLM must incorporate into this plan amendment, as discussed above.

4. The DEIS Incorrectly Assumes that Managing LWC Units to Emphasize or Preserve Wilderness Character would Limit BLM's Ability to Treat and Successfully Prevent the Spread of Invasive Species and Wildfires

BLM retains broad discretion in how best to manage to preserve and enhance wilderness values in LWC units. As the DEIS outlines in Appendix K, few restoration and rehabilitation management actions would be prohibited in LWC units managed for their wilderness values. However, throughout the DEIS, BLM asserts that managing for wilderness values would somehow limit the agency's ability to treat and prevent the spread of invasive species. As discussed throughout this letter, BLM has numerous tools at its disposal to come up with creative solutions that preserve wilderness values and addresses ecological and administrative concerns. In fact, management that prevents the spread of weeds and invasive species, and that restores landscapes to natural ecological states, should be viewed as consistent with preservation and emphasis of wilderness values in LWCs. BLM must revise this incorrect assertion throughout the affected environment and environmental consequences sections of the DEIS.

5. The DEIS Fails to Address Data and Analyses Generated Pursuant to the Jackies Butte Settlement

In 2001, ONDA filed suit against BLM, challenging the Vale District's proposal to seed over 35,000 acres (55-square miles) of public lands with non-native plants—primarily crested wheatgrass. *Or. Natural Desert Ass'n v. Bureau of Land Mgmt.*, No. 3:01-cv-1778-BR (D. Or. filed Dec. 10, 2001). The project had been proposed on lands burned in August 2001 wildfires on and around Jackies Butte, an important component of the sagebrush steppe ecosystem bordering the Owyhee Wild and Scenic River canyon. BLM completed about half the seeding before agreeing discuss other options after ONDA filed an emergency appeal in the Ninth Circuit. Among other concerns, ONDA argued BLM had failed to collect requisite baseline data necessary to make an informed decision about the effects of large-scale seeding of non-native plant species that out-compete native sagebrush plant communities.

In an ensuing, court-approved settlement, BLM agreed: (1) to provide ONDA with maps and baseline information on this and previous seedings within the project area; (2) to participate in a USGS-led collaborative research project ("Integrating Weed Control and Restoration for Great Basin Rangelands") analyzing the potential for native seeding in cheatgrass-infested rangelands in the Great Basin; (3) to rest the seeded lands from grazing for a minimum of two grazing seasons and provide ONDA all information and assessments used to consider re-opening those areas to grazing; and (4) to conduct field tours with ONDA to observe and discuss this and other re-seeding efforts in the Vale District.

At the time of the settlement, researchers had selected four exclosure sites and collected monitoring data to evaluate success of various seedings on the Vale District, Malheur Resource Area: one 3.5-acre exclosure near Vale, OR, in loamy 10-12" precipitation site (T.19 S., R.45 E, Section 24); one 3.5 acre exclosure near Adrian, OR in loamy 8-10" precipitation site (T.23 S., R. 46 E., Section 16); one 60 acre exclosure near Vale, OR, in loamy 10-12" precipitation site (T.19 S.,

R.46 E, Section 19); one 60-acre exclosure near Adrian, OR on a loamy 8-10" precipitation site (T.23 S., R.46 E, Section 5). *See ONDA v. BLM*, No. 3:01-1778-Br., Judgment of Dismissal [53] (D. Or. Apr. 28, 2003).

Because it is a relevant part of the management and environmental baseline for the SEORMP, including the grazing issues important to the present plan amendment process, the DEIS should summarize (and include in full, in an appendix for public review) these collected data, analyses, and findings. This is particularly relevant because more than 13,000 acres burned (again) on the Jackies Butte allotment in 2013. Are those areas that burned previously? Were they seeded or otherwise treated? Were they rested from grazing? If so, for how long? These questions are pertinent to informing BLM's evaluation of different options for grazing management (including relinquishment of permits or AUMs so that lands can be rested from grazing permanently) as it intersects with wildfire, weeds and invasive species, rehabilitation and restoration actions, sage-grouse and other wildlife habitat, and even roadlessness and wilderness values.

For example, the 2002 SEORMP requires BLM to "manage so that >70% of the big sagebrush habitats in each of the Malheur and Jordan RAs are in a structural and ecological condition class which will support sage grouse and other species of wildlife dependent on sagebrush habitats." *See* Fire Plan at 13. Establishment of native plant species is paramount if sagebrush ecosystems are to effectively recover and develop a natural resilience and response to future disturbance. Natural recovery or re-seeding with native species (both grasses and shrub species) is preferable. ONDA notes that the SEORMP indicates BLM will not use crested wheatgrass treatments "where the status of sage grouse winter use and breeding activity is uncertain" and that any treatments should be prescribed "based on documented field survey data that address sage grouse absence or presence." 2002 SEORMP at F-10. How do (or can) the present DEIS's grazing management alternatives support or undermine these SEORMP requirements?

XII. VEGETATION MANAGEMENT

A. Legal Framework

As described, FLPMA requires BLM to manage the public lands consistent with the "principles of multiple use and sustained yield." 43 U.S.C. § 1732(a). To do so, the BLM must make reasoned and informed analyses, balancing competing resource values to ensure that the public lands are managed in a manner "that will best meet the present and future needs of the American people." *Id.* § 1702(c). FLPMA's multiple use mandate requires the BLM to manage the public lands and resources "without permanent impairment of the productivity of the land and the quality of the environment." *Id.* As part of this multiple use mandate, Congress declared that it is the policy of the United States that the public lands shall "be managed in a manner that will protect the quality" of "ecological, environmental," and other values and that "will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use." *Id.* § 1701(a)(8) BLM must "take any action necessary to prevent unnecessary or undue degradation of the lands." *Id.* §1732(b).

B. Ecological Framework

More than 30 million hectares of the sagebrush steppe have been degraded, a staggering half of the ecosystem's historic range. Nearly two centuries of human-caused impacts have resulted in landscape-scale fragmentation and degradation of one of the continent's most widespread ecosystems. Agriculture, livestock grazing, infrastructure development, energy develop, altered fire regimes, road development and motorized use, alterations to riparian systems, and a host of other land management actions, have impacted the native plant communities of the sagebrush steppe across North America (Austin *et al*. 2019).

The SEORMP planning area encompasses some of the most important sagebrush steppe plant communities left in North America. In addition to the vast ecosystem services these systems perform, some 350 species of wildlife rely on the sagebrush steppe in this area (Dobkin & Sauder 2004). Sagebrush "obligate" species such as the Greater sage-grouse, pygmy rabbit, and pronghorn antelope are completely dependent on the presence of intact, healthy plant communities within the planning area. Without these healthy functioning plant communities, these species' futures in southeastern Oregon are uncertain at best.

As outlined in Austin *et al*. (2019), there are over 20 species and subspecies of woody sagebrush in Oregon, with twelve commonly found in the planning area and surrounding region (Winward 1980, Shreve 1942). Of these, big sagebrush (*Artemisia tridentata*) and low sagebrush (*Artemisia arbuscula*) commonly occur and frame much of the ecology (Winward 1980, Franklin and Dyrness 1988, Miller and Eddleman 2000). Numerous other shrub species are common within the sagebrush steppe, most notably rabbitbrush (*Chrysothamnus spp*.) and bitterbrush (*Purshia tridentata*) (Franklin and Dyrness 1988).

In addition to the shrubs that give the sagebrush steppe its name, a dynamic composition of perennial bunchgrasses, forbs, and biological soil crust make up a diverse understory critical to the regions wildlife (Miller & Eddleman 2000). Within this understory, perennial bunchgrasses form the dominant herbaceous component and include species such as: bluebunch wheatgrass (*Pseudoroegneria spicata*), needle-and-thread grass (*Hesperostipa comata*), Thurber's needlegrass (*Achnatherum thurberianum*), Idaho fescue (*Festuca idahoensis*), bottlebrush squirreltail (*Elymus elymoides*), and Sandberg bluegrass (*Poa secunda*) (Dealy *et al*. 1981, Franklin & Dyrness 1988, Winward 1980). Forbs are a smaller percentage of the ground cover; however, they display a far greater diversity, with over 200 species having been documented in the sagebrush steppe (Miller & Eddleman 2000, Miller *et al*. 2000).

As discussed in more detail in other sections (*e.g.*, in discussions about roadlessness, wilderness issues, and travel management) management actions related to lands with wilderness characteristics, motorized use, and grazing have profound implications for the ecological function and integrity of the plant and soil communities within the SEORMP planning area. Vegetation treatments have the potential to significantly impact native plant community composition, abundance and distribution and can permanently disrupt natural processes by removing or degrading one or more component parts. These impacts can and have resulted in a range of long-term losses including extirpation of local wildlife populations, impacts to clean air and water, increases in fire frequency and severity, loss or impairment of ecosystem services,

and decreased economic benefit from public land resources to sounding communities. Ensuring that land managers apply "lessons learned" from past vegetation management projects in the planning area (*e.g.*, the Vale Project of the 1960s and 1970s, and the Jackies Butte project of the 2000s), utilize ecologically sustainable vegetation management practices, and base decisions on the best available science, is critical to the long-term integrity of the planning areas plant communities and the wildlife and human populations that depend upon them.

C. Discussion

1. Juniper Management

The western juniper is a native species that exists most extensively in Oregon and northern California, with smaller populations in Nevada, Idaho, and southern Washington. In Oregon, western juniper is associated with a semi-arid intermountain climate at an elevation of 2,000–5,000 feet and a rainfall range of 9–14 inches per year. The species can grow up to 1,600 years old, but 95% of trees are under 100 years in age. Estimates range widely, but today there are estimated to be over five million acres of juniper in Oregon.

Juniper expansion, especially in Oregon, has been a major concern as it is rapidly replacing sagebrush-dominated ecosystems with juniper-dominated woodlands. Since 1930, western juniper has expanded four-fold in Oregon. As juniper expands, it can suppress native shrub, grass, and forb species that wildlife such as sage-grouse, mule deer, bighorn sheep and pronghorn depend upon. Juniper is also encroaching on the dry fringes of pine and aspen stands, which can affect riparian areas.

Experts generally attribute the past 150 to 200 years of juniper expansion to: (1) reduction in fire frequency caused by fire suppression and a reduction in ground fuels from livestock grazing; (2) other indirect causes from livestock grazing, including the increase in shrubby nurse plants and reduction in canopy competitors; and (3) climatic conditions (*i.e.*, mild wet winters and cool wet springs) (Burkhardt & Tisdale 1976, Young & Evans 1981, Eddleman 1987, Miller & Rose 1995).

Land managers, including BLM, are working to reduce the expansion of juniper—particularly following studies showing that juniper encroachment can negatively affect sage-grouse, which avoid vertical landscape elements like juniper trees that may serve as predator perches (Miller *et al*. 2017). ONDA supports some juniper removal projects, but opposes the removal of old-growth juniper. Part of any analysis, though, must include assessment of the carbon sequestration benefits of juniper trees.

2. BLM Must More Narrowly Define "Ecological Restoration"

The DEIS references "ecological restoration" in multiple places, yet never defines the term. *See, e.g.*, DEIS at 2-32, 3-51, 3-92, 3-95, 3-96, 3-99, 3-100, 3-142, 3-146, 3-148. This omission makes it impossible for the public to understand and assess the analysis presented. For example, the DEIS states that "[t]he Preferred Alternative A would allow for the greatest ecological restoration treatment success across the planning area." DEIS at 3-100. Without a

common understanding of what "ecological restoration" means, it is impossible to determine if the BLM's analysis and conclusions are accurate or defensible. The DEIS's reliance on the term "ecological restoration" to make assertions regarding the perceived benefits or impacts of a proposed action, without providing a definition, is not transparent and lacking in any reasonable basis.

BLM must define the term ecological restoration and, further, should include: (1) what the desired measurable outcomes of ecological restoration are (*e.g.*, percent cover of native plant species, native plant diversity and abundance, etc.); (2) what restoration practices and materials would be allowed under this definition (*e.g.*, passive restoration, native plant species); and (3) how the agency will monitor and determine if a project is successful (*e.g.*, percentage of project area that meets defined objectives).

Based on the International Primer on Ecological Restoration, ONDA proposes that the DEIS incorporate the following definition for "ecological restoration":

> The act of re-creating and/or supporting the recovery of the physical and biological components (e.g. soils, native vegetation, keystone species, migration corridors, water, etc.) and processes (e.g. fire, succession, disturbance, trophic dynamics, nutrient cycling, migration, etc.) necessary to sustain a resilient ecosystem (e.g. plants, animals and non-living components) over the long term (i.e. no need for human intervention when done right).

SER (2004).

Additionally, ONDA recommends that the SEORMP direct that following two key themes be incorporated into any ecological restoration project within the planning area:

- Ecosystem Focus –BLM should explicitly recognize that a healthy shrub-steppe ecosystem depends on a diversity of native plants, vertebrates, insects and soil communities and that any restoration actions should be designed to benefit and improve each of these critical ecosystem components.

- Native species –BLM should explicitly recognize that in order to retain native systems and reduce the need for future restoration, it must prioritize native species.

Based on these principles, BLM should develop and consider an alternative that protects wilderness values but allows targeted exceptions for common-sense treatment, restoration, and rehabilitation. For example, why not consider an alternative that protects LWCs, but has targeted exceptions for activities like fuels treatment and restoration and rehabilitation intended to restore and enhance wilderness values? The DEIS admits no alternative was developed based on "solely" on ecological integrity. BLM's limited analysis of vegetation treatments therefore fails to consider other methods to improve ecological integrity that would also maintain wilderness values (*e.g.*, no-till). This limited analysis leads to the false assumption that managing for LWC values increases the likelihood of restoration efforts failing.

3. The DEIS Fails to Take a Hard Look at the Environmental Consequences of Managing for Wilderness Values on Special Status Species

The DEIS fails to analyze the environmental consequences of protecting wilderness values in LWC units on special status plant species. In section 3.8.10 (Special Status Plant Species), the DEIS only identifies one relevant management issue:

> How would special status plants be affected by BLM management actions that would change OHV area designations across the planning area. Specifically, the analysis will consider: (a) the amount of area that is closed to off-highway vehicle (OHV) use, (b) the amount of area that limits OHV use to existing primitive routes, and (c) the ratio of total acres open, limited or closed to off-highway vehicle use across the planning area?

