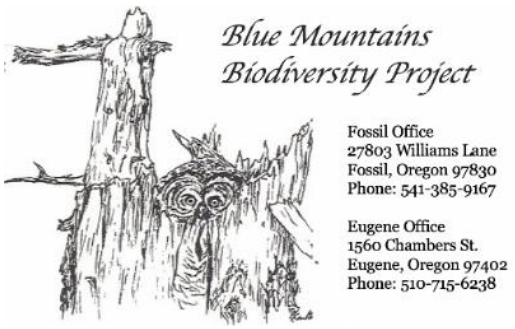
To: Eric Watrud, Forest Supervisor
Umatilla National Forest
United States Forest Service
Attn: Blue Mountains Forest Plan Revision
72510 Coyote Road
Pendleton, OR 97801



From: Blue Mountains Biodiversity Project
27803 Williams Lane
Fossil, OR 97830

With Contributions From: Earthrise Law Center; Western Watersheds Project; and the John Muir Project

Re: Comments on the Blue Mountains Forest Plan Revisions Draft Environmental Impact Statement

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Blue Mountains Forest Supervisors and the Blue Mountains Forest Plan Revision Team:

Blue Mountains Biodiversity Project (BMBP) hereby submits the following comments and associated scientific references and exhibits on the Forest Service's Draft Environmental Impact Statement (DEIS) for the Blue Mountains Forest Plan Revision. All cited and referenced materials will be submitted to the Forest Service along with these comments and are hereby incorporated into these comments for inclusion in the project record.

BMBP is a nonprofit environmental advocacy organization dedicated to the protection of the natural ecosystems of the Blue Mountains and Oregon East Cascade Bioregions. BMBP has been working to protect and restore these ecosystems and the native flora and fauna they support 1991. BMBP's work area encompasses federal public lands in eastern Oregon and southeastern Washington including the Deschutes, Ochoco, Malheur, Umatilla, Fremont-Winema, and Wallowa-Whitman National Forests. BMBP prioritizes the protection of mature and old-growth forest including large trees, sensitive and Endangered Species Act listed species, water quality, roadless areas, and natural ecological processes. BMBP has a long-held and vested interest in the management and ecological health of the Blue Mountains National Forests. BMBP's Fossil office address is 27803 Williams Lane, Fossil, OR 97830. BMBP's Eugene office address is 1560 Chambers St., Eugene, OR 97402.

BMBP's attorney Tom Buchele is submitting and signing these comments on behalf of his client, BMBP. BMBP is submitting these comments online via the Forest Service's CARA system, via email to sm.fs.bluesforests@usda.gov, and in an external collaborator folder on the Forest Service's Box system.

BMBP is joined in submitting these comments by Western Watersheds Project, the John Muir Project, and Friends of the Clearwater:

- **John Muir Project**, a project of Earth Island Institute, is an environmental nonprofit based in California dedicated to protecting forest ecosystems, the ecological benefits of natural processes, such as fire, for native biodiversity, and exposing why logging our forests does not create fire-safe communities. John Muir Project has also written supplemental scoping comments that will be submitted along with BMBP's comments. John Muir Project's contact for the Blue Mountains Forest Plan Revisions is Chad Hanson, Director and Principal Ecologist, cthanson1@gmail.com.
- **Western Watersheds Project** is an environmental nonprofit based in Idaho dedicated to protecting western public lands from the destructive effects of livestock grazing. Western Watersheds Project's contact for the Blue Mountains Forest Plan Revisions is Adam Bronstein, Oregon Director, adam@westernwatersheds.org.
- **Friends of the Clearwater** is an environmental nonprofit based in Idaho that has been working since 1987 to protect public wildlands through grassroots organizing, education, advocacy, and when necessary, litigation. Friends of the Clearwater's contact for the Blue Mountains Forest Plan Revision is Jeff Juel, Forest Policy Director, jeffjuel@wildrockies.org.

Attached to this submission are two expert reports developed independently by Dr. Monica Bond and Dr. Dominick Dellasala for BMBP to submit, and which should be considered as part of the whole of BMBP's comments on the Blue Mountains Forest Plans Revision DEIS.

I. Legal Background and Requirements

A. National Forest Management Act

The National Forest Management Act ("NFMA"), 16 U.S.C. §§ 1600–1614, is the primary statute governing the administration of national forests. NMFA requires the Forest Service to develop and implement land and resource management plans ("LRMP" or "Forest Plan") for each unit of the National Forest System. 16 U.S.C. § 1604(a). In developing and maintaining forest plans, the Forest Service must "use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences." *Id.* at § 1604(b). Further, the plans must "provide for multiple use and sustained yield of the products and services obtained therefrom" and "include coordination of outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness. *Id.* at § (e)(1). NFMA also requires the Forest Service to "provide for a diversity of plant and animal communities" across Forest Service lands. 16 U.S.C. § 1604(g)(3)(B). Further, NFMA directs the Forest Service to "ensure research on and (based on continuous monitoring and assessment in the field) evaluation of the effects of each management system to the end that it will not produce substantial and permanent impairment of the productivity of the land." 16 U.S.C. § 1604(g)(3)(C). The Forest Service has adopted regulations setting forth the process for developing forest plans the comply with NFMA and the guidelines and standards that must be incorporated into the plans. 36 C.F.R. part 219 subpart A.

1. 2012 Planning Rule

The current forest plan revision process is governed by the 2012 NFMA Planning Rule. 36 C.F.R. Part 219. The 2012 Planning Rule places an explicit emphasis on ecological sustainability

and requires substantive protections for forest ecosystems alongside provisions for social and economic sustainability. These obligations cannot be set aside to prioritize timber production or other economic uses. *See* 36 C.F.R. §§ 219.8–219.11.

The 2012 Planning Rule requires the Forest Service to develop substantive plan components, including standards and guidelines, to maintain or restore ecological integrity, air and water quality, and other natural resources. 36 C.F.R. § 219.8(a). Merely acknowledging resource damage or promising to mitigate adverse effects of proposed plan components (or the removal of existing components) does not satisfy these requirements. The adopted plans must contain provisions that actually address the Forest Service's obligation to maintain or restore the resources at issue.

To implement NFMA's diversity mandate, the Forest Service must ensure the proposed plans provide the ecological conditions necessary to contribute to the recovery of federally listed threatened and endangered species and maintain a viable population of each species of conservation concern within the plan area. Where ecosystem-level protections are insufficient, the plans must include additional, species-specific components, including standards or guidelines. 36 C.F.R. § 219.9(b)(1). If the Forest Service determines that maintaining a viable population of a species of conservation concern is beyond its authority or the plan area's inherent capability, it must document that determination and include provisions to contribute to maintaining a viable population within the species' range. *Id*. § 219.9(b)(2).

The plans must also "include plan components, including standards or guidelines, to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area." 36 C.F.R. §§ 219.8(a)(1), 219.9(a)(1). "Ecological integrity" means that an ecosystem's dominant characteristics—including its composition, structure, function, connectivity, and species diversity—occur within the natural range of variation and can "withstand and recover from most perturbations imposed by natural environmental dynamics or human influence." 36 C.F.R. § 219.19. This requirement addresses both the condition of ecosystems and their ability to withstand and recover from disturbance.

The 2012 Planning Rule also requires the Forest Service to consider water quality, public water supplies, and recreation when developing plan components for multiple use, and to include protections for designated wild and scenic rivers and the values of eligible or suitable rivers. 36 C.F.R. § 219.10(a), (b)(1). Timber harvest provisions must ensure that logging occurs only where soil, slope, and other watershed conditions will not be irreversibly damaged, and that logging is consistent with protecting soil, watersheds, fish, wildlife, recreation, and aesthetic resources. 36 C.F.R. § 219.11(d)(2)–(3).

The Planning Rule is particularly clear about riparian protection. Riparian management zones are areas where "riparian-dependent resources receive primary emphasis." 36 C.F.R. § 219.19. Plans must include components to maintain or restore the ecological integrity of riparian areas and establish riparian management zone widths around lakes, perennial and intermittent streams, and open-water wetlands. 36 C.F.R. § 219.8(a)(3)(i)–(ii). Within these zones or site-specific delineated riparian areas, plan components "must ensure that no management practices causing detrimental changes in water temperature or chemical composition, blockages of water courses,

or deposits of sediment that seriously and adversely affect water conditions or fish habitat shall be permitted." Id. § 219.8(a)(3)(ii)(B). These are explicit requirements that the plans must carry forward into meaningful management direction.