DEIS 3-105.This analysis fails to consider how management actions related to retaining wilderness values, such as roadlessness and naturalness, would impact special status plant species. In the DEIS's Appendix B, BLM identifies 28 LWC units as providing habitat for one or more current special status plant species:

Alcorta Rim (OR-036-030)
Antelope Creek (OR-034-018)
Bannock Ridge (OR-034-095)
Big Grassy (OR-036-069)
Black Butte (OR- 036-008)
Blue Canyon Contiguous (OR-034-113)
Board Corral Mountain (OR- 034-016)
Broken Rim (OR- 034-027)
Deadhorse (OR-036-029)
Deer Flat (OR-036-005)
Double Mountain (OR-034-040)
Hog Creek (OR-034-063)
Honeycombs Contiguous (OR-034-116)
Hunter Spring (OR-034-039)
Indian Creek (OR-034-036)
Juniper Creek (OR-034-047)
Keeney Creek (OR-034-035)
McIntyre Ridge (OR-034-014)
Monuments (OR-034-069)
Oregon Butte (OR-036-004)
Owyhee River Contiguous (OR-036-091), Parcel F1
River (OR-034-106)
Spanish Charlie Basin (OR-034-092)
Spring Mountain (OR-034-096)
Steamboat Ridge (OR-034-058)
The Tongue (OR-034-054)
Three Fingers Rock North (OR-034-056)
Wall Rock Ridge (OR-034-052)

The DEIS states that a key point in the agency's analysis is that "[t]he majority of the proposed actions have no impact to special status plants because of protective measures already in place." DEIS 3-103. Even if this statement were true, it does not excuse the BLM from its obligation to analyze the potential environmental impacts of management actions on resources within the planning area. Actions related to managing for preservation of roadlessness and natural values in LWC units have direct impacts to soil and plant communities. As BLM highlights in the DEIS, "restrictions on ground disturbing activities in areas possessing wilderness characteristics would benefit soil function and soil biodiversity." DEIS 3-50. Given the broad positive impacts protecting LWC units can have on the ecological integrity of an area, and given the number of LWC units that contain special status plant species, BLM must analyze

potential impacts to special status plant species that may result from managing LWC units to protect their wilderness values.

XIII. CLIMATE CHANGE

A. Legal Framework

In 2001, the Secretary of the Interior issued Order No. 3226 concerning Interior's evaluation of climate change impacts in management planning. The purpose of the Order was to ensure that climate change impacts are taken into account in connection with departmental planning and decision making. According to the Order, each of the Department of the Interior's bureaus and offices will "consider and analyze potential climate change impacts when undertaking long-range planning exercises, when setting priorities for scientific research, when developing multi-year management plans, and/or when making major decisions regarding the potential utilization of resources." Order at Sec. 3. The Order specifies that it includes, but is not limited to, programmatic and long-term environmental reviews, and management plans for activities on the public lands.

In 2007, the Supreme Court emphasized the importance of incremental regulatory steps to address climate change:

> Agencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop [internal citation omitted]. They instead whittle away at them over time, refining their preferred approach as circumstances change and as they develop a more-nuanced understanding of how best to proceed [internal citation omitted].

Mass. v. EPA, 127 S. Ct. 1438 , 1457 (2007).

In 2009, the Secretary of the Interior issued Order No. 3289, reinstating Order No. 3226.[40] The Order requires that BLM must "consider and analyze potential climate change impacts when undertaking long-range planning exercises." This entails, among other things, accounting for the impacts of livestock, both in terms of production of greenhouse gases (methane) and in terms of removal of vegetation that reduces the landscape's ability to act as a carbon sink. It also implicates other elements of the proposed land use plan amendment including vegetation and soil management, wildland fire, feral horse and burro management, noxious weeds and invasive species, wilderness characteristics and roadlessness, and travel and transportation planning.

As part of its multiple-use mandate, FLPMA directs that that "the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological,

[40] This order remains in effect today. *See* Secretarial Order No. 3360, Rescinding Authorities Inconsistent with Secretary's Order 349, "American Energy Independence" (2017) (leaving Secretarial Orders 3289 and 3226 unaffected).

environmental, *air and atmospheric*, water resource, and archeological values[.]" 43 U.S.C. § 1701(a)(8) (emphasis added). Agencies are required under NEPA to "describe the environment of the areas to be affected or created by the alternatives under consideration." 40 C.F.R. § 1502.15. The affected environment sets the "baseline" for the impacts analysis and comparison of alternatives. As the Ninth Circuit has described, "without establishing the baseline conditions . . . there is simply no way to determine what effect the proposed [action] will have on the environment and, consequently, no way to comply with NEPA." *Half Moon Bay*, 857 F.2d at 510.

The courts recognize that NEPA requires agencies to consider the potential environmental consequences of federal actions on global climate change. *See, e.g.*, *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41 (D.D.C. 2019) (BLM violated NEPA by not adequately considering climate change when authorizing oil and gas leasing on federal land); *Ctr. for Biol. Diversity v. Nat'l Hwy. Traffic Safety Admin.*, 538 F.3d 1172 (9th Cir. 2008) (agency's failure to properly evaluate impacts of greenhouse gas emissions and reductions violates NEPA); *Mid-States Coalition for Progress v. Surface Transp. Bd.*, 345 F.3d 520 (8th Cir. 2003) (EIS for a proposed rail project was invalid because it failed to take account of air pollution, including CO_2, that would emanate from coal once it was burned to make electricity); *Friends of the Earth v. Mosbacher*, 2005 WL 2035596 (N.D. Cal. Aug. 23, 2005) (ruling, in lawsuit against U.S. export credit agencies, that NEPA applies to major federal government projects that contribute to climate change); *Border Pwr. Plant Working Group v. Dep't of Energy*, 260 F. Supp. 2d 997 (S.D. Cal. 2003) (the first judicial decision concluding that NEPA requires analysis of the global warming implications of federal actions, concerning impacts of power turbines).

As Ninth Circuit has concluded, "the fact that climate change is largely a global phenomenon that includes actions that are outside of [the agency's] control . . . does not release the agency from the duty of assessing the effects of *its* actions on global warming within the context of other actions that also affect global warming." *Ctr. for Biol. Diversity*, 538 F.3d at 1217 (internal quotes omitted). "The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct." *Id*.

In 2010, guidance issued by the Council for Environmental Quality ("CEQ") indicated:

> When assessing the effects of climate change on a proposed action, an agency typically start[s] with an identification of the reasonably foreseeable future condition of the affected environment for the "no action" alternative based on available climate change measurements, statistics, observations, and other evidence. *See* Considering Cumulative Effects (CEQ 1997) at www.nepa.gov. The reasonably foreseeable affected environment should serve as the basis for evaluating and comparing the incremental effects of alternatives. 40 CFR § 1502.15.

"Draft NEPA Guidance On Consideration of The Effects Of Climate Change And Greenhouse Gas Emissions," (Feb. 18, 2010), *available at* https://ceq.doe.gov/docs/ceq-regulations-andguidance/20100218–nepa-consideration-effects-ghg-draft-guidance.pdf. The Draft Guidance was superseded by a Final Guidance on August 5, 2016, "Final Guidance for Federal

Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews," but that Final Guidance was withdrawn on April 5, 2017 by the CEQ in light of Executive Order 13783 (Promoting Energy Independence and Economic Growth, 82 Fed. Reg. 16,093 (Mar. 31, 2017)). *See* 82 Fed. Reg. 16,576 (Apr. 5, 2017).

Also in 2010, the State Director for BLM Oregon/Washington issued Instruction Memorandum No. OR-2010-012 to guide analysis of greenhouse gas emissions as a result of BLM actions and consideration of changing climate conditions in NEPA documents (BLM 2010). The State Director explained that greenhouse gas emissions "will be an issue requiring analysis when the emissions would constitute a significant impact or when analysis is necessary to determine whether the impact would be significant." The State Director lists livestock grazing as one of the "typical actions" for which greenhouse gas emissions might be an issue requiring assessment of issues including emissions as well as carbon storage. The Director also explained that rather than establishing a single geographic scope, the cumulative effects analysis of greenhouse gas levels should present "the incremental effect of the proposed action within the context of cumulative effects at multiple spatial scales, typically global and national greenhouse gas emissions."

Importantly, while individual BLM actions may be too small to provide meaningful information for analysis, analysis of effects on greenhouse gas levels "should be included in relevant programmatic analyses, such as resource management plan environmental impact statements." Land use plans like the SEORMP "are actions that would typically have a long enough duration that climate change *could potentially alter the choice among alternatives*" (BLM 2010) (emphasis added). For example, changes in climate conditions "may alter the effectiveness of the proposed action such that a different alternative would better meet the purpose and need for action under future climate conditions than under current climate conditions" (BLM 2010).

In 2012, during the SEORMP planning process, BLM identified greenhouse gases and climate change as an issue the agency would consider in this EIS (BLM 2012d). Although BLM suggested certain analysis was "beyond the scope of existing science," the agency indicated it would "examine human-caused contributions to changes in greenhouse gas concentrations" including those "resulting from actions implemented or authorized by the BLM, in addition to indirect effects from short- and long-term emissions and storage of carbon." Scoping Report at 12–13. BLM stated that its EIS "will incorporate the provisions of" Secretarial Order 3289, including by applying "scientific tools to increase understanding of climate change and to coordinate an effective response to [the department's] impacts." *Id*. at 13.

B. Ecological Framework

The emerging and intensifying impacts of climate change are affecting ecosystems, natural resources, and communities across the nation and the world. In the SEORMP planning area, climate change is expected to manifest in more intense and more frequent wildfires, losses of native vegetation and the wildlife dependent upon those plants, increased cheatgrass expansion, and overall declines in ecosystem health. *See* Appendix C (Kauffman 2019)

(referencing most recent, county-level data showing isolated 2-degree Celsius clusters including high-altitude deserts in Oregon, including Malheur County).

Researchers have suggested that approximately 12% of the current distribution of sagebrush is predicted to be replaced by expansion of other woody vegetation for each 1°C increase in temperature (Miller *et al*. 2011). Though periodic drought regularly influences sagebrush ecosystems, drought duration and severity have increased throughout the 20th century in much of the interior western United States (Miller *et al*. 2011). Increased levels of carbon dioxide favor exotic annual grasses, like cheatgrass, at the expense of native vegetation in arid shrubland ecosystems like those in the planning area (Miller *et al*. 2011). Cheatgrass already competes successfully against native grasses because of earlier maturation, shallow root systems, greater seed production, and the ability to respond quickly to resources released during disturbance (Miller *et al*. 2011).

The U.S. Fish and Wildlife Service (USFWS 2010) has highlighted Garton *et al*.'s (2011) conclusion that in the Snake River Plain Management Zone, the "Northern Great Basin population [which includes most of the SEORMP planning area] is projected to have the greatest drop in carrying capacity, and is the area currently most affected by reduced fire cycles as a result of *Bromus tectorum* [cheatgrass] incursions." Recent research continues to demonstrate that livestock grazing increases cheatgrass invasion and dominance, especially by loss of native bunchgrasses, decreased diversity of native bunchgrasses, and loss of biological soil crusts (Reisner *et al*. 2013).

Historic fire frequency in the sagebrush plant communities that characterize most of the SEORMP planning area indicates a general fire return interval of 50 to 125 years in big sagebrush and sagebrush-grassland communities (Welch 2005), and up to 300 years in Wyoming big sagebrush (Baker 2011, Bukowski & Baker 2013). Similarly, several studies have found that climatological factors are more correlated with wildfire than biomass, especially in forests and pinyon-juniper woodlands (Dennison *et al*. 2014, Holden *et al*. 2007, Westerling *et al*. 2016, Westerling *et al*. 2006). Models are predicting that wildfire in the Great Basin is poised to increase due to climatological factors (Abatzoglou & Kolden 2011). Keyser and Westerling (2017) used climate data to develop fire severity models and predict where high severity fires are likely to occur.

The concepts of resistance and resilience relate to the ability of a landscape to withstand disturbance. As Chambers *et al*. (2016) explain:

> Resistance is the ability of a plant community to retain its existing processes, functions, and structure in the face of stressors, including disturbance and invasive species, while resilience is the capacity of a community to regain its structure, processes, and functions after is altered by such stressors.

These principles are most often discussed in relation to environmental characteristics. For example, "harsh" environments characterized by low biological productivity tend to exhibit lower resilience to disturbances of similar severity than more environmentally moderate ecosystems (Chambers *et al*. 2014; Davies *et al*. 2012). And Wyoming big

sagebrush communities have relatively low resilience and resistance compared to other sagebrush- bunchgrass ecosystems. *Id*.

A number of environmental components influence resistance and resilience within sagebrush- bunchgrass ecosystems. Among the most important are native perennial bunchgrasses and biological soil crusts. Healthy stands of native bunchgrasses and shrubs can successfully resist cheatgrass invasion, provided the site remains free from uncharacteristic disturbance (*e.g.*, grazing, roads, frequent wildfires) (Chambers *et al*. 2007, Chambers *et al*. 2016, Rosentreter 1994, Ray-Mukherjee *et al*. 2011, Knick & Rotenberry 1997). According to Reisner *et al*. (2013), a number of native grass species, including bluebunch wheatgrass, squirreltail, and Sandberg's bluegrass, are critical in maintaining resistance to invasive annual grasses (*see also* Booth *et al*. 2003). On intact sites, these native species typically increase following fire or disturbance, limiting cheatgrass growth and reproduction (Chambers *et al*. 2017, Chambers *et al*. 2014, Brooks & Chambers 2011, Condon & Pyke 2018). However, removing native grasses can cause a site to cross an ecological threshold beyond which recovery from disturbance is difficult, if not impossible (Brooks & Chambers 2011, Chambers *et al*. 2014).

The DEIS recognizes some of these things in general terms. *See, e.g.*, DEIS at 3-97 ("Many studies indicate that climate change will intensify wildfire risk particularly in the summer, extending the wildfire season from spring to winter"); DEIS at 3-105 (recognizing "climate change" as an "indirect effect" to sensitive plants); DEIS at 3-118 (recognizing climate change as "compounding" impacts to aquatic wildlife species); DEIS at 3-123 ("Loss of native vegetation and declining ecosystem health on public lands due to global climate change, development, increasing public uses, and continued spread of invasive plants, all contribute to reductions in the ability of public lands to support healthy wildlife populations.").

C. Discussion

BLM must integrate climate change effects into the NEPA analysis as part of the environmental baseline. Excluding climate change effects from the environmental baseline—or, including references to climate change in only the most general terms—ignores the reality that the impacts of proposed actions must be evaluated based on the already deteriorating, climate-impacted state of the resources, ecosystems, human communities, and structures that will be affected. Accordingly, existing and reasonably foreseeable climate change impacts must be included as part of the affected environment, assessed as part of BLM's "hard look" at impacts, and integrated into *each* of the alternatives, including the no action alternative. Put differently, simply acknowledging climate impacts as part of the affected environment is insufficient. Rather, BLM must incorporate that information into its hard look at impacts and comparison of alternatives.

As described in more detail in the attached report (Kauffman 2019), southeastern Oregon is among the areas of the United States most affected by rising temperatures. Associated changes include increases in exotic grass invasions, warmer stream temperatures affecting native fishes, and increased wildfires across the landscape. As Kauffman (2019) put it, BLM "squandered an opportunity" to address climate change in the DEIS. The draft document's Preferred Alternative is "an irresponsible approach that fails to consider climate change and will have severe

consequences for future generations of Americans." If selected, it would result in a net increase in greenhouse gases to the atmosphere, foregoing a significant opportunity to manage these public lands for their tremendous potential to absorb significant amounts of CO_2 from the atmosphere and store this CO_2 as organic carbon in plants and soils. In short, the Preferred Alternative would result in these public lands being a net source of greenhouse gases to the atmosphere, resulting in long-term degradation of the lands due to the synergistic effects of land use and climate change.

BLM, despite the DEIS's artificially narrow purpose and need statement and decision to abandon its commitment (BLM 2012d), earlier in this process, to addressing climate change and greenhouse gases, failed to address climate change issues that obviously fit even within that narrower scope. The DEIS fails to include an analysis of how climate change in concert with the proposed land management will affect resources BLM is charged to manage. Specifically, the DEIS fails to account for the net beneficial effects of livestock removal and reductions in motorized use in wilderness areas, with respect to a decrease in greenhouse gas emissions and an increase in carbon sequestration.

For example, based upon calculations of greenhouse gas emissions and rates of carbon sequestration in recovering riparian zones, Alternative B (with an assumed reduction in livestock numbers) would greatly reduce greenhouse gas emissions coming from BLM-administered lands. Passive restoration (livestock cessation) in riparian zones and active restoration of degraded uplands could shift these public lands to net carbon sinks, thus demonstrating that BLM could do its part to combat climate change. Based on EPA data, the greenhouse gas emissions produced by the cattle currently authorized to graze on public lands in the SEORMP planning area is equivalent to a carbon footprint of 16,115 average U.S. households. That is 41,416 people. (About 7.26 cows produce the same greenhouse gas emissions as the average U.S. household of 2.56 people per house.) These are public concerns and readily quantifiable issues that BLM simply failed to address in the DEIS.

Given that climate change and its impacts are here to stay, NEPA analyses also must address mitigation measures to facilitate adaptation and resilience. *See* 40 C.F.R. § 1500.2(e) (requiring agencies to "[u]se the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment"). For the SEORMP plan amendment, those measures might include, for example, closing or otherwise adjusting routes to promote landscape connectivity and facilitate new and changing wildlife migration patterns and habitat needs, or to limit vectors for the spread of invasive species, or to reduce or eliminate grazing and related range projects that shift landscapes from carbon sinks to atmospheric carbon sources.[41] Without a meaningful analysis of climate change effects as part of the environmental baseline, however, the DEIS fails to consider these opportunities and strategies.

[41] Importantly, mitigation alone is not a substitute for a properly crafted environmental baseline and a hard look at impacts. *See N. Plains Res. Council*, 668 F.3d at 1084–85.

A robust climate analysis also is required under the ICBEMP Strategy (USDA *et al*. 2014). The Strategy outlines planning principles that BLM must use to frame land use plans and plan amendments. Because the Strategy is part of the SEORMP, all subsequent and site-specific actions must be consistent with it. 43 U.S.C. § 1732(a). The principles are organized into six topical areas, including "landscape dynamics" and "multi-scale analysis." BLM must recognize and consider these principles *in this plan amendment and environmental review* process because "[p]lan revisions and amendments will give the BLM . . . an opportunity to establish goals and objectives that maximize the resiliency of our landscapes to changing climates, setting the stage for healthy ecosystems into the future" (USDA *et al*. 2014).

Under the topic of climate change, required planning principles include: (1) incorporating "plan components that provide for adaptation to reduce the impacts of climate change on ecological, economic, and social systems"; (2) considering the "potential impacts of land management actions relative to their greenhouse gas emissions and carbon storage"; (3) using "scientific information, tools, and technology to understand predicted shifts in weather patterns and the impacts these would have on ecosystems"; and (4) using "scientific information to identify adaptation and mitigation options" (USDA *et al*. 2014) (also requiring BLM to recognize the "ecological role of fire on the landscape in light of a changing climate"). BLM did none of these things here, as Kauffman (2019) explains in his report.

For example, the DEIS contains not a single mention of the Climate Change Consideration Areas BLM identified six years ago, in 2013. *See* Map 7 (showing how those areas overlap with previously- and newly-recognized wilderness and roadless areas). It contains no discussion whatsoever of carbon sequestration and greenhouse gases. It contains no acknowledgement that the planning area is largely within one of the places in the United States most affected by significantly warming average temperatures. It contains no attempt to quantify carbon stocks or carbon loss. It contains no attempt to quantify the contribution to greenhouse gas emissions from widespread livestock grazing in the planning area, nor how significantly BLM could change those numbers by adopting a conservation-focused voluntary permit relinquishment mechanism or immediately removing cattle from areas perpetually failing to meet basic land health standards. *See* Kauffman (2019); *see also* Maps 7–11 & Tables 4–5 (spatial analyses and calculations providing examples of some of this kind of information).

For these reasons, and as described in more detail in Appendix C (Kauffman 2019), BLM must meaningfully address and incorporate the effects of climate change—including the increased vulnerability of fragile desert resources to disturbance and other adverse impacts associated with motorized use and livestock grazing—into the environmental baseline, the comparison between alternatives, and the analysis of direct, indirect, and cumulative impacts. BLM also must analyze and consider mitigation measures designed to foster climate change adaptation and resilience. To comply with NEPA's "democratic" requirements aimed at meaningful public participation and informed agency decisionmaking, BLM must prepare a new or revised draft EIS. *ONDA v. BLM*, 625 F.3d at 1121 n.24; 40 C.F.R. §§ 1501.7(c), 1502.9(c).

//
//
//

XIV. WILD AND SCENIC RIVERS

A. Legal Framework

Congress enacted the Wild and Scenic Rivers Act ("WSRA") in 1968 to identify rivers that possess "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values" and to preserve those rivers in free-flowing condition and protect their immediate environments "for the benefit and enjoyment of present and future generations." 16 U.S.C. § 1271. A river is eligible for designation and protection under the WSRA if it is a free-flowing stream and the adjacent land area possesses one or more of the "outstandingly remarkable values" ("ORVs") enumerated in § 1271.

Once a river corridor is designated, the federal agency charged with administration of that corridor must prepare a comprehensive river management plan "to provide for the protection of the river values"; to "address resource protection, development of lands and facilities, user capacities, and other management practices necessary or desirable to achieve the purposes" of the Act; and to coordinate the river plan with land use planning. *Id*. § 1274(d)(1).

Every river included in the system, regardless of its classification as wild, scenic, or recreational, "shall be administered in such manner as to protect and enhance the values which caused it to be included in said system." *Id*. "[P]rimary emphasis shall be given to protecting its esthetic, scenic, historic, archeologic, and scientific features." *Id*. In addition to protection of a river's free-flowing condition and outstandingly remarkable values, the WSRA specifies that managing agencies must protect the water quality of all rivers added to the system. *Id*. §§ 1271, 1283(c).

B. Ecological Framework

In 1984, Congress designated 120 miles of the Main Owyhee River as a federal wild and scenic river pursuant to the WSRA. In the Oregon Omnibus Wild and Scenic Rivers Act of 1988, Pub. L. 100-557, *codified at* 16 U.S.C. § 1274(a)(91), Congress added 57 miles of the West Little Owyhee and nine miles of the North Fork Owyhee to the national wild and scenic rivers system. Congress has classified all three segments of the Owyhee Rivers as "wild." A wild river area is defined under the WSRA as "free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted." 16 U.S.C. § 1273(b). The "wild" classification is the most restrictive of three possible classifications. *Id*.

The designated portions of the Owyhee rivers are in southeastern Oregon, along the Oregon-Idaho border. Much of the Owyhee rivers' length is within steep, rocky walls. The Owyhee canyonlands provide habitat for over 200 species of wildlife. Several plant species within the canyonlands are classified as federal or state sensitive species or are on "watch lists." Redband trout, which have been petitioned for listing under the Endangered Species Act, inhabit the West Little Owyhee River segment of the system.

The WSRA requires BLM to issue a "comprehensive management plan" to "provide for the protection of the river values" within three years after designation. 16 U.S.C. § 1274(d)(1).

The plan must "address resource protection, development of lands and facilities, user capacities, and other management practices necessary or desirable to achieve the purposes of this chapter." *Id*. § 1274(d)(1).

In 1993, BLM issued an updated management plan for the Owyhee rivers to comprise the newly-designated sections. The plan established that the Main Owyhee contained five ORVs: scenery, geology, recreation, wildlife, and cultural. The ORVs of the West Little and North Fork Owyhee included recreation, scenery and wildlife. The Plan did not designate botanical or fishery ORVs, but characterized vegetation as a "key component of the visual resource, important to watershed values, wildlife habitat, and a vital part of the natural setting for recreation."

During its planning, BLM recognized that in the river area accessible to livestock—67 miles, or 36%, of the 186-mile river system—grazing was "creating noticeable negative effects" on about 10%, or 18 miles. *See Singleton*, 47 F. Supp. 2d at 1185. The areas most affected by livestock grazing were trail crossings and "water gaps," the places livestock came to the river to drink. *See id*. BLM's environmental assessment noted that at least seven of eleven grazing allotments and one trail area showed negative effects from livestock grazing, and that these negative effects had a direct impact on the scenic, recreational, and watershed ORVs of the Owyhee Rivers. *See id*. at 1186. The seven affected allotments were Quartz Mountain, Bogus Creek, West Cow Creek, Saddle Butte, Jackies Butte, Louse Canyon, and Campbell. *Id*.

ONDA challenged BLM's position that because grazing was occurring at the time the rivers were designated, the agency had no authority to eliminate grazing even where it was causing resource damage. In 1998, a federal district court agreed with ONDA, writing:

> The language of the WSRA itself is unambiguous and gives no support to the notion that Congress specifically intended cattle grazing to occur in the Owyhee Rivers. As the court pointed out in *ONDA v. Green*, 953 F. Supp. 1133 (D. Or. 1997), despite the fact that grazing had been permitted on the Donner und Blitzen River before it was designated as a wild river system, the BLM nevertheless had authority to exclude cattle from the river area if necessary to protect and enhance the river's values. In *ONDA v. Green*, the court also noted that Congress "is cognizant of its ability to grandfather specific commercial uses of a wild and scenic river that might otherwise be prohibited by the WSRA," and took note of the fact that Congress had not chosen to do so in that instance. Nor, of course, has it chosen to do so here.

Singleton, 47 F. Supp. 2d at 1191. "Regardless of whether cattle grazing was a permitted use when the rivers were first designated," continued the court, "if grazing proves to be detrimental to soil, vegetation, wildlife, or other values, or is inconsistent with the 'wild' designation, then clearly the BLM has the right—indeed, the duty—not only to restrict it, but to eliminate it entirely." *Id*. at 1195.

A permanent injunction has protected areas of concern along the Owyhee rivers for more than 20 years now. Even so, there have been concerns over the years that trespass and other

unauthorized grazing in the West Little Owyhee Wild and Scenic River and Owyhee Wild and Scenic River corridors continues to occur on a regular basis. *See, e.g.*, Appendix E (documentation of grazing trespass and unauthorized use in river corridor). In its annual reports to the court filed in *ONDA v. Singleton*, No. 3:98-cv-97-AA, BLM has reported unauthorized use by livestock within the Wild and Scenic River corridor every single year since 2001. And it seems not a single area of concern identified by BLM has been spared; most years, there is documented trespass in areas in the Lower, Middle, and Upper sections of the corridor. This chronic trespass or unauthorized use continues to undermine BLM's responsibility to "protect and enhance" these rivers' outstandingly remarkable values. Other recurrent problems include frequent fence failures, BLM's inability or failure to monitor trailing actions, and trespass cattle entering from adjacent public lands managed by the State of Oregon's Division of State Lands (*e.g.*, Five Bar and Three Forks), as well as adjacent private lands. *See* Appendix E.

C. Discussion

In its scoping report, BLM stated that those "areas permanently eliminated from grazing by the April 2000 Order will remain permanently closed to grazing" and "identified a need to address grazing management for areas within the congressionally designated Owyhee Wild and Scenic River that currently remain allocated for livestock grazing and trailing" (BLM 2012d). To date, BLM has not prepared the court-ordered EIS. Given that BLM dropped this issue in the DEIS, the permanent injunction remains in force.

Even so, BLM must adequately consider how presence and management alternatives for livestock grazing and for newly-identified LWCs interact with wild and scenic river corridors. For example, the DEIS identifies acres of LWC (and WSA) directly overlapping designated and administratively suitable wild and scenic rivers. DEIS at 3-166 to -167. But BLM fails to consider the positive effects of protecting wilderness character in LWC units *adjacent to* Wild and Scenic River corridors. The DEIS similarly fails to consider changes to grazing management (including pasture or unit closures) to address the chronic trespass grazing that has been occurring in the Owyhee Wild and Scenic River corridors for the past twenty years. (ONDA notes that there is no indication that BLM will address this issue in the upcoming NEPA process for the Louse Canyon GMA; that makes this land use plan amendment process the only place to logically address this significant environmental impact.)

Section 12(a) of the WSRA requires that any agency "having jurisdiction over any lands which include, border upon, or are adjacent to, any river included within the National Wild and Scenic Rivers System or under consideration for such inclusion . . . shall take such action respecting management policies, regulations, contracts, plans, affecting such lands . . . as may be necessary to protect such rivers." 16 U.S.C. § 1283(a). The statute goes on to state that "[p]articular attention shall be given to scheduled timber harvesting, road construction, and similar activities which might be contrary to the purposes of this chapter." *Id*.