Throughout this process, the Forest Service must "use the best available scientific information to inform the planning process." 36 C.F.R. § 219.3. The agency must identify the information it considers the best available science, explain the basis for that determination, and document how it applied that information to the issues under consideration. Simply citing scientific literature does not fulfill the obligation to explain how that science informed the plans.

Many of these required substantive protections and plan components are missing from the proposed plans. These are also far from the first national forests to undergo planning under the 2012 Rule. BMBP is particularly concerned about the inadequate protections for riparian areas and watersheds, species of conservation concern, mature and old-growth forests and trees, carbon storage, and biodiversity. The final plans must address these deficiencies through ecologically protective enforceable plan components, including standards or guidelines.

B. National Environmental Policy Act

The principal aims of NEPA are twofold: (1) require agencies to assess significance of the environmental impacts of every action; and (2) ensure that government agencies inform the public of the possible environmental impacts and the reason as to why the government chose to address those impacts. *LOWD/BMBP v. Connaughton ("Snow Basin")*, No. 3:12-cv-02271-HZ, 2014 WL 6977611, at *5 (D. Or. Dec. 9, 2014). "NEPA is a procedural statute that does not 'mandate particular results but simply provides the necessary process to insure that federal agencies take a hard look at the environmental consequences of their actions.'" *Id.* (quoting *High Sierra Hikers Ass'n v. Blackwell*, 390 F.3d 630, 639–40 (9th Cir. 2004). "An agency takes the requisite 'hard look' at environmental consequences when its EIS . . . includes a 'full and fair discussion of environmental impacts.'" *Id.* (quoting *Lands Council v. McNair*, 537 F.3d 981, 1001 (9th Cir. 2008) (en banc), *overruled in part on other grounds by Winter v. Natural Res. Def. Council, Inc.*, 555 U.S. 7 (2008)). "When the public reviews an EIS to assess the environmental harms a project will cause and weighs them against the benefits of that project, the public should not be required to parse the agency's statements to determine how an area will be impacted." *League of Wilderness Defenders v. Connaughton*, 762 F.3d 755, 761 (9th Cir. 2014). "Informed public participation in reviewing environmental impacts is essential to the proper functioning of NEPA. *See e.g.*, *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 768, 124 S. Ct. 2204, 159 L.Ed.2d 60 (2004) (describing one of the purposes of NEPA as ensuring "that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.") (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349, 109 S.Ct. 1835, 104 L.Ed.2d 351 (1989)); *San Luis Obispo Mothers for Peace v. Nuclear Regulatory Comm'n*, 449 F.3d 1016, 1034 (9th Cir. 2006) (noting that one of the purposes of NEPA is "ensuring that the public can both contribute to that body of information, and can access the information that is made public")." *Id.*

The required analysis and comparison of alternatives has been described as the heart of NEPA. NEPA requires that the Forest Service consider and analyze reasonable alternatives that would accomplish the proposal's purpose and need *while avoiding or reducing its adverse*

environmental effects. The DEIS must analyze "a reasonable range of alternatives" that are technically and economically feasible. 42 U.S.C. § 4332(2)(C)(iii). Where unresolved conflicts exist concerning alternative uses of available resources, the Forest Service must develop alternatives to the proposed action. *Id.* § 4332(2)(H). USDA's regulations correspondingly require the Forest Service to evaluate a reasonable range of alternatives and discuss each alternative considered in sufficient detail to permit comparison of their environmental effects and comparative merits. 7 C.F.R. §§ 1b.7(h)(3)(i) & (iv), (h)(5)(i). Therefore, where a feasible alternative would meet the purpose and need of the proposal while reducing logging, grazing, road-building, and other ecological stressors, the Forest Service must either meaningfully evaluate that alternative or explain why it was eliminated from detailed study. *Id.* § 1b.7(h)(3); *see also Roberston v. Methow Valley Citizens Council*, 490 U.S. 332, (1989) ("[T]he strong precatory language of [NEPA] and the requirement that agencies prepare detailed impact statements inevitably bring pressure to bear on agencies 'to respond to the needs of the environmental quality.'") (citing 115 Cong. Rec. 40425 (1969) (remarks of Sen. Muskie)). The Forest has not satisfied its burden under NEPA to consider and analyze such a feasible alternative or adequately explain why such an alternative has been removed from consideration.

C. Endangered Species Act

The Blue Mountains national forests are home to many ESA-listed species, including but not limited to: Bull Trout (Salvelinus confluentus), Chinook Salmon (Oncorhynchus tshawytscha), Gray Wolf (Canis lupus), Spalding's Catchfly (Silene spaldingii), Steelhead (Oncorhynchus mykiss), Whitebark Pine (Pinus albicaulis), and Wolverine (Gulo gulo). The Forest Service must ensure that its proposed plans comply with the ESA's requirements to conserve and recover threatened and endangered species and their habitat. *See* 16 U.S.C. § 1532(3).

Further, the Forest Service must initiate formal ESA consultation with the United States Fish & Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS)—together, "the Services"—and may not finalize any plan revision until both agencies have published—and the Forest Service has fully considered—their final BiOps. Failure to consult with the Services *or* failure to wait until they have shared their final BiOps will render the ensuing forest plans illegal.

Under the ESA, an agency proposing to take an action must inquire of the Services whether an ESA listed species may be present in the area of the proposed action. 16 U.S.C. § 1536(a)(2). If a protected species exists within the action area, then the agency must prepare a Biological Assessment (BA) to determine whether the species is likely to be affected by the action. *Id.* Should the agency determine that a listed species is likely to be affected by the proposed action, then the agency must initiate a "formal consultation" with FWS or NMFS (or both depending on the species likely to be affected). *Id.* In the form of a BiOp, the relevant service will then determine whether the action will jeopardize the species or destroy or adversely modify critical habitat. *Id.* § 1536(b). If the BiOp concludes that it will, then the agency may not lawfully proceed with the action unless it adheres to alternatives or measures designed to avoid the jeopardization, modification, or destruction. *Id.* § 1536(b)(3)(a). If it will not, the Service may still suggest measures designed to mitigate the action's impact and require the agency implement them. *Id.* § 1536(b)(4)(C)(ii)–(iv).

Courts have made clear that federal agencies may not proceed on an action that they have determined may affect ESA protected species or without first receiving a BiOp from the relevant Service. Most recently, the United States District Court for the Southern District of Illinois held that "the ESA requires agencies to complete their consultation obligations *before* taking final agency action[,]" noting that 50 C.F.R § 402.15(a) makes the "timeline explicit." *Friends of Bell Smith Springs v. United States Forest Service*, No. 3:25-CV-01377-NJR, 2026 WL 2568342, at *10 (S.D. Ill. 2026). There, the Court set aside the Forest Service's approval of a logging project after it finalized its approval of the project before receiving the relevant BiOp. *Id.* at 13. Other courts have held similarly. *See e.g.*, *Conner v. Buford*, 848 F.2d 1441, 1455 & n.34 (9th Cir. 1988) ("ESA's clear mandate that a comprehensive biological opinion . . . be completed before initiation of the agency action.").

D. Wilderness Act

The proposed plans must comply with the Wilderness Act and the 2012 Planning Rule's provisions requiring the recommendations for designation of new Wilderness Areas. 36 C.F.R. § 219.7(c)(2)(v) The current proposed plans recommend zero acres of recommended wilderness. The Forest Service does not justify this recommendation. Further, the proposed plans must ensure existing Wilderness is sufficiently protected by plan components to preserve its wilderness characteristics" to satisfy the requirements of the Wilderness Act. *Id.* § 219.1(f); 16 U.S.C. § 1133(b)

E. Wild and Scenic Rivers Act

The new forest plans must be consistent with the Wild and Scenic Rivers Act of 1968, 16 U.S.C. §§ 1271-1287. The Forest Service must consider the designation of new wild and scenic rivers as part of its management of Blue Mountains national forests and in forest plan revisions. 16 U.S.C. §§ 1275(a), 1276(d)(1) ("In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas, and all river basin and project plan reports submitted to the Congress shall consider and discuss any such potentials."); 36 C.F.R. § 219.7(c)(2)(vi). The statute requires each river corridor to be managed "in such manner as to protect and enhance the values which caused it to be included [in the national system]" without "limiting other uses that do not substantially interfere with public use and enjoyment of these values." 16 U.S.C. § 1281 (a). The Forest Service must demonstrate compliance with this statutory requirement.