Here, the wilderness values—roadlessness, naturalness, outstanding opportunities for solitude or primitive and unconfined recreation, and supplemental values such as wildlife habitat—present in LWCs adjacent to wild and scenic rivers contribute to the rivers' largely wild, outstandingly remarkable scenery, geology, recreation, wildlife, and cultural values.

Because the WSRA requires BLM to apply the "protect and enhance" mandate even as to activities and projects on adjacent lands—like motorized use allocations, road and maintenance designations, grazing infrastructure, mining actions, energy development and transmission lines, fire rehabilitation projects, and so forth—the DEIS should consider how management that emphasizes preservation of wilderness values in these LWCs would ensure compliance with the WSRA's nondegradation standard and enhancement policy. *See, e.g.*, 47 Fed. Reg. 39,454, 39,458 (Sept. 7, 1982) (Secretarial Guidelines for WSRA, describing the "protect and enhance" requirement as a "nondegradation standard and enhancement policy for all designated river areas, regardless of classification"). Similarly, the DEIS should consider grazing allotment and unit closures that will eliminate chronic and unlawful resource damage from trespass cattle.

The DEIS appears to limit its analysis to whether protection of wilderness characteristics in LWCs within (*i.e.*, overlapping with) wild and scenic river corridors would provide "supplemental protection." *See* DEIS at 3-168 & Table 3-37 ("Overlap of wild and scenic rivers with wilderness characteristics units"). BLM discounts that proposition because the WSRA "already provides a stricter mandate" than proposed LWC management. *Id*. But the DEIS's artificial limitation to overlapping areas precludes a meaningful review and informed analysis. Because the WSRA requires BLM to protect and enhance even as to projects and activities on adjacent lands that may affect river values, the agency must, in this DEIS, take a "hard look" at reasonable alternatives that would achieve or ensure compliance with that requirement. *See, e.g.*, *ONDA v. BLM*, 625 F.3d at 1122 (where BLM had *authority*, under FLPMA, to manage wilderness values on the public lands, it therefore had *obligation*, under NEPA, to address whether wilderness values are present and, if so, how to treat land with such values); *Singleton*, 47 F. Supp. 2d at 1191–92 (where BLM had *authority*, under WSRA, to "exclude cattle from the river area if necessary to protect and enhance the river's values," it there had the *obligation*, under NEPA, to address not only whether "to restrict it, but to eliminate it entirely").

XV. OTHER SPECIAL MANAGEMENT AREAS

A. Areas of Critical Environmental Concern

Under FLPMA, BLM must give "priority" to "areas of critical environmental concern." 43 U.S.C. § 1711(a) ("ACEC"). These are areas where "special management attention is required" to "protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes." *Id*. at § 1702(a).

Large protected areas are a critical component of meaningful, durable sage-grouse conservation in Oregon. ACECs are one mechanism that BLM can use to achieve conservation for this and hundreds of other sagebrush-dependent species within the planning area. Given the threats posed to arid systems by climate change and habitat fragmentation, among others, large refugia for native sagebrush communities are critical to ensuring plants and wildlife species have space to move and adapt as conditions and resource demands change. Without large protected areas, the futures of these species, and the sagebrush steppe as a whole, is uncertain at best. The unique plant communities and wildlife habitat identified as relevant and important values for each ACEC are the foundation for the rich biodiversity of the sagebrush steppe and other

ecosystems. Prioritizing ACECs to ensure these areas receive the special management attention required is essential to maintaining biodiversity within the planning area and beyond.

Here, the DEIS fails to give "priority" to ACECs. BLM's Preferred Alternative in particular fails to give priority to ACECs with regard to motorized use and area designations and grazing management. The DEIS describes that there are 28 ACECs covering about 207,000 acres in the planning area. DEIS at 3-157. All but one of the 28 ACECs list wildlife habitat or plant communities as a relevant and important value. For the majority of the management issues analyzed for ACECs in the planning area, BLM concedes that its Preferred Alternative would be less beneficial to these values, compared to other alternatives.

A good example of this is the statement's analysis of how ACECs would be affected by removal of livestock grazing where land health standards are not being met. The DEIS explains that "[w]hen livestock grazing is removed plants have more biomass throughout the entire growing season. This leads to more seed added to the seed bank, more litter on the ground, and more biomass for nutrient cycling." DEIS at 3-164. If the "relevant and important values" for the ACEC or RNA are related to vegetation, explains the DEIS, Alternatives B and D would be "more beneficial to ACECs and RNAs than the other alternatives because the time scale of improvement would be accelerated." *Id*.

Here, the DEIS clearly identifies removal of grazing as an action that would accelerate the improvement of ecological values in ACECs where plant communities have been damaged by livestock grazing—in other words, as an action that would prioritize management of applicable "relevant and important" values. Given that 27 of the 28 ACECs in the planning area list vegetation as a relevant and important value, *see* DEIS, Table 3-34, the Preferred Alternative's failure to propose any changes whatsoever to grazing management where standards are not being met would result in a failure to give required priority to ACECs. 43 U.S.C. §§ 1702(a), 1711(a).

Further, the DEIS provides no information about where land health assessments have been completed within ACECs, or the findings of assessments that have been completed within ACECs. This key baseline information about existing conditions and management in ACECs is essential data needed to facilitate meaningful public review and ensure the agency conducts an informed decision making process. *See, e.g.*, 40 C.F.R. § 1502.22 (requirements with regard to incomplete or missing information essential to analysis).

B. Research Natural Areas

Research Natural Areas ("RNA") are a special kind of ACEC where certain elements or values are protected or managed for scientific purposes, and natural processes are allowed to dominate. The "primary purpose" of all RNAs is "research and education." 43 C.F.R. § 8223.0-5(a). "No person shall use, occupy, construct, or maintain facilities in a manner *inconsistent* with the purpose of the research natural area" and "[s]cientists and educators shall use the area in a manner that is nondestructive and consistent with the purpose of the research natural area." *Id*. § 8223.1(b), (c).

BLM should pay particular attention in this EIS to the importance of agency-identified "key" RNAs with regard to sage-grouse conservation. In 2015, BLM and the Forest Service unveiled a series of sweeping new plans to protect the sage-grouse and its sagebrush habitats on public lands across the West. The 2015 plans—known as Approved Resource Management Plan Amendments or "ARMPAs"—amended 98 existing land use plans across ten western states, including eight BLM RMPs in Oregon. The 2015 ARMPAs incorporated the NTT (2011) and COT (USFWS 2013) reports and were based on the "best available science."

Key features of the ARMPAs included protections for highest-priority habitats designated as Sagebrush Focal Areas, density and disturbance caps for energy and other industrial activity, buffers around sage-grouse breeding sites (called "leks"), triggers for increased protections if habitats or populations fall below specified levels, and a net conservation gain mitigation requirement for activities that affect grouse habitat.

The ARMPA plans emphasized the need for monitoring to inform adaptive management and assess whether the plans are working. In Oregon, the 2015 ARMPA closed thirteen "key" Research Natural Areas, covering a total of 21,959 acres of public land, to livestock grazing, reserving these areas for scientific research and study. BLM explained that the areas were critical to the agency's ability to assess the impacts of grazing and associated grazing management actions on sage-grouse, and for gauging the effectiveness of the 2015 plan's livestock grazing measures. By removing grazing from these areas, BLM could study how a series of unique sagebrush plant communities responded in the absence of this otherwise ubiquitous, potentially destructive land use. In other words, these places were to serve as undisturbed baseline reference areas for the sagebrush plant communities they represent. There are almost no ungrazed areas on public lands within the range of the sage-grouse in eastern Oregon, so the key RNA grazing closure was crucial BLM's ability to understand the effects of its grazing decisions and management throughout Oregon's high desert on the sage-grouse.

In 2017, however, former Secretary of the Interior Ryan Zinke issued an order directing the Department of the Interior to "review" the federal sage-grouse plans. A departmental review team in Washington, D.C. issued a report identifying ways to generally weaken or remove protections or processes established in the 2015 plans. On March 15, 2019, BLM issued a Record of Decision approving the 2019 ARMPA to amend BLM's Oregon sage-grouse plan. The amendment reverses the 2015 ARMPA decision to close to livestock grazing, for scientific research and study, the thirteen "key" Research Natural Areas.

BLM's change of course makes little sense. Although the agency based its 2019 decision on a desire "to eliminate economic impacts to certain livestock operators," the agency failed to identify the operators, the federally-issued permits, or even the grazing allotments at issue, and provided no specific, quantitative, economic analysis of presumed financial impacts. The only numeric indicator BLM provided—the number of AUMs not available for grazing—is actually shown in the 2018 FEIS to be lower today than BLM said it was in the agency's 2015 statement. In other words: whatever the economic impact to these unidentified grazing permits and operations actually might be, the FEIS shows it is actually *smaller* than BLM assumed in 2015. And in 2015, the agency found that even eliminating the higher number of AUMs would have "negligible or no impact on livestock grazing and range management."

BLM also stated that the thirteen "key" RNAs closed to grazing in 2015 were the "minimum number of sites and areas necessary" to provide "sufficient replication and support a coherent research plan that would provide data with the statistical power" to extrapolate the results across all sage-grouse range in Oregon. In 2015, BLM considered every other known ungrazed area in eastern Oregon, but found that *none* were sufficient to provide the information that the thirteen identified key RNAs would provide. BLM's 2018 FEIS apparently indicates that any research plan today could only be *incoherent*.

Given these developments, the EIS for the SEORMP plan amendment must now evaluate and explain exactly how it will assess plan effectiveness and adaptive management—for impacts from its livestock grazing alternatives in particular—in the absence of the important scientific tool that the key RNAs were supposed to have provided.

C. Owyhee Wilderness

Legislative and administrative efforts to manage and protect the wild character of the public lands within the SEORMP planning area have spanned over five decades and continue today.

In the 1970s, Oregonians voted to make 77 miles of the Owyhee River a State Scenic Waterway. As part of its initial inventory required following passage of FLPMA in 1976, BLM inventoried the area's wilderness-quality public lands. In the 1980s, Congress and President Reagan added 129 miles of the Owyhee river system to our National Wild and Scenic Rivers System. In the 1990s, the BLM identified 1.3 million acres of Wilderness Study Areas in the region, Representative Greg Walden drafted an Oregon Owyhee wilderness bill, and President Clinton considered designating Oregon's Owyhee Canyonlands as a National Monument.

In the 2000s, Congress designated Idaho's portion of the Owyhee as Wilderness. In local communities and throughout the state, hundreds of conversations and meetings about conserving the area took place, with ranchers, elected officials, tribes, businesses, residents, and community leaders. In the 2010s, BLM identified another 1.2 million acres of wilderness, designated as Lands with Wilderness Character. This brings the total within the SEORMP planning area to 2.5 million acres of wilderness.

In 2015, the Owyhee Canyonlands Conservation Proposal sought to protect over two-million acres of public lands via Wilderness, National Conservation Area, and Wild and Scenic River designations. In 2016, Senators Wyden and Merkley introduced the Southeastern Oregon Mineral Withdrawal and Economic Preservation and Development Act. And, in the final two years of the Obama Administration, Oregon's Owyhee Canyonlands was again considered for designation as a National Monument.

In 2019, the public lands within the SEORMP planning area are faced with mounting pressures. Changes to plans protecting clean air and water and vital habitat for imperiled species like the Greater sage-grouse have left millions of acres of Southeast Oregon's public lands

vulnerable to mining, drilling and industrial development.[42] Natural gas exploration is on the rise throughout Malheur County.[43] The Grassy Mountain Gold mine is expanding its reach for gold in this region,[44] which has high mining potential for gold, silver, and uranium.[45] And Interstate 11, a new, major highway being completed in Southern Nevada, could establish a route north to Canada through Malheur County and the SEORMP planning area.[46]

Today, decades of efforts to protect the area, coupled with increased development pressure, means much of this landscape is still actively being considered for permanent protection by Congress for its outstanding wilderness values and unfragmented sagebrush habitat. Earlier this year, Senator Wyden convened a collaborative process to find a legislative solution for the future management and protection of the area.[47] That process is still active, with meetings taking place on a regular basis. In addition, over 100,000 Oregonians, including veterans, sportsmen, business owners, recreationists, and conservation groups throughout the state and beyond, support protection for the area's most important ecological, recreational, and cultural values and the livelihoods tied to them.

The history of the area and current legislative efforts to protect this place demonstrate both the enduring value of the Owyhee's wild character and the degree to which public land users support conservation-focused management for this area. Until legislation has determined the future management and protection for the area, BLM must ensure the wild character of the area remains intact. At the very least, BLM's plan amendment should recognize these important public values; the agency's current preferred alternative fails to do this. Past and current

---

[42] Coral Davenport, *Trump Drilling Plan Threatens 9 Million acres of Sage Grouse Habitat*, N.Y. TIMES, Dec. 6, 2018, https://www.nytimes.com/2018/12/06/climate/trump-sage-grouse-oil.html.

[43] Larry Meyer, "*Exploratory drilling gets green light in Malheur Co.*, ARGUS OBSERVER, Apr. 27, 2018, https://www.argusobserver.com/news/exploratory-drilling-gets-green-light-in-malheur-co.

[44] Pat Caldwell, *Nevada firm expands reach for gold in Malheur County*, MALHEUR ENTERPRISE, Dec. 6, 2018, https://www.malheurenterprise.com/posts/5082/nevada-mining-firm-expands-reach-for-gold-in-malheur-county.

[45] Amanda Peacher, *New Report: Malheur County Has Significant Mining Potential*, OREGON PUBLIC BROADCASTING, Sept. 14, 2016, https://www.opb.org/news/article/malheur-county-home-to-owyhee-canyonlands-has-significant-mining-potential/.

[46] Larry Meyer, *Leaders seek support for freeway route*, ARGUS OBSERVER, Sept. 27, 2018, https://www.argusobserver.com/news/leaders-seek-support-for-freeway-route.

[47] Pat Caldwell, *Wyden says he will lead effort on new Owyhee initiative*, MALHEUR ENTERPRISE, Apr. 17, 2019, https://www.malheurenterprise.com/posts/5546/wyden-says-he-will-lead-effort-on-new-owyhee-initiative.

legislative efforts counsel in favor of BLM re-scoping the plan amendment, preparing a new or revised draft EIS, and including an alternative that analyzes a legislated protective designation for this landscape.

D. Oregon Desert Trail

In early 2011, ONDA began work on a project to ground truth a long-distance, non-motorized route on public lands that passes through many of the natural and cultural highlights of central and southeastern Oregon. This route—referred to as the Oregon Desert Trail ("ODT")—is approximately 750 miles long. The ODT links existing trails, two-track jeep roads of varying conditions, other routes including historical wagon roads, and many miles of cross country terrain. The ODT stretches from the Oregon Badlands Wilderness east of Bend to Lake Owyhee State Park near the Oregon-Idaho border.

Over 30% of the Oregon Desert Trail is cross country and ONDA promotes traveling lightly on the land without human-caused impacts—for example, by asking hikers to disperse their travel in these areas by not following existing footprints but rather traveling in the vicinity, and by ensuring water caches are not visible from roads and that hikers pack out all used containers and trash (ONDA 2019) (Oregon Desert Trail Guidebook, included in Appendix I to these comments).

The entire route is open to hiking, and many sections are appropriate for mountain biking, horseback riding, pack rafting, and skiing or snowshoeing. The trail passes through remote, challenging, open and beautiful terrain. It is conducive to both thru-hiking and hiking individual sections. Preserving wilderness values in LWC units (and roadless, natural and other supplemental values in Roadless Natural Areas) is important to the ODT experience. Many hikers have expressed to us that opportunities for solitude, and the undeveloped nature of this region, are the highlights of hiking the ODT. And, by definition, the opportunity for primitive recreation is key to the ODT.

The ODT is divided into four regions. Part of Region 3 and all of Region 4 lie within the SEORMP planning area. *See* Appendix I (ODT Guidebook and map sets for both regions). On the Vale District alone, trail sections pass through or near WSAs, LWCs, Roadless Natural Areas, other citizen-proposed wilderness areas, Wild and Scenic Rivers, ACECs and RNAs, and state parks. BLM should consider the ODT in the DEIS. For example, while BLM recognizes in general terms that the planning area provides "a wide variety of primitive recreational opportunities," DEIS at 3-151, it does not mention the ODT. *See* DEIS at 3-151 to -154.

Even though the trail in not a BLM-designated or -recognized recreation area, it is still an important public resource and part of the environmental baseline. *See* 40 C.F.R. § 1502.15 (requirement to establish accurate environmental baseline), 1502.22 (requirement to include information "relevant to foreseeable significant adverse impacts"), 1502.24 (agencies "shall insure the professional integrity, including scientific integrity, of the discussions and analyses" in an EIS). That is particularly so in this EIS where BLM focuses in large part on newly-identified roadless areas and lands with wilderness character, and also on the effects of motorized use designations on the landscape.

Related, BLM should consider the ODT in the context of visual resources. The trail passes through some of the most spectacular, remote and wild areas in southeastern Oregon. It provides an outstanding opportunity for members of the public interested in various forms of quiet recreation to connect with the landscape. Despite newly identifying 1.2 million acres of wilderness character lands, the DEIS fails to make any changes to existing Visual Resource Management ("VRM") classes. DEIS at 3-156. Yet, BLM acknowledges that "decades of grazing, fire suppression, mineral extraction, uncontrolled motorized use, and new infrastructure . . . have left an imprint on the land and overall scenic quality." DEIS at 3-155. And all of these things are expected to continue if BLM presses forward with Preferred Alternative A. On top of this, BLM concedes that it will *not* maintain a current and accurate inventory, as required under FLPMA, 43 U.S.C. § 1711(a). *See* DEIS at 3-155 ("a reconsideration of the VRM classes outside of the wilderness characteristics units is not part of this RMP Amendment"). BLM should consider visual resource management and impacts to visual resources in the context of the ODT as part of this land use plan amendment process.

BLM's decision to limit the scope of its analysis to only seven developed recreation sites adjacent to or near LWCs, and to not consider the ODT in relation to the planning area's remarkable visual resources, is therefore arbitrary and capricious. The agency should fully consider these issues in a new or revised DEIS.

XVI. CULTURAL RESOURCES

The purpose of the National Historic Preservation Act of 1966 ("NHPA") is to preserve the history and prehistory of this country and protect for future generations the historical and cultural resources that are part of the Nation's heritage. 16 U.S.C. § 470(f); *see also* 36 C.F.R. §§ 800 *et seq*. (implementing regulations). Section 106 of the Act requires federal agencies to consider the impact of their "undertakings" on historical properties. *See Mont. Wilderness Ass'n*, 725 F.3d at 1005–06 (describing NHPA and quoting description in *Muckleshoot Indian Tribe*, 177 F.3d at 805, of § 106 as a "stop, look, and listen" provision); *see also* 725 F.3d at 1009 (BLM failed in land use planning to make a reasonable effort to identify historical and cultural resources, and is required to conduct Class III inventories for roads, ways, and airstrips that have not been surveyed previously or were surveyed decades ago).

The purpose of the Archaeological Resources Protection Act ("ARPA") is to secure for present and future generations the protection of archaeological resources and sites on the public and Indian lands. 16 U.S.C. § 470aa(b). Under the ARPA, no person, including the United States of America, may excavate, remove, damage, or otherwise alter or deface any archaeological resource located on public lands or Indian lands unless such activity is pursuant to a permit or covered under an exemption. *Id.* § 470ee(a); *see also* 43 U.S.C. § 1701(a)(8) ("the public lands [shall] be managed in a manner that will protect the quality of . . . archeological values").

ONDA is concerned that BLM has inventoried very little of the planning area and thus is basing its analysis and decision on incomplete information. The DEIS states that the agency has inventoried only about 10% of the area for cultural resources, and that surveys "have been primarily driven by the locations of BLM projects related to other resources" like "fuels

reduction and range improvements." DEIS at 3-131. "[M]any archaeological sites remain undocumented." DEIS at 3-131. This is not good enough. FLPMA requires BLM to "periodically and systematically" maintain a "current" and "continuing inventory" of public land resources and other values, and to use up-to-date information in land use planning. 43 U.S.C. §§ 1701(a)(2), 1711(a), 1712(c)(4).

In 2002, BLM similarly reported that "[a]lmost all cultural resource inventories are project-specific, rather than initiated by the Cultural Resource program." 2002 SEORMP FEIS, Vol. 1 at 118. The surveys were "not necessarily in areas of high site potential" and only 7% or less of the public land in the planning area had been inventoried at that time. *Id*. (also noting that "[e]arlier inventories and site records are sketchy and do not conform with more recently approved [state and federal] data bases").

At this rate, it will take BLM *another 510 years* to complete its inventory of the planning area—meaning BLM will not finish its inventory until the year 2529. Nothing about this is "periodic" or "systematic" or "current." BLM provides no indication that the cost of obtaining this information is "exorbitant" or that the "means to obtain it are not known." *See* 40 C.F.R. §§ 1502.22(a), (b). In fact, the agency provides no explanation at all as to why it has been unable to complete this inventory in the 17 years since 2002. After all, the agency completed a full wilderness inventory during the period 2010–2012. Based on this incomplete and out-of-date inventory, the statement that trend in condition of cultural resources across the planning area is "difficult to quantify" is an understatement, to say the least. *See* DEIS at 3-132.

This is particularly unacceptable given the DEIS's acknowledgement that "[d]ue to the nature of cultural resources as historical, nonrenewable materials, resource condition generally is stable or degrading." DEIS at 3-132 (also listing various natural process, as well as human activities such as artifact collection, vandalism, recreation, road maintenance, wildfire suppression, and construction that "can also damage sites"). In other words, the DEIS acknowledges that there are "reasonably foreseeable significant adverse effects on the human environment" to cultural resources. *See* 40 C.F.R. § 1502.22. For this reason, BLM "*shall* include the information in the environmental impact statement." *Id*. § 1502.22(a) (emphasis added).

Finally, the only further description the DEIS does offer of the affected environment is that there are "498 known sites in 76 lands with wilderness characteristics units." DEIS at 3-131 (and stating numbers of known sites in such units under alternatives B, C, and D). BLM acknowledges that in the No Action Alternative and Preferred Alternative, all 498 sites would be subject to management "not prioritizing wilderness characteristics." DEIS at 3-131. The document does not then explain what that means for cultural resource protection, but presumably this means that ongoing, wilderness-damaging activities like motorized use, route maintenance, mining, range development, and other disturbances would be allowed to continue—even in places where the agency has never surveyed to see whether irreplaceable cultural resources are present. This is a serious concern that BLM must remedy by completing an up-to-date and accurate inventory, disclosing that essential information to the reviewing public, and considering it through a new or revised draft EIS.

XVII. WATER RESOURCES AND WATER QUALITY

The Clean Water Act ("CWA") is designed "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a); *see also S.D. Warren Co. v. Maine Bd. of Envtl. Prot.*, 547 U.S. 370, 384–85 (2006). The CWA attempts to achieve these goals through a regulatory scheme using permits, technology controls, and water quality-based pollution controls. The Act operates pursuant to a "cooperative federalism" framework. Through this framework, states have the initial responsibility to establish water quality standards, may receive delegated authority to issue federal pollutant discharge permits, and retain the power to adopt pollution restrictions that are more stringent than the minimum federal requirements established under the CWA. *See, e.g.*, 33 U.S.C. §§ 1313, 1342(b), 1370.

The CWA "provides no direct mechanism to control nonpoint source pollution but rather uses the 'threat and promise' of federal grants to the states to accomplish this task." *Pronsolino v. Nastri*, 291 F.3d 1123, 1126–27 (9th Cir. 2002) (quoting *Or. Natural Desert Ass'n v. Dombeck*, 172 F.3d 1092, 1097 (9th Cir. 1998)); *see also Rapanos v. United States*, 547 U.S. 715, 803 (2006) (Stevens, J., dissenting) (explaining that states have "nearly exclusive responsibility for containing pollution from nonpoint sources" under the CWA); *Friends of Pinto Creek v. EPA*, 504 F.3d 1007, 1014 (9th Cir. 2007) (stating that "the states have the responsibility to limit pollution coming into the waters from non-point sources").

The CWA does not define the term "nonpoint sources," but the Ninth Circuit has stated that, in contrast to point sources, "[n]onpoint sources of pollution are non-discrete sources; sediment run-off from timber harvesting, for example, derives from a nonpoint source." *Pronsolino*, 291 F.3d at 1126; *see also Dombeck*, 172 F.3d at 1095 (livestock grazing is a nonpoint source of pollution); *Natural Res. Def. Council v. EPA*, 915 F.2d 1314, 1316 (9th Cir. 1990) (runoff of pesticides from farmlands is a nonpoint source).

The CWA also directs states to adopt nonpoint source management programs and provides federal grants for nonpoint source pollution reduction. 33 U.S.C. § 1329. The CWA's inclusion of mechanisms for states to undertake the control of nonpoint source pollution reflects the "policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution." *Id.* § 1251(b); *see Pronsolino*, 291 F.3d at 1127, 1138–39 (describing CWA provisions that encourage states to develop means for eliminating nonpoint source pollution).

Clean Water Act § 303 establishes the system under which states and the federal government cooperatively develop water quality standards, which apply regardless whether pollution comes from point sources or nonpoint sources. 33 U.S.C. § 1313. Water quality standards specify, and then protect, the desired conditions of each waterway within the state's regulatory jurisdiction. *Id.* § 1313(c)(2)(A). States are responsible for developing water quality standards applicable to water bodies within their borders, subject to federal confirmation that the standards comply with the requirements of the CWA. *Id.* § 1313(c)(1) & (3).

Water quality standards are the benchmarks by which the condition of water bodies is measured: water bodies that do not meet these benchmarks are deemed "water quality-limited"

and placed on the CWA § 303(d) list. 33 U.S.C. § 1313(d). For all waters placed on this list, states must develop total maximum daily loads ("TMDLs") of pollutants to bring water quality-limited water bodies back into compliance with applicable water quality standards. 40 C.F.R. § 130.7. States must calculate TMDLs regardless of the source of the pollution. *See Pronsolino*, 291 F.3d at 1137. State water quality standards under § 303 apply—and the implementation of TMDLs under that section is required—even when water pollution comes solely from nonpoint sources. *Id*. at 1140–41. Section 303 thus establishes a mechanism by which states can regulate nonpoint sources and ensure that nonpoint source pollution complies with state water quality standards set under that section. Section 401 preserves the state's authority to apply those standards to federally permitted activities.

BLM reports that there are over 1,000 stream miles of water quality-limited waters within the SEORMP planning area. DEIS at 3-55. Though the DEIS does not acknowledge it, ONDA understands that this is an increase from 2002. *See* 2002 SEORMP FEIS Vol. 1 at 56–59. In almost every one of these streams or stream segments, livestock grazing is known to contribute significantly, if not exclusively, to water quality problems. *See also* DEIS at 3-55 ("Livestock grazing was [in the 2002 SEORMP], and continues to be, the primary human use of rangelands."); 2002 SEORMP FEIS Vol. 1 at 57 (stating that the "primary cause of water quality degradation on public land is pollution from nonpoint sources" and "[t]he land uses most commonly cited in connection with these problems were grazing, mining, and forestry-related activities"). BLM continues to state that grazing management will be developed and revised through the adaptive management process. *See* DEIS at 2-4. Despite the passage of two decades since the first iteration of the SEORMP, there are still many basins that lack total maximum daily loads and water quality management plans. (Among other things, the DEIS should provide maps that illustrate water-quality limited streams and also which basis do and do not have TMDLs and WQMPs.)

Given the current state of water quality in the planning area, adaptive management is not enough. BLM has the data to support revising grazing allocations, schedules, and actions; BLM knows the details of the relationship between livestock grazing and non-point source water pollution. The evidence linking domestic grazing to riparian degradation and water quality problems is overwhelming and conclusive. This plan provides an opportunity to immediately remove cattle from key stream reaches in order to protect water quality and riparian values, and to establish ungrazed reference reaches that can inform future (adaptive) grazing management elsewhere. The SEORMP should include specific directives to achieve water quality standards as rapidly as possible—including removal of cattle from damaged stream and riparian areas. *See also* USDA *et al*. (2014) (ICBEMP requiring BLM to "[p]rovide for hydrologic processes (e.g., maintained water table, accessible flood plain, sediment transport) essential to creating and sustaining functioning riparian, aquatic and wetland habitats" and that these habitats "should be maintained or restored through management actions that take into account existing, chronic disturbances in the watershed").