F. Clean Water Act

The Clean Water Act ("CWA") was enacted to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. 33 U.S.C. § 1251(a). Federal agencies must ensure that approved actions do not cause pollution that violates state water quality standards. 33 U.S.C. § 1323(a)). States establish these water quality standards by identifying designated uses, setting criteria to protect those uses, and adopting antidegradation requirements. 33 U.S.C. §§ 1311(b)(1)(C), 1313; 40 C.F.R. §§ 131.2, 131.12.

States must identify and prioritize impaired waters on their Section 303(d) lists and develop total maximum daily loads ("TMDLs") for the pollutants causing impairment. 33 U.S.C. §

1313(d)(1)(A), (d). In the Forest Service's forest plan revision efforts, TMDLs should inform the plan components, standards, and guidelines needed to restore and improve water quality under NFMA.

The Forest Service must also ensure that forest road activities comply with applicable CWA requirements. The Section 404 exemption for discharges associated with forest road construction and maintenance depends on compliance with best management practices ("BMPs"), including erosion prevention and crossings that allow aquatic life to move freely. 33 C.F.R. § 323.4(a)(6), (iv), (vii). Failure to satisfy those conditions can render associated discharges ineligible for the exemption and require a permit. Separately, road-related sedimentation and erosion that violate applicable state water quality requirements implicate the Forest Service's obligations under 33 U.S.C. § 1323(a). The Forest Service must explain how the proposed plan's water quality standards and guidelines will ensure CWA compliance.

G. Clean Air Act

The Clean Air Act declares as a national goal the prevention of any future manmade impairment of visibility in Class I areas—defined to include national wilderness areas exceeding 5,000 acres. 42 U.S.C.S. §§ 7491(a), 7472(a). The proposed forest plans must be consistent with the requirements of the Clean Air Act and its plan components must ensure no impairment in visibility in Class I areas in the project area.

H. Laws Governing Oil and Gas, Mining, and Mineral Extraction

The Forest Service has developed regulations "through which use of the surface of National Forest System lands in connection with the operations authorized by the United States mining laws . . . shall be conducted so as to **minimize adverse environmental impacts** on National Forest System surface resources." 36 C.F.R. § 228.1. The proposed plans must include standards that ensure that any future mining activities, including exploration and restoration complies with these requirements.

I. Other Law and Legal Requirements

The Forest Service must ensure that the new forest plans comply with all applicable laws and regulations, including but not limited to the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, the National Historic Preservation Act, the Roadless Area Conservation Rule, the Multiple Use and Sustained Yield Act, and existing Tribal treaties and treaty-derived rights.

II. Large Trees, Old Growth, and Moist Mixed Conifer comments

A. Summary of Old Growth and Large Tree Comments

The Forest Service proposes to replace the Eastside Screens' enforceable prohibition on logging live trees 21 inches diameter at breast height ("DBH") and larger with a materially different management approach. Under Alternative 2, the proposed action, "old" and "large" trees may be felled or removed whenever the agency concludes that removing smaller trees alone is not effective in moving toward vague and largely unquantifiable desired conditions. The plan

supplies no quantitative definition of "large," no binding minimum retention level, no ceiling on removals, no site-level distribution requirement, and no enforceable exception process. A nonbinding management approach consisting exclusive of guidelines and other nonbinding plan components leaves it to future site-specific projects to demonstrate that enough old and large trees remain over time. Worse, the proposed nonbinding guideline acts more as an authorization of unchecked large tree logging than a conservation measure. DEIS at 142. The proposed action contains no bright-line protections for old growth and large trees as is currently provided by the Screens. This alarming given that, as recently as 2015, Forest Service regional guidance emphasized the importance of preserving the last remaining large trees in the region. *See* 2015 Regional Forester Guidance.

The DEIS goes into great detail—albeit, it still does not disclose the full impacts, see Section XI below—regarding the economic consequences of that change. It states that Alternative 2 allows "flexibility to remove large trees," assumes those trees will be available for logging, and explains that this assumption "greatly increases the projected amount of timber volume per acre." DEIS at 19. It forecasts approximately 6,000 to 7,000 board feet per acre under Alternative 2 and materially lower outputs under Alternative 3, include diameter-based retention guidelines but is still less protective than the existing forest plans. DEIS at 19–20. Yet, despite the depth included in the economic analysis regarding the removal of large tree and old growth protections, the ecological analysis is left severely lacking. The ecological analysis does not estimate how many large trees could be removed; how many acres of large-tree habitat could be altered; which species, size classes, or potential vegetation groups would be most targeted; how removals would affect existing and future large snags and hollow trees; how the distribution and connectivity of old-forest patches would change; or how those changes would affect the wildlife species the Forest Service's own evaluations identify as dependent on large live trees, snags, cavities, dense canopy, or unlogged old forest.

This is not a minor omission. The availability of large trees for logging is a main source of Alternative 2's timber projections and associated economic analysis. The Forest Service cannot model the saleable volume created by eliminating the 21-inch rule while treating the ecological cost as unknowable until future projects. Nor can it substitute broad, landscape-scale structural-stage percentages for analysis of the individual trees and fine-scale structures that supply nest cavities, platforms, roosts, den sites, future snags, thermal cover, and connectivity. The DEIS therefore does not disclose the reasonably foreseeable effects of the proposed action or the differences among alternatives in a form that permits informed decisionmaking or meaningful public participation, as required by NEPA. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348–49 (interpreting 42 U.S.C. § 4332)

The same defect prevents the responsible official from making the findings required by the 2012 Planning Rule, 36 C.F.R. part 219, subpart A. The Planning Rule requires plan components to maintain or restore ecological integrity, including ecosystem structure, composition, function, and connectivity. 36 C.F.R. § 219.8(a)(1). It also requires the responsible official to determine, for each species of conservation concern ("SCC"), whether ecosystem-level plan components provide the ecological conditions necessary to maintain a viable population in the plan area and, if not, to include additional species-specific standards or guidelines. 36 C.F.R. § 219.9. The record contains no species-by-species viability determination that evaluates the actual impacts that would result from the logging of old and/or large trees, and no quantitative analysis that could support such a determination.

Therefore, BMBP hereby requests that the Forest Service prepare a revised or supplemental DEIS that (1) accurately defines the proposed action; (2) quantifies the ecological effects of removing existing old- and large-tree and snag habitat protections; (3) evaluates a reasonable alternative retaining the Eastside Screens' wildlife habitat protections; and (4) adopts enforceable plan standards sufficient to maintain old-forest and large-tree ecological conditions through time.

Additionally, if the agency asserts that the included guidelines provide the needed protections because the "intent" of guidelines must be met, we request that the agency include this in writing as a forestwide standard for all alternatives, and that each guideline (such as FW-FOR-OLD-GDL-02) includes an intent statement that can be enforced.

B. The DEIS Does Not Analyze and Disclose the Ecological Impacts of Authorizing Large Tree Logging

The DEIS's socioeconomic analysis is expressly clear about the authorization of large-tree logging being the mechanism driving Alternative 2's timber outputs. The existing Eastside Screens protect live trees 21 inches DBH and larger. Alternative 2 replaces that prohibition on large tree logging with language allowing old and large trees to be logged at will. The analysis states that Alternative 2 "allows flexibility to remove large trees," that the modeling "assumed availability of large trees for harvest," and that this assumption "greatly increases the projected amount of timber volume per acre." DEIS at 17-20. Alternative 2 accordingly produces the highest projected timber volumes, while Alternative 3's diameter-based large tree retention language reduces projected outputs.

This increased timber output and associated economic contribution is not simply a coincidental consequence of an otherwise valid forest plan. Rather, it is analyzed as a "substantive issue" in the DEIS and is generally put forth as a primary benefit of the proposed action, straining the Forest Service's adherence to its multiple use mandate. *See generally* DEIS at 6. The same cannot be said of the environmental benefits of maintaining existing large trees on the landscape. The DEIS does not analyze the long-term ecological impacts of authorizing large tree logging, even though it follows the quantifies the economic "benefits" of such an authorization. Authorizing the removal of large trees removal should lead to an analysis of the proposed quantity and distribution of removals; an analysis of how those removals alter large tree distribution, future snag recruitment, cavities, canopy, forest microclimate, patch configuration, carbon storage and sequestration, and connectivity; and an analysis of how those changes affect species occupancy, reproduction, survival, and population resilience. These analyses are absent from the DEIS.