In the 2002 SEORMP, BLM had indicated that "[w]here state water quality standards are not being met due to management on BLM-administered land, management activities and uses could occur in its associated watershed if they allow progress toward the attainment of State water quality standards." That is not enough to comply with INFISH, which requires BLM to

ensure that any grazing it decides to authorize in these areas shall "not retard attainment" of riparian management objectives. The DEIS fails to address water quality standards any further. The distinction between "allow progress" and "shall not retard" is significant. There are many management activities that may "allow progress" toward attainment of water quality standards over time, but these same activities may actually delay the attainment of standards when compared with alternative methods, such as removing livestock from riparian areas. BLM must maximize the speed with which water quality standards are met. *See also* USDA *et al.* (2014) (ICBEMP Framework outlining requirements for riparian conservation areas and riparian management areas, including that these places must be managed "for the benefit of riparian-dependent and aquatic species").

Finally, BLM fails to consider how its management of lands with wilderness characteristics relates to water quality-limited streams. There are many streams that flow from identified LWCs into adjacent WSAs. The DEIS fails to examine the influence of the alternative approaches to LWC management on water quality and quantity in WSAs. (That analysis could also inform how special features such as streams add to outstanding opportunities for primitive recreation in these areas.) BLM must do so in a new or revised draft EIS.

XVIII. ENERGY DEVELOPMENT

Energy siting, permitting, and environmental review is a multi-step process. Here, we focus on wind energy. A wind project typically begins with a developer seeking a Conditional Use Permit from the local county. Under state regulations, projects above a certain threshold require review and approval by Oregon's Energy Facility Siting Commission. *See Friends of the Columbia Gorge v. Energy Facility Siting Council*, 47 Or. 371, 373–74 (2019) (overview of energy site certificate process).

To connect a generation site to the existing electrical grid, the developer will often have to apply to BLM for a right-of-way to build a transmission line that crosses public lands. If the generation site cannot deliver power to the grid without a transmission line across public lands, NEPA obligates BLM to study the environmental impacts of the entire project before deciding whether to grant the transmission line right-of-way. 40 C.F.R. §§ 1508.7, 1508.25(a); *see also ONDA v. Jewell*, 840 F.3d at 565 (describing that both the transmission line running across public lands and the turbine complex proposed on private land on Steens Mountain were required to be studied by BLM in an EIS prior to approval through a Record of Decision).

In 2009, ONDA prepared a first-of-its-kind report identifying 467,000 acres of lands in eastern Oregon with high wind resources and relatively few resource conflicts (ONDA 2009). ONDA explained that places like the upper Owyhee Canyonlands, on the other hand, fall within a small number of "certain special landscapes which, due to their iconic qualities, pristine nature, and biological or recreational values are not compatible with industrial use" (ONDA 2009). "By overlaying wind resource potential with these other natural values, a picture emerges showing where wind power development will have the least social conflict and environmental impact" (ONDA 2009). Parts of the southern portion of the SEORMP planning area, by contrast, falls within the very highest category of potential conflict. BLM should consider this information and

mode of analysis during this land use plan amendment process—particularly as it relates to preservation of irreplaceable wilderness values.

XIX. MINING

The DEIS fails to analyze any alternative that includes a recommendation for withdrawal from the General Mining Act of 1872, as amended, for protected LWC units to preserve wilderness values. Given the known impacts mining can have on wilderness values, this is a reasonable alternative that BLM must analyze for all or a portion of the 1.2 million acres of newly-identified lands with wilderness character in the planning area.

In the absence of a recommendation for mineral withdrawal, BLM should adopt the Mineral Management standards and guidelines from the 1994 Northwest Forest Plan for all mining projects in LWC units managed to preserve their wilderness values. These include, but are not limited to:

- Require a reclamation plan, approved Plan of Operations, and reclamation bond for all minerals operations that include LWC units. Such plans and bonds must address the costs of removing facilities, equipment, and materials; recontouring disturbed areas to near pre-mining topography; isolating and neutralizing or removing toxic or potentially toxic materials; salvage and replacement of topsoil; and seedbed preparation and revegetation to meet management objectives for LWC units managed to preserve their wilderness values.

- Locate structures, support facilities, and roads outside LWC units. Where no alternative to siting facilities in LWC units exists, locate them in a way compatible with objectives for LWC units managed to protect their wilderness values. Road construction will be kept to the minimum necessary for the approved mineral activity. Such roads will be constructed and maintained to meet roads management standards and to minimize damage to resources in LWC units. When a road is no longer required for mineral or land management activities, it will be closed, obliterated, and stabilized.

- Prohibit solid and sanitary waste facilities in LWC units. If no alternative to locating mine waste (waste rock, spent ore, tailings) facilities exists, and releases can be prevented, and stability can be ensured, then:

    - Analyze the waste material using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics.

    - Locate and design the waste facilities using best conventional techniques to ensure mass stability and prevent the release of acid or toxic materials. If the best conventional technology is not sufficient to prevent such releases and ensure stability over the long term, prohibit such facilities in LWC units.

    - Monitor waste and waste facilities after operations to ensure chemical and physical stability.

- Reclaim waste facilities after operations to ensure chemical and physical stability.

- Require reclamation bonds adequate to ensure long-term chemical and physical stability of mine waste facilities.

- For leasable minerals, prohibit surface occupancy within protected LWC units for oil, gas, and geothermal exploration and development activities where leases do not already exist. Where possible, adjust the operating plans of existing contracts to eliminate impacts that retard or prevent the attainment of LWC management objectives.

- Salable mineral activities such as sand and gravel mining and extraction within protected LWC units will occur only if preservation of wilderness values can be achieved.

- Include inspection and monitoring requirements in mineral plans, leases or permits. Evaluate the results of inspection and monitoring to effect the modification of mineral plans, leases and permits as needed to eliminate impacts that retard or prevent attainment of preserving wilderness values in LWC units.

XX. ECONOMIC

BLM fails to consider the broad economic and social impacts that failing to preserve wilderness characteristics would have on the robust outdoor recreation and tourism economy in Oregon, much of which is dependent on intact and well-managed public lands. In 2016 alone, Oregon BLM lands saw 698,865 wildlife-watching visits, 586,247 fishing visits, and 579,549 hunting visits, contributing $622 million in sales and over 5,500 jobs (PEW 2018). The DEIS's failure to recognize the important social and economic impacts of preserving wilderness values leads to a lopsided analysis and a failure to consider the economic impacts of wilderness values just like any other resource or value in the planning area.

CONCLUSION

For these reasons, ONDA respectfully asks BLM to re-scope the SEORMP plan amendment and to supplement or issue a new or revised draft EIS. We look forward to your response.

Sincerely,

s/ Peter M. Lacy

Peter M. ("Mac") Lacy, Senior Attorney
Oregon Natural Desert Association

2009 NE Alberta St., Suite 207
Portland, OR 97211
503-525-0193 | lacy@onda.org

with—

Jeremy Austin, Hart-Sheldon Campaign Coordinator
Oregon Natural Desert Association
jeremy@onda.org

Craig Miller, M.D., GIS Specialist
Oregon Natural Desert Association
gis@onda.org

and on behalf of—

Oregon Natural Desert Association, Audubon Society of Portland, Center for Biological Diversity, Defenders of Wildlife, Northwest Environmental Defense Center, Oregon Wild, Sierra Club Oregon Chapter, Western Watersheds Project, and The Wilderness Society

Cc: Ryan Houston, Executive Director
Oregon Natural Desert Association
rhouston@onda.org

Theresa M. Hanley, Acting State Director
Oregon/Washington Bureau of Land Management
thanley@blm.gov

Thomas Patrick "Pat" Ryan
Field Manager, Malheur Field Office
Bureau of Land Management
t1ryan@blm.gov

Todd Forbes, Lakeview District Manager
Bureau of Land Management
tforbes@blm.gov

Jason Miner, Natural Resources Policy Director
State of Oregon
Office of Governor Kate Brown
Jason.Miner@oregon.gov

APPENDICES

Appendix A: Organizational Statements

Appendix B: Wilderness Character Evaluations Assessments (ONDA 2019)

Appendix C: Climate Change Report (Kauffman 2019)

Appendix D: Louse Canyon Geographic Management Area Habitat Monitoring Project

Appendix E: Louse Canyon Geographic Management Area Photographic Monitoring

Appendix F: ONDA Wind Energy Report (ONDA 2009)

Appendix G: Shrubsteppe Landscapes in Jeopardy report (Dobkin and Sauder 2004)

Appendix H: ONDA Maps and Tables packet

Appendix I: Oregon Desert Trail (ONDA 2019)

[Appendices J through W reserved]

Appendix X: Relevant Scientific Literature

REFERENCES

Amor, R. L., and P. L. Stevens. 1976. Spread of weeds from a roadside into sclerophyll forests at Dartmouth, Australia. Weed Research 16: 111–118.

Austin, J., A. St. John, D. McKay, & C. Miller. 2019. The High Desert Biome: Flora, Fauna and Geology of the Northern Great Basin. *In* Encyclopedia of the World's Biomes. Elsevier, Amsterdam, The Netherlands. *Available at* https://doi.org/10.1016/B978-0-12-409548-9.11795-6.

Baker, W. 2011. Pre-EuroAmerican and Recent Fire in Sagebrush Ecosystems. *In* S.T. Knick and J.W. Connelly (eds). Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats. Studies in Avian Biology Series, Univ. of Cal. Press, Berkley, CA 38: 185–201.

Banks, E.R., and W.L. Baker. 2011. Scale and pattern of cheatgrass (*Bromus tectorum*) invasion in Rocky Mountain National Park. Nat. Areas J. 31:377–390.

Bartuszevige, A.M., and B.A. Endress. 2008. Do Ungulates Facilitate Native and Exotic Plant Spread? Seed Dispersal by Cattle, Elk and Deer in Northeastern Oregon. Journal of Arid Environments 72: 904–913.

Batchelor, J.L, W.J. Ripple, T.M. Wilson, and L.E. Painter. 2015. Restoration of Riparian Areas Following the Removal of Cattle in the Northwestern Great Basin. Environmental Management 55: 930–942.

Belnap, J. 1995. Surface Disturbances: Their Role in Accelerating Desertification. Environmental Monitoring and Assessment 37: 39–57.

Belnap, J., J.H. Kaltenecker, R. Rosentreter, J. Williams, S. Leonard, and D. Eldridge. 2001. Biological Soil Crusts: Ecology and Management. USDI Bureau of Land Management, National Science Technology Center, Denver, CO. Technical Reference 1730-2. 110 pp.

Belnap, J. 2006. The Potential Roles of Biological Soil Crusts in Dryland Hydrologic Cycles. Hydrological Processes 20: 3159–3178.

Belsky, A.J., A. Matzke, and S. Uselman. 1999. Survey of livestock influences on stream and riparian ecosystems in the western United States. Journal of Soil and Water Conservation 54:419–431.

Belsky, A.J. & D.M. Blumenthal.1997. Effects of Livestock Grazing on Stand Dynamics and Soils in Upland Forests of the Interior West. Cons. Biol. 11: 315–327.

Beschta, R.L. 1997. Riparian shade and stream temperature: an alternative perspective. Rangelands 19: 25–28.

Beschta, R.L., and J.B. Kauffman. 2016. Field Review of Stream and Riparian Areas Affected by Livestock Grazing in the Malheur and North Fork Malheur Wild and Scenic River Watersheds, Malheur National Forest. Unpublished report, 47 pp.

Beschta, R.L., and W.J. Ripple. 2012. The role of large predators in maintaining riparian plant communities and river morphology. Geomorphology 157-158: 88–98.

Beschta, R.L., J.B. Kauffman, D.S. Dobkin, and L.M. Ellsworth. 2014. Long-term livestock grazing alters aspen age structure in the northwestern Great Basin. Forest Ecology and Management 329: 30–36

Birkeland, P.W. 1984. SOILS AND GEOMORPHOLOGY. Oxford University Press, New York, NY. 448 pp.

BLM. 2019. Oregon Greater Sage-Grouse Record of Decision and Approved Resource Management Plan Amendments. USDI Bureau of Land Management, Portland, OR. 24 pp.

BLM. 2016. BLM Manual 1739 – Management of Domestic Sheep and Goats to Sustain Wild Sheep (Public), USDI Bureau of Land Management, Washington, D.C. 14 pp.

BLM. 2015a. Oregon Greater Sage-Grouse Proposed Resource Management Plan Amendment and Final Environmental Impact Statement. USDI Bureau of Land Management, Hines, OR.

BLM. 2015b. Wilderness Characteristics Inventory Review: A Review of Vale and Lakeview District Conformance with Established Procedures for Maintaining the Inventory of Lands with Wilderness Characteristics. USDI Bureau of Land Management, Portland, OR. 46 pp.

BLM. 2013. Instruction Memorandum 2013-184. "Relinquishment of Grazing Permitted Use on the Bureau of Land Management Administered Lands." USDI Bureau of Land Management, Washington, D.C. Sept. 9, 2013.

BLM. 2012a. BLM Manual 6310 – Conducting Wilderness Characteristics Inventory on BLM Public Lands. USDI Bureau of Land Management, Washington, D.C. 32 pp.

BLM. 2012b. Considering Lands with Wilderness Characteristics in the BLM Land Use Planning Process (Public). BLM Manual 6320. USDI Bureau of Land Management, Washington, D.C. 9 pp.

BLM. 2012c. Travel and Transportation Handbook. BLM Handbook H-8342. USDI Bureau of Land Management, Washington, D.C. 148 pp.

BLM. 2012d. Scoping Report – Southeastern Oregon Resource Management Plan Amendment and Environmental Impact Statement. USDI Bureau of Land Management, Vale, OR. 40 pp.

BLM. 2011. National Greater Sage-grouse Planning Strategy. USDI Bureau of Land Management, Washington, D.C. 8 pp.

BLM. 2010. Instruction Memorandum No. OR-2010-012. “Analysis of Greenhouse Gas Emissions and Consideration of Climate Change in National Environmental Policy Act Documents.” USDI Bureau of Land Management, Portland, OR. Jan. 13, 2010.

BLM. 2008. Special Status Species Management. BLM Manual 6840. USDI Bureau of Land Management, Washington, D.C. 48 pp.

BLM. 2005a. Land Use Planning Handbook. BLM Handbook H-1601-1. USDI Bureau of Land Management, Washington, D.C. 47 pp.

BLM. 2005b. Normal Fire Emergency Stabilization and Rehabilitation Plan. USDI Bureau of Land Management, Vale, OR. 55 pp.

BLM. 2005c. Revised Environmental Assessment # OR-030-04-013 (Mar. 1, 2005), Proposed Rangeland Management Actions Necessary to Remedy Resource Conflicts in Louse Canyon Geographic Management Area, Vale District, Bureau of Land Management. USDI Bureau of Land Management, Vale, OR. 254 pp.

BLM. 2002. Southeastern Oregon Resource Management Plan and Record of Decision. USDI Bureau of Land Management, Vale, OR. 520 Pp.

BLM. 2001a. Wilderness Inventory Study and Procedures. BLM Handbook H-6310-1. USDI Bureau of Land Management, Washington, D.C. 26 pp.

BLM. 2001b. Biological Soil Crusts: Ecology and Management. Technical Reference 1730-2. USDI Bureau of Land Management, Washington, D.C. 118 pp.

BLM. 1997. Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington. USDI Bureau of Land Management, Oregon/Washington State Office, Portland, OR. 19 pp.

BLM. 1988. Areas of Critical Environmental Concern. BLM Handbook 1613. USDI Bureau of Land Management, Washington, D.C. 24 pp.

BLM. 1978. Wilderness Inventory Handbook: Policy, Direction, Procedures and Guidance for Conducting Wilderness Inventory on the Public Lands. USDI Bureau of Land Management, Washington, D.C. 30 pp.

Braun, C.E., J.W. Connelly, and M.A. Schroeder. 2005. Seasonal Habitat Requirements for Sage-Grouse: Spring, Summer, Fall, and Winter. *In*: Shaw, N.L., M. Pellant, and S.B. Monsen, eds. Sage-Grouse Habitat Restoration Symposium Proceedings. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO. Proceedings RMRS-P-38. 4 pp.

Briske, D.D., and J.H. Richards. 1995. Plant responses to defoliation: a physiological, morphological and demographic evaluation. *In*: Bedunah, D.J., and R.E. Sosebee, eds. Wildland Plants: Physiological ecology and developmental morphology. Society for Range Management, Denver, CO. Pages 635–710.

Brooks M. L. 1999. Habitat invisibility and dominance by alien annual plants in the western Mojave Desert. Biological Invasions 1:325–337.

Brooks M. L. 1995. Benefits of protective fencing to plant and rodent communities of the western Mojave Desert, CA. Environmental Management 19:65–74.

Buol, S.W., R.J. Southard, R.C. Graham, and P.A. McDaniel. 2011. SOIL GENESIS AND CLASSIFICATION. Wiley-Blackwell, Chichester UK. 543 pp.

Chambers, J.C., B.A. Roundy, R.R. Blank, S.E. Meyer, and A. Whittaker. 2007. What makes Great Basin sagebrush ecosystems invasible by *Bromus tectorum*? Ecological Monographs 77: 117–145.

Chambers, J. C., B.A. Bradley, C.S. Brown, C. D'Antonio, M.J. Germino, J.B. Grace, S.B Hardegree, R.F. Miller, and D.A. Pyke. 2014. Resilience to stress and disturbance, and resistance to *Bromus tectorum* L. invasion in cold desert shrublands of western North America. Ecosystems 17: 360–375.

Chambers, J.C., M.J. Germino, J. Belnap, C.S. Brown, E.W. Schupp, and S.B. St. Clair. 2016. Plant community resistance to invasion by *Bromus* species: The roles of community attributes, *Bromus* interactions with plant communities, and *Bromus* traits. *In*: Germino, M.J., J.C. Chambers, and C.S. Brown, eds. Exotic Brome Grasses in Arid and Semi-Arid Ecosystems of the Western US: Causes, Consequences, and Management Implications. Springer International Publishing Switzerland, New York. Pages 275–303.

Chambers, J.C., *et al*. 2017. Science framework for conservation and restoration of the sagebrush biome: Linking the Department of the Interior's Integrated Rangeland Fire Management Strategy to long-term strategic conservation actions. Part 1. Science basis and applications. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO. General Technical Report RMRS-GTR-360. 213 Pp.

Clarke, J.N. & D.C. McCool. 1996. STAKING OUT THE TERRAIN: POWER AND PERFORMANCE AMONG NATURAL RESOURCE AGENCIES. State University of New York Press, Albany, NY. 279 pp.

Clewell, A., J. Aronson, and K. Winterhalder. 2004. The SER International Primer on Ecological Restoration. Society for Ecological Restoration International Science & Policy Working Group. www.ser.org and Society for Ecological Restoration International, Tucson, AZ. 15 pp.

Compagnoni, A. 2013. Climate change and plant demography in the sagebrush steppe. Unpublished dissertation, Utah State University, Logan. 131 pp.

Condon, L., P.J. Weisberg, and J.C. Chambers. 2011. Abiotic and biotic influences on *Bromus tectorum* invasion and *Artemisia tridentata* recovery after fire. International Journal of Wildland Fire 20: 597–604.

Condon, L., and D.A. Pyke. 2018. Fire and grazing influence site resistance to *Bromus tectorum* through their effects on shrub, bunchgrass and biocrust communities in the Great Basin (USA). Ecosystems 21: 1416–1431.

Connelly, J.W., C.A. Hagen & M.A. Schroeder. 2011. Characteristics and Dynamics of Greater Sage-Grouse Populations. *In* S.T. Knick and J.W. Connelly (eds). Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats. Studies in Avian Biology Series, Univ. of Cal. Press, Berkley, CA 38: 53–67.

Connelly, J.W., E.T. Rinkes, and C.E. Braun. 2011. Characteristics of Greater Sage-Grouse Habitats: A Landscape Species at Micro- and Macroscales. *In* S.T. Knick and J.W. Connelly (eds). Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats. Studies in Avian Biology Series, Univ. of Cal. Press, Berkley, CA 38: 69–83.

Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats. Western Association of Fish and Wildlife Agencies, Cheyenne, WY. Unpublished Report. 610 pp. *Available at* https://wdfw.wa.gov/publications/01118/.

Crist, M.R., S.T. Knick, & S.E. Hanser. 2017. Range-Wide Connectivity of Priority Areas for Greater Sage-Grouse: Implications for Long-Term Conservation from Graph Theory, The Condor 119:44–57.

Crist, M.R., S.T. Knick, & S.E. Hanser. 2015. Range-Wide Network of Priority Areas for Greater Sage-Grouse—A Design for Conserving Connected Distributions or Isolating Individual Zoos?, U.S. Geological Survey Open-File Report 2015-1158. 42 pp.

Davidson, E. and M. Fox. 1974. Effects of off road motorcycle activity on Mojave desert vegetation and soil. Madrono 22:381–412.

Dealy, J.E., D.A. Leckenby, and D.M. Concannon. 1981. Wildlife habitats in managed rangelands—the Great Basin of southeastern Oregon: plant communities and their importance to wildlife. USDA Forest Service, Pacific Northwest Research Station, Portland, OR. General Technical Report PNW-GTR-120. 71 pp.

Dobkin, D.S. and J.D. Sauder. 2004. Shrubsteppe Landscapes in Jeopardy: Distributions, Abundances, and the Uncertain Future of Birds and Small Mammals in the Intermountain West. High Desert Ecological Research Institute, Bend, OR, 199 pp.

Downs, J.L., M.A. Chamness, C.M. Perry, S.D. Powell, and A.M. Playter. 2010. Effects of wildfire on plant communities. Section 8.14.2.2. *In:* Poston, T.M., J.P. Duncan, and R.L. Dirkes, eds. Hanford Site Environmental Report for Calendar Year 2009. US Department of Energy, Pacific Northwest National Laboratory, Richland, WA. Annual Report PNNL-19455. Pages 8.149–8.150.

Elzinga, C.L., D.W. Salzer, and J.W. Willoughby. 1998. Measuring & Monitoring Plant Populations. USDI Bureau of Land Management, National Applied Resource Sciences Center, Denver, CO. Technical Reference 1730-1. 496 pp.

Field, J.P., J. Belnap, D.D. Breshears, J.C. Neff, G. S. Okin, J.J. Whicker, T. H. Painter, S. Ravi, M.C. Reheis, and R.L. Reynolds. 2010. The ecology of dust. Frontiers in Ecololgy and the Environment 8: 423–420.

Forman R.T.T., D. Sperling, J. A. Bissonette, A. Ap. Clevenger, C. D. Cutshall, V. H. Dale, L. Fahrig, R. France, C. R. Goldman, K. Heanue, J. A. Jones, F. J. Swanson, T. Turrentine, and T. C. Winter. 2003. ROAD ECOLOGY: SCIENCE AND SOLUTIONS. Island Press. Washington D.C. 481 pp.

Forman, R.T.T. 2000. Estimate of the area affected ecologically by the road system in the United States. Conservation Biology 14:31–35.

Forman, R.T.T., and L. Alexander. 1998. Roads and their major ecological effects. Annual Review of Ecology and Systematics 29:207–231.

Franklin, J.F., and C.T. Dyrness. 1988. Natural Vegetation of Oregon and Washington. Oregon State University Press, Corvallis. 468 pp.

Garton, E.O., J.W. Connelly, J. Horne, C. Hagen, A. Moser, and M.A. Schroeder. 2011. Greater Sage-Grouse Population Dynamics and Probability of Persistence, *In* S.T. Knick and J.W. Connelly (eds). Greater Sage-Grouse: Ecology and conservation of a landscape species and its habitats. Studies in Avian Biology Series, Univ. of Cal. Press, Berkley, CA 38: 354–56.

Gelbard, J.L. 2003. Grasslands at a crossroads: protecting and enhancing resilience to climate change. *In* Hanson L. J., J. L. Biringer, and J. R. Hoffman (eds.), Buying time: a user's manual for building resistance and resilience to climate change in natural systems. World Wildlife Fund, Washington D.C. 242 pp.

Gelbard, J. L., and S. Harrison. 2005. Invasibility of roadless grasslands: an experimental study of yellow starthistle. Ecological Applications 15:1570–1580.

Gelbard J.L., and Belnap J. 2003. Roads as conduits for exotic plant invasions in a semiarid landscape. Conservation Biology 17: 420N432.

Getz, H.L. and W.L. Baker. 2008. Initial Invasion of Cheatgrass (*Bromus tectorum*) into Burned Piñon-Juniper Woodlands in Western Colorado. American Midland Naturalist 159: 489–497.

Hagen, C.A. 2011. Greater Sage-grouse Conservation Assessment and Strategy for Oregon: A plan to maintain and enhance populations and habitat, Oregon Dep't of Fish & Wildlife, Portland, OR, 207 pp. *Available at* http://www.dfw.state.or.us/wildlife/sagegrouse/.

Harrison, S., C. Hohn, and S. Ratay. 2002. Distribution of exotic plants along roads in a peninsular nature reserve. Biological Invasions 4:425–430.

Hilty, J.H., D.J. Eldridge, R. Rosentreter, M.C. Wicklow-Howard, and M. Pellant. 2004. Recovery of biological crusts following wildfire in Idaho. Journal of Range Management 57: 89–96.

Janzen, D.H. 1984. Dispersal of Small Seeds by Big Herbivores: Foliage is the Fruit. The American Naturalist 123: 338–353.

Jenny, H. 1980. THE SOIL SOURCE: ORIGIN AND BEHAVIOUR. Ecological Studies Vol. 37, Springer-Verlag, 377 pp.

Jenny, H. 1941. FACTORS OF SOIL FORMATION: A SYSTEM OF QUANTITATIVE PEDOLOGY. Dover Publications, New York, 281 pp.

Johnson, H.B., F. C. Vasek, and T. Yonkers. 1975. Productivity, diversity, and stability relationships in Mojave Desert roadside vegetation. Bulletin of the Torrey Botanical Club 102:106–115.

Johnston, D.B. 2011. Movement of Weed Seeds in Reclamation Areas. Restoration Ecology 19: 446–449.

Kauffman, J.B. 2019. *A Review of the 2019 Draft Southeastern Oregon Resource Management Plan Amendment and Environmental Impact Statement: Influences of Climate Change within the Context of the Proposed Alternatives*. Illahee Sciences International, Corvallis, OR, 22 pp.

Kauffman, J.B., P. Bayley, H. Li, P. McDowell, and R.L. Beschta. 2002. Research/Evaluate Restoration of NE Oregon Streams: effects of livestock exclosures (corridor fencing) on riparian vegetation, stream geomorphic features, and fish populations. *Final report to the US Bonneville Power Administration,* Portland, OR. Final Report DOE/BP-00006210-1, Project no. 2000-05100. 97 pp.

Knapp, P.A. 1996. Cheatgrass (*Bromus tectorum L.*) dominance in the Great Basin Desert: History, persistence, and influences to human activities. Global Environmental Change 6: 37–52.

Knick, S.T. & J.W. Connelly. 2011. Greater Sage-Grouse and Sagebrush: An Introduction to the Landscape, *In* S.T. Knick & J.W. Connelly (eds.). Greater Sage-Grouse: Ecology and

Conservation of a Landscape Species and its Habitats. Studies in Avian Biology, Univ. of Cal. Press, Berkeley, CA 38: 1–9.

Knick, S.T. & S.E. Hanser, Connecting Pattern and Process in Greater Sage-Grouse Populations and Sagebrush Landscapes, *In* S.T. Knick & J.W. Connelly (eds.). Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. Studies in Avian Biology, Univ. of Cal. Press, Berkeley, CA 38: 383–405.

Knick, S.T. *et al*. 2011. Ecological Influence and Pathways of Land Use in Sagebrush. *In* S.T. Knick & J.W. Connelly (eds.). Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. Studies in Avian Biology, Univ. of Cal. Press, Berkeley, CA 38: 203–251.

Knick, S.T., and J.T. Rotenberry. 1997. Landscape characteristics of disturbed shrubsteppe habitats in southwestern Idaho (U.S.A.). Landscape Ecology 12: 287–297.

Lindberg, K., P. Fredman, and T. Heldt. 2005. Toward Integrated Recreation Management: Assessing the Benefits to Cross-Country Skiers from Conflict Reduction. Oregon State University, USA, European Tourism Research Institute, Sweden; Dalarna University, Sweden; respectively. December 2005.