C. The DEIS Does Not Quantify the Potential Effects of Authorizing the Logging of Large Trees

The Forest Service's indicators and measures proposed to analyze the effects of its proposed authorization of large tree logging and other activities that will alter forested vegetation structure and composition do not get at the actual impacts of the proposed action. DEIS at 6–7. The DEIS provides no alternative-by-alternative estimate of:

- the current number, basal area, or acres of trees in ecologically relevant diameter and species classes, including grand fir between 21- and 30-inches DBH;

- the amount and distribution of old trees, legacy trees, hollow trees, decadence features, large live recruitment trees, and large snags;
- the number, basal area, or acres of those structures reasonably expected to be felled or removed under each alternative by forest and decade;
- removals attributable to vegetation treatments, fuel breaks, community-protection areas, hazard-tree programs, salvage, roads, landings, skid trails, and other exceptions;
- the time required to replace lost structures, including the delay between loss of a live old tree and development of an equivalent large hollow tree or snag;
- changes in patch size, edge, interior conditions, canopy closure, and connectivity for species that avoid logged stands or require large tracts of late-seral forest; or
- the effects of those changes on occupancy, nesting or denning opportunities, reproduction, survival, and viability of old-forest and large-tree-associated wildlife.

Without these metrics, the public cannot tell whether Alternative 2's "flexibility" in logging large trees is limited to carefully considered restoration actions or if it will wipe out the last remaining 3% of large trees left on the landscape. Mildrexler et al. (2020). Nor can the reader compare the impacts of Alternative 2 with the No Action Alternative's 21-inch protections or Alternative 3's diameter-based retention provisions. The DEIS's own economic analysis proves that the alternatives differ in economic output, but the provided analyses do not allow for the same comparison in ecological terms.

D. Broad Structural-Stage Percentages are not a Substitute for Large Tree and Habitat-Feature Analysis

The DEIS repeatedly relies on movement toward vague and unquantifiable desired condition ranges for old-forest structural stages. But the proposed plan calls for the application of these desired ranges at a management scale of 35,000 acres or more, with a possible minimum of 15,000 acres if justified at the project level. DEIS at 140-42. At that scale, substantial losses from large tree and old growth logging in a biologically important stand can be averaged against conditions many miles away, statistically obfuscating the actual ecological impacts of such an action. A numerical percentage also says nothing about whether the retained acres provide for the same ecologically benefits of the unmanaged old growth stand—it does not allow for the ascertainment of whether that stand still contains large hollow grand fir, large pine snags, nest platforms, decadent recruitment trees, dense canopy, or connected interior habitat.

This problem is compounded by the plan's vague definition of "large." Rather than a measurable diameter, the introduction to the Old Conifer Forest and Individual Old- Large Trees describes large trees as conifers that typically occupy larger diameter classes and the uppermost stratum, with size varying by species and site productivity. DEIS at 140-41. Decisionmakers cannot determine compliance with a retention provision if the resource has no objective threshold. Likewise, the public has no way to independently verify the DEIS's assumption about which trees are "available" or evaluate whether any given project that proposes removal of old or large trees is consistent with the modeled effects.

Old-forest stage classifications may also remain unchanged after ecologically consequential removals. A stand could still meet a stage definition after the largest cavity-bearing tree or snag is removed. A 35,000-acre landscape could remain within a compliant stand percentage range while nesting structure and other habitat features disappear. The 2012 Planning Rule defines "structure" using characteristics such as tree sizes, snags, down wood, vertical and horizontal arrangement, and landscape pattern, yet these characteristics do not appear in the DEIS's structural stage desired conditions. 36 C.F.R. § 219.19. The DEIS must therefore analyze these key characteristics directly, not assume that a coarse label is a suitable proxy for the ecological role these structural stages and old forest stands play.

E. The DEIS's Qualitative Conclusions are Unsupported and Internally Inconsistent

The DEIS concedes that mechanical vegetation treatments can cause habitat loss or degradation and can disturb, displace, harm, or injure native species, with disproportionate effects on at-risk species that have low numbers, limited distributions, or depend on rare conditions. DEIS at 33-34. It then concludes that effects to Species of Conservation Concern will generally be "minor to moderate," that key ecological features will be retained, and that all alternatives will favor trees substantially larger and older than most trees on the landscape. *Id*. However, those conclusions are not tied to a quantifiable plan components or scientifically-based monitoring plans. Instead, the Forest Service asks for blind trust while authorizing nearly unchecked large tree logging.

The assertion that "all alternatives" would favor the retention of large trees is especially unexplained and unsupported by the differences in proposed plan components. Alternative 2 expressly authorizes large tree logging, and the economic model relies on that authorization. Alternative 3 adds diameter-based retention language precisely because Alternative 2 lacks it. DEIS at 35, 213-14. An effects conclusion that fails to analyze the alternatives' central difference is compliant with the requirements of NEPA.

F. The Forest Service Cannot Defer the Consequences of its Policy Choice to Future Site-Specific Projects

The DEIS repeatedly responds to its acknowledged short-term adverse wildlife effects from its large tree logging authorization by promising project design, site-specific information, timing restrictions, or later mitigation under FW-SPRSK-GDL-01. DEIS at 33. Project-level review will be necessary, but it does not alleviate the Forest Service's burdens under NEPA and the 2012 Planning Rule to analyze the effects of its substantive and significant programmatic proposed action to authorize large tree logging and the degradation of large tree and old growth structure across three national forests and nearly 5 million acres. If the proposed plans remove the existing large tree logging prohibition, future project analyses will necessarily begin from a different legal and ecological baseline. The DEIS must analyze the reasonably foreseeable effects of effects of such a proposal.

The proposed old-forest guideline is not a reliable nor ecologically appropriate substitute for the Eastside Screens. FW-FOR-OLD-GDL-01 affirmatively authorizes old and large trees to be felled or removed when removing smaller trees alone is considered ineffective in balancing the proposed plans' vague desired conditions for composition, health, density, and landscape pattern. DEIS at 142. It establishes no maximum number or percentage, no diameter definition, no prohibition on commercial use, no requirement to protect rare habitat features, no mandatory

spatial distribution, and no evidence that an exception from strict retention is necessary or ecologically appropriate rather than merely convenient. Its purpose is simply permissive. Departing from strict retention of all large and old trees on the landscape does not require waiting for a future site-specific project to analyze for the likely adverse impacts to the ecological health of the landscape and to rare wildlife habitat.

The related desired conditions likewise provide no enforceable floor that may limit the adverse impacts of authorizing such an ecologically destructive management practice. DEIS at 141. Desired conditions are important, but under § 219.7(e) they describe a future state; standards and guidelines constrain present projects. A forward-looking goal or desired condition cannot ensure that these slow-forming large tree and old forest structures are not removed in successive individual future site-specific projects faster than they can be replaced.

Nor does the management approach cure the problem. A management approach is not a standard or guideline, and is not independently enforceable under the 2012 Planning Rule. The management approach merely requires future site-specific projects to "demonstrate" movement toward desired conditions and enough large tree and old growth structure abundance through time, without providing the metrics, thresholds, spatial scales, or species requirements necessary to make that demonstration quantifiable.

The existence of Alternative 3 confirms that more protective, quantifiable plan components are feasible and meet the proposed action's purpose and need. It's added guideline to retain old trees, grand fir over 30 inches DBH, other tree species over 21 inches DBH, and legacy trees, subject to exceptions—while not nearly protective enough to restore and protect the long-term ecological health and biodiversity of the Blue Mountains national forests**—disproves any suggestion that diameter-based direction is incompatible with the purpose and need**. DEIS at 213-14. The DEIS must squarely compare the ecological effects of enforceable retention, partial guideline retention, and Alternative 2's discretionary removal regime.

G. The SCC and Wildlife Analysis Does Not Confront the Habitat Effects of Removing Large Tree Protections

The comments below rely primarily on the Forest Service's own Wildlife SCC Evaluations. Those evaluations identify the structures and landscape conditions that the DEIS fails to measure. Some focal species were designated as SCC on one or more forests while others were evaluated but not selected. And while that distinction matters for the specific duties under 36 C.F.R. § 219.9(b), it does not alleviate the Forest Service's duty under NEPA to analyze effects on a species whose habitat is directly affected, nor the broader duties under 36 C.F.R. §§ 219.8 and 219.9(a) to maintain ecological integrity and native species diversity.

1. Great Gray Owl

The Forest Service designated the great gray owl as an SCC on all three national forests. Its evaluation states that suitable nesting structures are often lacking in managed landscapes where large trees and snags have been removed, that nesting-habitat loss is the species' most immediate threat, and that past logging of large trees and snags has made habitat unavailable. It also identifies the Blue Mountains population as genetically isolated. SCC Evaluations at 3381-82.

These great gray owl findings demand more analysis than the DEIS's generic statement that all alternatives retain large trees. DEIS at 35. The DEIS must identify the existing and projected distribution of nest-capable large trees and snags; estimate large tree removals and associated impacts to great gray owl habitat under each alternative; evaluate the lag between large tree removal and replacement structure development; and assess whether removals could threaten occupancy or reproduction in an already genetically isolated population. It must also evaluate interactions with salvage, hazard-tree removal, fuels treatments, and the snag guideline's "operationally possible" qualifier. A viability finding cannot rest on a landscape percentage that does not measure nest structures.

2. American Goshawk

The American goshawk evaluation recognizes dependence on large tracts of late-seral forest and vulnerability to timber management, fire-suppression legacies, and climate change. It reports nesting associations with older forest, larger trees, and high canopy closure, including research identifying more than 12 trees per hectare over 50 centimeters DBH and canopy closure above 60 percent in nesting habitat. The record also reflects limited recent detections in parts of the planning area. SCC Evaluations at 317-19.

The agency declined to select the goshawk as an SCC, citing insufficient evidence of substantial concern. That conclusion does not license the DEIS to assume no effect. The proposed action's authorization for old growth and large tree logging affects the very conditions the evaluation identifies as important for goshawk persistence—large trees, canopy, and late-seral tract integrity. At minimum, NEPA requires the agency to disclose how many known or modeled territories overlap areas where large-tree removal is reasonably foreseeable; how alternative treatments change canopy closure, nest-tree availability, and patch size; and whether repeated treatments can convert interior habitat into openings or edge. If uncertainty prevents a population-level conclusion, the EIS should identify that uncertainty, explain the available evidence, and avoid converting lack of monitoring into a finding of no meaningful effect.

3. Vaux's Swift

The Vaux's swift evaluation states that the species largely depends on old-growth forests for roosting and nesting, is vulnerable to their loss, and uses large hollow live or dead trees—frequently grand fir—for nest and roost sites. It identifies trees greater than approximately 53 centimeters (about 21 inches) as vital and notes regular foraging over mature forest. SCC Evaluations at 650-51. These findings indicate a likely effect on Vaux's swift from the authorization of old growth and large tree logging in the proposed action.

The agency did not select the swift as an SCC because it considered occurrence relatively common and stated that habitat trends and threats were not sufficiently identified. **But the absence of a habitat-trend analysis is precisely the gap the plan revision must fill before removing a longstanding habitat protection**. The DEIS should inventory or model hollow-tree availability by species and diameter, disclose the expected removal of grand fir in the 21- to 30-inch class under Alternative 2, address both live and dead roost structures, and evaluate whether retaining broad old-forest percentages maintains a usable network of roosts. The present statement that all alternatives retain key features is not responsive to the evaluation's habitat information.

4. Lewis' Woodpecker

The Lewis's woodpecker is designated as an SCC on all three forests. The evaluation describes a range-wide decline and dependence on large snags in open ponderosa pine, burned forest, and cottonwood settings. It explains that thinning or fire can benefit the species only when large snags are retained, that large-diameter tree retention and avoidance of post-fire salvage are important, and that logging mature forest removes the trees that would become future large snags. SCC Evaluations at 1803-05.

The proposed plan's snag direction is not equivalent to the Screens. It generally calls for retaining snags 20 inches DBH and larger where available, but allows exceptions for hazards, fuels desired conditions, salvage, and operational constraints; green recruitment direction prefers large decadent trees but is subordinate to the large-tree removal guideline. DEIS at 142-43. The DEIS does not quantify current large-snag abundance, projected snag removal, recruitment deficits, or the temporal gap between felling a mature tree and creation of a suitable large snag. Nor does it compare post-fire salvage exposure or evaluate whether fuel-break and community-protection exceptions concentrate losses in low-elevation ponderosa pine habitat. Those omissions preclude a supported viability finding for this SCC.

5. Pacific Marten

The Forest Service designated the Pacific marten as an SCC on the Malheur National Forest and found information insufficient to support designation on the Umatilla and Wallowa-Whitman. Its evaluation identifies habitat loss from vegetation management, roads, climate change, large fires, and salvage as primary threats; describes avoidance of openings and sensitivity to fragmentation; and characterizes source habitat as limited and scattered in portions of the plan area. SCC Evaluations at 1736-37. The DEIS itself states that marten prefer old-structured or unlogged subalpine and spruce forest with at least 50 percent canopy cover and abundant snags and logs, and that they avoid logged stands. DEIS at 36.

The DEIS nevertheless treats large-scale wildfire as the primary threat to marten viability on the landscape and relies on unidentified plan components to provide for "key ecological features" for marten habitat. DEIS at 36-37. That misses the more consequential and direct pathway to extirpation: repeated removal of old growth and large trees and mechanical treatment can reduce canopy, increase openings, isolate source patches, and compound road effects. **The analysis must quantify source and dispersal habitat under each alternative, evaluate canopy and opening thresholds at marten-relevant scales, map connectivity among occupied or capable patches, and assess treatment plus salvage effects after fire**. For the Malheur population, the responsible official must then determine whether ecosystem-level components actually provide the conditions necessary for viability and add species-specific standards or guidelines if they do not. 36 C.F.R. § 219.9(b)(1).

H. The DEIS Does Not Analyze a Feasible Old Growth and Large-Tree Conservation Alternative

The DEIS presents three alternatives, but none provides a clear comparison between Alternative 2's output-focused goals and a modernized, enforceable large-tree conservation standard designed around current science and species needs. No Action retains the existing Screens, but does not update and modernize other plan components. Alternative 3 adds partial retention

guidelines—30 inches for grand fir and 21 inches for other species—but includes exceptions and does not make the central retention provision a standard. Alternative 2 removes enforceable old growth and large tree retention components altogether. DEIS at 2, 17–20, 213–14.

BMBP's scoping comments specifically asked the Forest Service to retain the Screens, to use enforceable standards rather than broad desired conditions, and to analyze the effects of thinning medium and large trees on wildlife and future large-snag recruitment. BMBP Scoping Comments at 5–13. They also documented the historic loss of large-tree acreage and the importance of grand fir within the remaining 21-inch-and-larger class. *Id*. The DEIS did not develop a conservation alternative responsive to those comments and did not explain why a standard retaining live trees and snags at or above 21 inches could not meet the purpose and need.

A reasonable alternative should test at least the following elements: a numeric definition of large trees; mandatory retention of old, legacy, cavity-bearing, and large live trees and snags; limits on commercial disposition where an exception is used; protections for snag recruitment; species-specific canopy, patch, and connectivity provisions; post-fire salvage constraints; and measurable monitoring triggers. Such an alternative would allow the decisionmaker and public to understand whether the marginal timber volume associated with large-tree availability is worth the corresponding habitat and long-term productivity costs.

I. Loss of the Eastside Screens

It is hard to overstate the importance of large trees, mature trees, and mature and old growth ("MOG") forests in eastern Oregon and southeastern Washington. These cornerstones of healthy and functioning forests provide irreplaceable wildlife habitat, act as highly effective natural carbon sinks to mitigate the worst effects of climate change, help ensure the availability of clean and cold water for aquatic wildlife and human communities, and maintain natural ecological processes. The region's large trees, old trees, and MOG forests require strong and enforceable protections that are absent in the Forest Service's current DEIS.

The Forest Service knew as much in the mid-1990s, when concerns about the loss of large trees, wildlife viability, and overall ecosystem health spurred the adoption of the *Continuation of Interim Management Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales* (the "Eastside Screens")—a regional amendment to existing forest plans for the Umatilla, Wallowa-Whitman, Malheur, and six other National Forests in eastern Oregon and Washington. A key component of the Eastside Screens is a wildlife conservation standard that broadly prohibits the logging of live trees and snags greater than or equal to 21 inches diameter at breast height ("DBH"), commonly referred to as the "21-inch Rule". This brightline, easy-to-apply standard was adopted in part to preempt the listing of large tree- and old-growth-associated species under the Endangered Species Act, thus preserving a level of management flexibility the Forest Service perceived as losing following the listing of the northern spotted owl as federally threatened in 1990.