Mack, R.N. 1981. Invasion of *Bromus tectorum* L. into western North America: An ecological chronicle. Agro-Ecosystems 7: 145–165.

Manning, R.E. 1999. Studies in Outdoor Recreation: Search and Research for Satisfaction, 2nd Edition. Oregon State University Press, Corvallis. 374 pp.

Milberg, P. and B.B. Lamont. 1995. Fire enhances weed invasion of roadside vegetation in Southwestern Australia. Biological Conservation 73:45–49.

Miller, R.F., D.E. Naugle, J.D. Maestas, C.A. Hagen, and G. Hall. 2017. Special Issue: Targeted Woodland Removal to Recover at-Risk Grouse and Their Sagebrush-Steppe and Prairie Ecosystems. Rangeland Ecology & Management, 70(1):1–8. *Available at* http://www.bioone.org/doi/full/10.1016/j.rama.2016.10.004.

Miller, R.F., J.C. Chambers. and M. Pellant. 2014. A Field Guide for Selecting the Most Appropriate Treatment in Sagebrush and Piñon-Juniper Ecosystems in the Great Basin: Evaluating Resilience to Disturbance and Resistance to Invasive Annual grasses and Predicting Vegetation Response. U.S. Geological Survey Circular. 68 pp.

Miller, R.F., J.C. Chambers, D.A. Pyke, F.B. Pierson, and C.J. Williams. 2013. A review of fire effects on vegetation and soils in the Great Basin Region: response and ecological site characteristics. Gen. Tech. Rep. RMRS-GTR-308. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 126 pp.

Miller, M.E., M.A. Bowker, R.L. Reynolds, and H.L. Goldstein. 2012. Post-fire land treatments and wind erosion—Lessons from the Milford Flat Fire, UT, USA. Aeolian Research 7: 29–44.

Miller, R.F., S.T. Knick, D.A. Pyke, C.W. Meinke, S.E. Hanser, M.J. Wisdom, and A.L. Hild. 2011. Characteristics of Sagebrush Habitats and Limitations to Long-Term Conservation. *In* S.T. Knick & J.W. Connelly (eds.). Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. Studies in Avian Biology, Univ. of Cal. Press, Berkeley, CA 38: 145–184.

Miller, R.F. and L. Eddleman. 2000. Spatial and temporal changes of sage grouse habitat in the sagebrush biome. Technical Bulletin 151. Agricultural Experiment Station, Oregon State University, Corvallis. 39 pp.

Miller, R. F., T. J. Svejcar, and J. A. Rose. 2000. Impacts of western juniper on plant community composition and structure. Journal of Range Management 53: 574–585.

National Technical Team. 2011. A Report on National Greater Sage-grouse Conservation Measures. U.S. Geological Survey, Denver, CO.

Nauman, T.W., M.C. Duniway, N.P. Webb, and J. Belnap. 2018. Elevated aeolian sediment transport on the Colorado Plateau, USA: The role of grazing, vehicle disturbance, and increasing aridity. Earth Surface Processes and Landforms 43: 2897–2914. *Available at* https://doi.org/10.1002/esp.4457.

Olff, H., and M.A. Ritchie. 1998. Effects of herbivores on grassland plant diversity. Trends in Ecology & Evolution 13: 261–265.

Oregon Department of Fish and Wildlife. 2018. Oregon Greater Sage-Grouse Population Monitoring: 2018 Annual Report, Hines, OR. 120 pp. *Available at* https://www.dfw.state.or.us/wildlife/sagegrouse/docs/ODFW_2018_Sage-Grouse_Population_Report.pdf.

Oregon Department of Fish and Wildlife. 2003. Oregon's Bighorn Sheep & Rocky Mountain Goat Management Plan. Salem, OR. 87 pp. *Available at* https://www.dfw.state.or.us/wildlife/management_plans/docs/sgplan_1203.pdf.

Oregon Natural Desert Association. 2019. Oregon Desert Trail Guidebook. Oregon Natural Desert Association, Bend, OR, 112 pp. *Available at* www.onda.org/OregonDesertTrail.

Oregon Natural Desert Association. 2009. Oregon's High Desert and Wind Energy: Opportunities and Strategies for Responsible Development. Oregon Natural Desert Association, Bend, OR, 81 pp.

Oregon Natural Desert Association. 2007. Wilderness Inventory Recommendations: Three Rivers BLM Management Area. Oregon Natural Desert Association, Bend, OR (Sept. 19, 2007).

Oregon Natural Desert Association. 2006. Wilderness Inventory Recommendations: John Day Basin. Oregon Natural Desert Association, Bend, OR (Dec. 15, 2006).

Oregon Natural Desert Association. 2005. Wilderness Inventory Recommendations: Lakeview BLM District. Oregon Natural Desert Association, Bend, OR (Apr. 1, 2005).

Oregon Natural Desert Association. 2004. Wilderness Inventory Recommendations: Vale District. Oregon Natural Desert Association, Bend, OR (Feb. 6, 2004).

Oregon Natural Desert Association. 2002b. Andrews Resource Area Resource Management Plan: Supplemental Wilderness Inventory Recommendations. Oregon Natural Desert Association, Bend, OR (Nov. 1, 2002).

Oregon Natural Desert Association. 2002a. Andrews Resource Area Resource Management Plan: Wilderness Inventory Recommendations. Oregon Natural Desert Association, Bend, OR (Sept. 1, 2002).

Oyler-McCance, S.J. & T.W. Quinn. 2011. *Molecular Insights Into The Biology of Greater Sage-Grouse*, *In* S.T. Knick & J.W. Connelly (eds.). Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. Studies in Avian Biology, Univ. of Cal. Press, Berkeley, CA 38: 85–94.

Parendes, L.A., and J. A. Jones. 2000. Role of light availability and dispersal in exotic plant invasion along roads and streams in the H.J. Andrews Experimental Forest, Oregon. Conservation Biology 14:64–75.

PEW Charitable Trusts. 2018. The Economic Contributions of Hunting, Fishing, and Wildlife-Watching on BLM Lands. PEW Charitable Trusts: Washington, D.C. *Available at* https://www.pewtrusts.org/-/media/assets/2018/09/economiccontributionsrecreationblm_oregon_v1.pdf.

Ponzetti, J.M., B. McCune, and D.A. Pyke. 2007. Biotic Soil Crusts in Relation to Topography, Cheatgrass, and Fire in the Columbia Basin, Washington. The Bryologist 110: 706–722.

Ravi, S., P. D'Odorico, and D.D. Breshears. 2011. Aeolian processes and the biosphere. Reviews of Geophysics 49: 1–45.

Ray-Mukherjee, J., T.A. Jones, P.B. Adler, and T.A. Monaco. 2011. Immature seedling growth of two North American native perennial bunchgrasses and the invasive grass *Bromus tectorum*. Rangeland Ecology and Management 64: 358–365.

Reed, R.A., J. Johnson-Barnard and W.L. Baker. 1996. Contribution of Roads to Forest Fragmentation in the Rocky Mountains. Conservation Biology 10: 1098–1106.

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

Rosentreter, R. 1986. Compositional patterns within a rabbitbrush (*Chrysothamnus)* community of the Idaho Snake River Plain. In: McArthur, E.D., and B.L. Welch, eds. Proceedings—Symposium on the Biology of *Artemisia* and *Chrysothamnus*. General Technical Report INT-200. USDA Forest Service, Intermountain Research Station, Ogden, UT. Pages 273–277.

Rosentreter R. 1994. Displacement of rare plants by exotic grasses. Monsen, S.B., and S.G Kitchen, eds. Proceedings—Ecology and Management of Annual Rangelands. General Technical Report INT-GTR-313. USDA Forest Service, Intermountain Research Station, Ogden, UT. Pages 170–175.

Roundy, B.A., S.P. Hardegree, J.C. Chambers, and A. Whittaker. 2007. Prediction of cheatgrass field germination using wet thermal accumulation. Rangeland Ecology & Management 60: 613–623.

Roundy, B.A., R.F. Miller, R.J. Tausch, K. Young, A. Hulet, B. Rau, B. Jessop, J.C. Chambers, and D. Eggett. 2014. Understory cover responses to pinyon-juniper treatments across tree dominance gradients in the Great Basin. Rangeland Ecology and Management 67: 482–492.

Schiffman, P.M. 1997. Animal-mediated dispersal and disturbance: Driving forces behind alien plant naturalization. *In*: Luken, J.O., and J.W. Thieret, eds. Assessment and Management of Plant Invasions. Springer, New York. Pages 87–94.

Serpe, M., J.M. Orm, T. Barkes, and R. Rosentreter. 2006. Germination and seed water status of four grasses on moss-dominated biological soil crusts from arid lands. Plant Ecology 185: 163–178.

Shinneman, D.J., C.L. Aldridge, P.S. Coates, M.J. Germino, D.S. Pilliod, and N.M. Vaillant. 2018. A Conservation Paradox in the Great Basin—Altering Sagebrush Landscapes with Fuel Breaks to Reduce Habitat Loss from Wildfire. US Geological Survey, Reston, VA. Open File Report 2018-1034. 70 pp.

Shreve, F. 1942. The Desert Vegetation of North America. Botanical Review 8: 195–246.

Soil Survey Staff. 2014. Keys to Soil Taxonomy, 12th ed. USDA Natural Resources Conservation Service, Washington, D.C. 372 pp. *Available at* https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/class/taxonomy/?cid=nrcs142p2_053580.

Soil Science Division Staff. 2017. Soil survey manual. *In*: C. Ditzler, K. Scheffe, and H.C. Monger (eds.). USDA Handbook 18. USDA Natural Resources Conservation Service, Government Printing Office, Washington, D.C. 551 pp. *Available at* https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/soils/ref/?cid=nrcs142p2_054262.

Soule, M. E., and J. Terborgh, eds. 1999. CONTINENTAL CONSERVATION. Island Press. Washington D.C., U.S.A.

Stiver, S.J., E.T. Rinkes, D.E. Naugle, P.D. Makela, D.A. Nance, and J.W. Karl. 2015. Sage-Grouse Habitat Assessment Framework: A Multiscale Habitat Assessment Tool. USDI Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver, CO. Technical Reference 6710-1. 132 pp.

Trombulak, S.C., and C.A. Frissel. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. Conservation Biology 14:18–30.

Tyser, R.W., and C.A. Worley. 1992. Alien flora in grasslands adjacent to road and trail corridors in Glacier National Park, Montana (U.S.A.). Conservation Biology 6:253–262.

U.S. Department of Agriculture *et al*. 2014. Updated Interior Columbia Basin Strategy: A Strategy for Applying the Knowledge Gained by the Interior Columbia Basin Ecosystem Management Project to the Revision of Land Use Plans and Project Implementation, BLM/FS/FWS/EPA/NOAA Fisheries-Memorandum. 28 pp.

U.S. Department of Agriculture. 2000. Sowing the Seeds for a New Millennium: Annual Report of the Secretary of Agriculture, FY 1999, USDA, Washington, D.C. 3 pp.

U.S. Fish and Wildlife Service. 2015. *Historic Conservation Campaign Protects Greater Sage-Grouse*, press release (Sept. 22, 2015). *Available at* https://www.fws.gov/news/ShowNews.cfm?ref=historic-conservation-campaign-protects-greater-sage-grouse-&_ID=35237.

U.S. Fish and Wildlife Service. 2013. Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report. USDI Fish and Wildlife Service, Denver, CO. 115 pp. *Available at* http://www.sagegrouseinitiative.com/wp-content/uploads/2013/07/USFWS_ConservationObjectives-report.pdf.

U.S. Fish and Wildlife Service. 2003. Policy for Evaluation of Conservation Efforts When Making Listing Decisions. USDI and U.S. Department of Commerce. 68 Fed. Reg. 15100–15115 (Mar. 28, 2003).

U.S. Forest Service and BLM. 1994. Record of decision for: Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl. Attachment A: Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern

Spotted Owl. USDA Forest Service and USDI Bureau of Land Management, Washington. 153 pp.

U.S. Government Accountability Office. 2007. Climate Change: Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources, Washington, DC. Report to Congressional Requesters, GAO-07-863. 184 pp. *Available at* www.gao.gov/new.items/d07863.pdf.

Vallentine, J.F., and A.R. Stevens. 1994. Use of livestock to control cheatgrass—A review. *In*: Monsen, S.B., and S.G. Kitchen, eds. Proceedings—Ecology and Management of Annual Rangelands. USDA Forest Service, Intermountain Research Station, Ogden, UT. General Technical Report INT-GTR-313. 4 pp.

Vaske, J.J., P. Carothers, M. Donnelly, and B. Baird. 2000. Recreation Conflict Among Skiers and Snowboarders. Leisure Sciences 22: 297–313.

Walker, B.L. and D.E. Naugle. 2011. West Nile Virus in Sagebrush Habitat and Impacts on Greater Sage-Grouse Populations, *In* S.T. Knick & J.W. Connelly (eds.). Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and its Habitats. Studies in Avian Biology, Univ. of Cal. Press, Berkeley, CA 38: 127–142.

Warren, S.D., and D.J. Eldridge. 2001. Biological soil crusts and livestock in arid ecosystems: Are they compatible? *In*: Belnap, J., and O.L. Lange, eds. Biological Soil Crusts: Structure, Function and Management. Springer-Verlag Berlin Heidelberg GmbH, New York. Pages 404–415.

Watkins R.Z., Chen J., Pickens J. and Brosofske K.D. 2003. Effects of forest roads in a managed hardwood landscape. Conservation Biology 17: 411–419.

Wicklow-Howard, M.C. 1994. Mycorrhizal Ecology of Shrub-Steppe Habitat. *In*: Monsen, S.B., and S.G. Kitchen, eds. Proceedings—Ecology and Management of Annual Rangelands. USDA Forest Service, Intermountain Research Station, Ogden, UT. General Technical Report INT-GTR-313. 4 pp.

Williamson, J. and S. Harrison. 2002. Biotic and abiotic limits of the spread of exotic revegetation species. Ecological applications 12:40–51.

Winward, A.H. 1980. Taxonomy and Ecology of Sagebrush in Oregon. Station Bulletin 642. Agricultural Experiment Station, Oregon State University, Corvallis. 12 pp.

Yeo, J.J. 2005. Effects of grazing exclusion on rangeland vegetation and soils, east central Idaho. Western North American Naturalist: Vol. 65: No. 1, Article 11. *Available at* http://scholarsarchive.byu.edu/wnan/vol65/iss1/11.