BMBP and its allied conservation organizations have a vested interest in preserving the large tree protections of the Eastside Screens. In joint and individual litigation, member organizations of the Eastside Forest Coalition successfully filed suit against the Forest Service following the illegal adoption of the *2021 Forest Plans Amendment: Forest Management Direction for Large Diameter Trees in Eastern Oregon and Southeastern Washington* (the "2021 Eastside Screens

Amendment"). This illegal regional amendment rescinded the 21-inch Rule standard, replacing it with a non-mandatory and borderline unenforceable guideline that generally called for the retainment and recruitment of old and large trees. The 2021 Eastside Screens Amendment also Further, it changed the definition of what is considered a "large tree" for grand fir, white fir, and Douglas-fir, increasing the DBH limit on logging to greater than or equal to 30 inches DBH. In the Forest Service's proposed Draft Plan, the large tree protections of the Eastside Screens are again in the crosshairs.

In the decades since the adoption of the original Eastside Screens, our understanding of the myriad ecological benefits of these individual large trees—along with the need to protect them—has only increased:

- Wildlife habitat: The Eastside Screens' 21-inch Rule was originally adopted as a wildlife conservation standard due to the large amount of native large tree-, large snag- and old-growth-associated wildlife in the region. (Bull et al. 2005; (Interior Columbia Basin Ecosystem Management Project, 2000). Iconic eastside species such as American marten, Northern goshawk, and others rely upon these large trees and snags, as well as MOG forest, for core habitat. (Thomas 1979; Wisdom 2000)
- Climate change mitigation: Despite comprising only 3% of all stems, large trees store approximately 42% of aboveground carbon in these forests—providing an invaluable service as natural carbon sinks. (Mildrexler et al. 2020).
- Wildfire resistance: Large trees of all species are the most fire-resistant on the landscape. Trees native to the region evolved with wildfire as part of a natural disturbance regime. As these trees grow, their thick bark and height provide the trees with a natural resistance to wildfire. (Moris et al. 2022).

The geographic extent and number of large trees (≥21 inches) across six national forests in eastern Oregon and Washington shrank dramatically over the last century (Bolsinger and Gerger 1975; Cowlin et al. 1942; Henjum 1994; Merschel et al 2014). A Forest Service Bulletin from 1975 found that between the mid-1950s and 1975, there was a 44% reduction in the acreage of trees ≥21 inches DBH (Bolsinger and Gerger 1975). Today, large grand fir represent only 2% of the total grand fir population but 19% of all trees ≥21 inches dbh among five dominant species, providing much needed large tree structure in forests east of the Cascade Crest in Oregon and Washington (Mildrexler et al. 2020; Mildrexler et al. 2023).

Large trees, old trees, and MOG forests are directly at issue in the Draft Plan section titled "Old Conifer Forest and Individual Old – Large Trees (FW-FOR-OLD)." In the introduction to this section, the Forest Service states that these ecological features "are necessary for a landscape that is healthy and resilient to natural disturbances such as wildfire," and that "old trees, especially large old trees, found both within old forest stands and as scattered individuals are acknowledged to have great importance as ecological keystones, developing physiological and structural features. This makes them valuable in terms of wildlife habitat, fire and drought resistance, and genetic resources." DEIS at 141. Despite these acknowledgments, the Forest Service has not provided any meaningful and enforceable protections for these trees or the wildlife that rely on them in its proposed DEIS

The plan components addressing the desire to recruit and maintain trees that are extremely limited and hard to apply on the ground, especially when it comes to species such as Grand fir and white fir. The Forest Service has regularly stated that "old" trees will be protected from logging, and that Grand fir which are over 21" dbh are "young" (even if they are between 80-149 years old). This has repeatedly been the agency's justification for logging Grand fir under 31" dbh. However, according to the agency's own coring data, many Grand fir trees are over 150 years old at 21" dbh and over. In addition, the agency does not have a reliable method to age Grand fir.

The USFS's repeated reliance on the Van Pelt guidelines for determining the age of Grand fir in numerous timber sales and planning documents across the region is inappropriate, and has created widespread cumulative impacts that the USFS has not examined. The Van Pelt guidelines are wholly inadequate for Grand fir, and do not contain guidance that can be used in the field to reliably identify Grand fir older than 150 years. They are also beside the point. It is large trees that are necessary for wildlife habitat, and those are in extreme deficit across the region due to logging—regardless of age.

The Van Pelt guidelines themselves state that they are not reliable for aging Grand fir. The Forest Service has admitted this in the past. For example, the Ursus Vegetation Management Project EA on the Deschutes NF discusses the inadequacies of the Van Pelt guidelines for determining age (pg. 77):

> A size or a diameter limit was chosen as the best metric to measure effect on trees that are old or large on the landscape. Other considerations were made, such as using Van Pelt's guide to identify old grand (white) fir, but due to the characteristics of white/grand fir it was determined to not be an accurate metric. Bark on white/grand fir never develops the thickness of its fire-tolerant associates. The transformation that many trees experience from young gray bark to increasingly more colorful mature bark does not occur with white/grand fir. Even in giant old trees, bark characteristics reveal little about age. Like Douglas fir and western larch, white/grand fir is an opportunist, and has epimoric branch formation. As the stand matures and conditions change around a tree, light penetration may allow new branches to grow where they had been previously lost. Crown condition, tree form, and bark fissures are not an accurate way to tell age. Other than size, there is little else on white/grand fir that indicates age.

The USFS, having sometimes admitted that the use of the Van Pelt guidelines for identifying the age of Grand fir is unreliable and inadequate, has moved towards attempting to use new methods as defined by Johnston et al. 2018. The USFS has not provided adequate information for public review on this issue. However, the Johnston et al. 2018 paper identifies parameters such as soil water availability and height of surrounding foliage from the ground as predictors of old growth Grand fir. It is entirely unclear how, when, or which methods will be used by the Forest Service or timber contractors in the field.

The likely adverse impacts to ecosystem health brought about by the lack of enforceable protections are only compounded by failures of the Forest Service to develop forest plan components that abide by the requirements of the 2012 Planning Rule (36 C.F.R. part 219,

subpart A). Under the 2012 Planning Rule, desired conditions are required to be "specific enough to allow progress toward their achievement to be determined…," while standards and guidelines act as constraints on Forest Service actions in order to achieve desired conditions or avoid undesirable effects. 36 C.F.R. § 219.7(d)(1). Throughout the Forest Service's Draft Plan, desired conditions not only describe ecological, social, and economic characteristics that are insufficient to maintain sustainable levels of individual large trees and old trees and MOG forests, but are also too vague to ever measure progress toward their achievement. Further, the Forest Service's heavy reliance on guidelines to achieve desired conditions—rather than mandatory standards—curtails the accountability of the Forest Service to actually meet those desired conditions.

Like many components of the DEIS, as written FW-FOR-OLD-DC-01 does not comply with the 2012 Planning Rule because there are no specific ecological, social, or economic characteristics against which progress could be measured. And while FW-FOR-OLD-DC-02 and -03 provide more in terms of specific conditions, the DEIS provides no objectives or standards that may help guide the Forest Service towards achieving those conditions. As past and recent management actions have shown—and as the current Draft Plan reflects—the Forest Service cannot be trusted to prioritize the protection of large and old trees and MOG forests of its own accord. In fact, most of the guidelines—components intended to be **constraints** on management actions—within the FW-FOR-OLD section of the Draft Plan exist only to detail situations where the logging of large trees is permitted. Moreover, because these are voluntary guidelines, the Forest Service may actually log old trees and large trees in any situation whatsoever so long as there is some indication that they are still moving the landscape towards their ill-defined desired conditions. **If the agency asserts that guidelines provide the needed protections because the "intent" of guidelines must be met, we request that the agency include this in writing as a forestwide standard for all alternatives, and that each guideline (such as FW-FOR-OLD-GDL-02) includes an intent statement that can be enforced.**

In other sections of the Draft Plan where one would expect to see Forest Plan components that address the same concerns as the original Eastside Screens—namely Species Diversity (SPDIV)" and "Snags and Down Wood (SNAG)"—there are significant shortcomings that simply do not provide adequate levels of protection for these at-risk ecosystem features. The DEIS includes a guideline that calls for the retention of existing down wood at levels detailed in Table 41 (page 143), but there is no indication as to how the Forest Service determined these down wood levels, meaning there is nothing that connects the listed down wood amounts to levels required by native wildlife. **To ensure adequate wildlife habitat, the Forest Service must include a mandatory standard that ensures the recruitment and maintenance of large snags and green replacement trees at 100% potential population levels of primary cavity excavators.**

In the Species Diversity section, the Forest Service acknowledges that the 2012 Planning Rule "adopts a complementary ecosystem and species approach to provide for … long-term persistence of native species in the plan area." DEIS at 147. Despite this acknowledgment, the only plan component addressing large and old trees across the landscape is reduced to a non-binding guideline (FW-SPDIV-GDL-01), rather than a mandatory standard. Similarly, in the Snags and Down Wood section, the Draft Plan downgrades the Eastside Screens' mandatory protections for large snags to discretionary guidelines. This shift toward voluntary, unenforceable measures reflects a "trust us" approach to managing critical ecological structures, undermining the scientific and policy foundation for their protection.

In this DEIS, the Forest Service has essentially given itself *carte blanche* to log large trees, old trees, and MOG forests as it sees fit. This is why the Forest Service must include the existing mandatory prohibitions on logging large live trees **of all species** (including Grand fir) and snags greater than equal to 21 inches DBH in the revised Blue Mountains Forest Plans. Without strong and enforceable standards that keep the Forest Service accountable, the already rare large trees, old trees, large snags, and MOG forests that currently exist across the Blue Mountains—as well as the native wildlife that depend on these ecosystem features—will be at risk. Therefore, the BMBP requests that all large tree and snag protections from the original Eastside Screens be adopted into the revised Blue Mountains Forest Plans.

J. Moist Mixed Conifer and Grand Fir Forest Types

The Forest Service's Preliminary Draft Proposed Malheur, Umatilla, and Wallowa-Whitman National Forest Land Management Plans ("Draft Plan") does not include forest plan components that can reasonably be expected to provide protections for or adequate representation of moist mixed conifer and Grand fir forest types across the Blue Mountains National Forest. These forest types, apart from the vital role they play in maintaining, provide invaluable wildlife habitat that is rare compared to historical levels across the landscape. Large blocks of interconnected forested habitat—including denser and multi-story canopy habitat—is vital to provide for long-term species viability. And yet, one of the few plan components aimed at preserving and managing this forest type, Desired Condition FW-LPC-DC-02 (DEIS at 130), is vaguely worded, provides no quantitative explanation of what constitutes a moist forest, and is inadequate to ensure the abundance of moist mixed-conifer forest necessary to meet species viability requirements under the 2012 Planning Rule. Desired Conditions are intended to be specific enough to allow for their achievement, 36 C.F.R. § 219.7(e)(1)(i), but this one is so vague that it's plausible to say that a few patches of moist forest existing anywhere across the three National Forests at issue would satisfy this condition.

This forest type is also discussed in plan areas such as Table 36 "Desired conditions for forest stand density, described as a percentage of each upland forest potential vegetation group" or Table 38 "Desired conditions for conifer species composition". DEIS at 136 and 138. We have concerns with the prescriptive targets associated with plan components like this, especially when the reference material for those targets is not disclosed. It appears that some density and composition targets reference best available science, such as Powell 2013, but some do not. This adds to our concern that moist mix-conifer forests have not been properly considered in the DEIS.

Moreover, despite the acknowledgment that landscape patterns and connectivity directly influence the movement and distribution of wildlife in the region, there is no plan component that directly acknowledges and manages for the importance of moist forests for wildlife populations. The Draft Plan should include Desired Conditions—as well as Objectives and Standards designed to meet the Desired Conditions—that tie the health and abundance of these forest types to wildlife species viability. Or, at the very least, to some metric against which progress can actually be measured.

Grand fir trees of all sizes play an important ecological role in mixed-conifer forests in the region, including by providing dense forest habitats many species depend upon (Thomas 1979;

Bull et al. 1997). Grand fir trees are important to the biodiversity of many eastside forests, providing habitat for species such as American marten, Canada lynx, Rocky Mountain elk, flying squirrel, Vaux Swift, American Goshawk, Pacific tree frog and many others (Thomas 1979; Wisdom 2000). In many eastside forests, grand fir and western larch comprise the majority of the hollow trees used by wildlife (Bull et al. 1997). The relatively soft wood of grand fir trees creates ideal wildlife habitat by providing natural hollows, cavities, and unusual growth forms that wildlife use for shelter, nesting, and foraging (Henjum 1994; Wisdom et al. 2000). "No artificial means to create or encourage the formation of a hollow tree structure has been found, so retaining such trees … is essential to providing habitat for the species that depend on them" (Bull et al. 1997).

Young and mature fir are also needed for future recruitment of old and large fir. Bull et al. 1997 highlights the importance of large fir with cavities, as well as the importance and rarity of the multilayer stands that produce this habitat, notes: *"**In northeastern Oregon, grand fir and western larch make up most of the hollow trees used by wildlife.** Bull et al. 1997 goes on to note that "[l]arge, hollow trees are uncommon in managed landscapes and typically are found only in late- and old-seral stands of grand fir and western redcedar. Although isolated hollow trees in young stands have significant value to wildlife, these young stands cannot reproduce this type of structure for at least 150 to 200 years. **The late-seral, multilayer stands that produce hollow trees comprise less than 3 percent of the forested landscape in the interior Columbia River basin**."*

The Forest Service Region 6's Response to Blue Mountains Biodiversity Project's Freedom of Information Act request (2016-FS-R6-001106-F) included the "Eastside Screens Enclosure; Recent Science Findings and Practical Experience: Implications for the Eastside Screens September 2015". This Enclosure also recognizes the importance and rarity of large hollow firs. The Enclosure noted (emphases added): *"Implementation of the Screens has substantial species management implications. For example, the white-headed woodpecker, Lewis's woodpecker and several species of bats are Regional Forester's Sensitive Species that rely on large snags and defective trees for part of their life history. **Large, defective grand fir trees and snags provide critical roosting and denning habitat for black bears, Vaux's swifts, pileated woodpeckers, American marten, and bats** (Bull et al., 1997). **These legacy trees, especially large, hollow grand fir, are rare on the landscape and have declined from historical conditions on the eastside of Oregon and Washington".** The enclosure also states: "These findings reinforce the importance of retaining and recruiting large, old trees in dry, mesic and moist mixed conifer forests on the eastside of the Region. It is critical that silvicultural prescriptions provide for **large** snags and defective trees in adequate numbers through time…. **[L]arge, hollow grand firs take 150 to 200 years to develop (Bull et al. 1997); adequate numbers of smaller trees need to be left to allow for the processes that create replacement hollow trees."***

Given the urgent need to address the biodiversity and climate crises, which includes species and habitats in the Blue Mountains, the Forest Service must prioritize protecting wildlife, clean water, high-quality habitat, and ecosystem integrity in the Blue Mountains Forest Plan Revisions. This requires adopting Forest Plan components that provide enforceable protections for and wide availability of structural components and forest types including moist mixed-conifer forests, fir dominant or codominant forests, and mature and late old structure forests.

This cannot be achieved while the Forest Service is still targeting large Grand fir in an effort to log larger trees across the landscape. The DEIS specifically singles out Grand fir in its definition of large trees, DEIS at 20 & 213, increasing what is considered a "large" grand fir to 30 inches DBH, which inevitably allows for the increased logging of large Grand fir. The Forest Service's reliance on guidelines in the DEIS does not offer effective or enforceable protections for large trees of any species. Due to the lack of protections, the spatial footprint of logging on the ground would also increase, increasing fragmentation and cumulative effects across the Blue Mountains National Forests. In areas where logging was previously not economically viable, logging would become more profitable due to the authorization to log larger trees. The increased profits associated with logging large trees will allow for auctioning of sale units which previously did not contain adequate board feet to be profitable. Also, the increased profits associated with logging large trees will allow for additional road building and reopening in order to access forests that were previously inaccessible for logging.

Logging of trees 21" to 30" DBH will inevitably kill and remove many old trees, as well as large tree structure, and remove the size class of trees that would otherwise be the next generation of the largest and oldest legacy trees. This is essentially a plan for the eradication of both large and old tree structure over time, as there would be loss of the next size class and generation to replace existing legacy trees and structure that will be lost as they age and become snags and logs and return to the soil. This would be a drastic and irreversible shock to forest ecosystem functioning and wildlife species' viability and a tremendous disservice to the public.

The Forest Service needs to stop making management decisions based on the implicit assumption that all forest and LOS density is undesirable, regardless of the forest type, moisture regime, elevation, slope aspect and soil type, which in Eastern Oregon largely determine the historic and current natural range of productivity, tree species composition, and density. The Blue Mountains National Forests are incredibly heterogeneous in plant associations and forest types based on varied topography, elevation, moisture retention, slope aspect, and soil type. All of these wonderful natural nuances that make Eastern Oregon very biodiverse are ignored by the Forest Service in the interest of maximizing individual tree growth of timber industry preferred tree species—i.e. managing the National Forests like private land tree farms but logging them on even faster timber sale rotations and on larger scale timber sale.

The Forest Service has been trying to get rid of most Grand fir in the forest since at least 1910, based on historical records. In those days, the agency was far more blatant about their true motives—that it was considered a "weed"-like tree to be eradicated since it is not a timber industry preferred tree species. The Forest Service has been 'managing' for (i.e. replacing other tree species with) Ponderosa pine due to its higher commercial value for many decades. Thus, the incremental and steady conversion of complex, multi-species, biodiverse moist mixed conifer forest often dominated historically by late successional old growth Grand fir to even age monoculture Ponderosa pine plantations on the East side of the Cascades.

This history informs the Forest Service current policies of managing for "early seral" tree species (Ponderosa pine and Western larch) instead of "late seral" (late successional) species for moist mixed conifer forests that were historically dominated by Grand fir, with Engelmann spruce, Douglas fir, and Western larch components, as well as White pine and Lodgepole pine. This explains the Forest Service's strong desire to greatly reduce Grand fir in particular, which they

now try to pass off with public relations rhetoric implying that all or most of the Eastside forests were historically dominated by Ponderosa pine. The Forest Service also identifies Ponderosa pine and Western larch as the most fire-resistant trees even though large Douglas fir is also notorious for having incredibly thick, fire resistant bark and high crowns and large Grand firs also have thicker, more fire-resistant bark and higher crowns and do survive fires, with fire scars to prove it.

What is most noteworthy about this DEIS is everything it is omitting. The current science that strongly supports retention and protection of large and old trees, relevant Forest Service and timber industry history that reveals the economic interests behind this push to log large trees—especially firs, and the foreseeable unprecedented scale and intensity of environmental impacts cascading through the ecosystem from removing already low levels of remaining large trees, exacerbated by the cumulative effects from global warming, the greatest global crisis of our times. (DellaSala & Baker 2020).

Grand fir trees play an outsized ecological role in providing important wildlife habitat in a landscape experiencing a significant deficit of large trees. Further, large grand fir trees are relatively fire resistant and resilient, (Moris et al. 2022), play an essential role in regulating climate extremes, and seldom intermix with large ponderosa pine and larch trees in Oregon and Washington. (Mildrexler et al. 2023). The Forest Service must include plan components specifically aimed at protecting the rare remaining large Grand fir on the landscape. For these reasons, Forest Service plans for large-scale removal of large grand fir trees is not supported by science or logic.

1. Many Bird Species are Reliant Upon Mixed Conifer and Grand Fir Forests

In recent years, numerous studies have raised alarms regarding habitat loss, climate change, and decline of fauna and biodiversity across the planet. Warnings have been sounded by scientists regarding the declining bird populations we are seeing, and the projections of far greater losses to come. For example, the Rosenberg et al. (2019) study *Decline of the North American Avifauna* reported a *"staggering decline of bird populations, and found "wide-spread population declines of birds over the past half-century, resulting in the cumulative loss of billions of breeding individuals across a wide range of species and habitats. They show that declines are not restricted to rare and threatened species—those once considered common and wide-spread are also diminished. These results have major implications for ecosystem integrity, the conservation of wildlife more broadly, and policies associated with the protection of birds and native ecosystems on which they depend."*

Birds are an integral part of forested ecosystems on the Blue Mountains, and are not adequately considered in Forest Service planning. Many of the birds are associated with mature forests, old growth forests, mixed-conifer forests, and/or Grand fir or Doug fir during a key portion of their life history. These include: Harlequin duck; Bufflehead; Barrow's goldeneye; Hooded merganser; Wood duck; Red crossbill; White-winged crossbill; Brown creeper; Vaux's swift; Evening grosbeak; Pine grosbeak; Hermit thrush; Swainson's thrush; Varied thrush; Pine siskin; Cordilleran flycatcher; Golden-crowned kinglet; Ruby-crowned kinglet; Black-capped chickadee; Chestnut-backed chickadee; Mountain chickadee; MacGillivray's warbler; Townsend's warbler; Yellow-rumped warbler; Mountain bluebird; Calliope hummingbird;

Rufous hummingbird; Red-breasted nuthatch; American three-toed woodpecker; Black-backed woodpecker; Downy woodpecker, Hairy woodpecker, Lewis' woodpecker; Pileated woodpecker, Williamson's sapsucker; American kestrel, Winter Wren, Western Tanager, Hammond's flycatcher, Boreal owl; Flammulated owl; Great grey owl; Long-eared owl; Northern saw-whet owl; Northern pygmy owl, Bald eagle; Golden eagle; Osprey; Merlin, Peregrine falcon, and Northern goshawk. (Marshall et al. 2003; Csuti et al. 1997; Thomas 1979; Miller 2020 personal communications).

Birds that have also seen declining populations according to the BBS, and/or are considered climate endangered or climate threatened by Langham et al. (2015) include: Bufflehead; Barrow's goldeneye; Hooded merganser; Wood duck; Red crossbill; Brown creeper; Vaux's swift; Pileated woodpecker; American three-toed woodpecker; Black-backed woodpecker; Lewis' woodpecker; Williamson's sapsucker; Great grey owl; Boreal owl; Long-eared owl; Flammulated owl; Northern saw-whet owl; Bald eagles; Golden eagles; and Osprey.

Langham et al. (2015), *Conservation Status of North American Birds in the Face of Future Climate Change,* identified 314 birds at risk of losing more than half of their current geographic ranges under climate change scenarios. In addition, 126 of these are not expected to see gains in their geographic ranges. The authors note: *"Our results demonstrate the need to include climate sensitivity into current conservation planning and to develop adaptive management strategies that accommodate shrinking and shifting geographic ranges. The persistence of many North American birds will depend on their ability to colonize climatically suitable areas outside of current ranges and management actions that target climate adaptation."* The authors also note: "*We suggest that the 126 species in this category be considered by conservation entities for immediate monitoring beyond existing programs such as BBS and CBC."*

The habitat requirements of birds imperiled by declining populations and/or climate change are regularly ignored or downplayed by the Forest Service (FS). The Forest Service cannot protect the viability of these species without analyzing the effects of this proposal on their habitats, ranges, connectivity, and needed forest components and structures.

Thomas (1979) also highlights several wildlife species that rely on mixed-conifer, mature and old forests, and Grand fir for at least part of their life histories (such as reproduction and feeding) include: Canada lynx, bobcat, Snowshoe hare, White-tailed deer, Northern flying squirrel, numerous bats, Rubber boa, Malheur shrew, Vagrant shrew, Dusky shrew, Heather vole, Long-tailed vole, Gapper red-backed vole, Black bear, Short-tailed weasel, Jumping mouse, and mule deer.

Through the lens of species presence and evolutionary history:
The evolutionary history and very existence of Black-backed woodpeckers suggests that large high-severity fires must regularly occur within their range. Mixed-severity fires (including high severity fires) create habitat that is necessary for species across eastern Oregon, suggesting that high severity fires are natural and historically present, as well as necessary. High severity fires create important habitats that are very high in biodiversity, and are rare compared to historic norms. We are concerned that current fire suppression efforts (including thinning) through the region will continue to exclude high-severity wildfires and threaten the viability of Black-backed

woodpeckers and other species that depend on high-severity wildfire. Hutto et al. (2008) noted that:

> ***"Without embracing an evolutionary perspective, we run the risk of creating restoration targets that do not mimic evolutionarily meaningful historical conditions, and that bear little resemblance to the conditions needed to maintain populations of native species****, as mandated by law (e.g., National Forest Management Act of 1976)."*
> *"The degree to which the black-backed woodpecker is restricted to burned forest conditions in the intermountain west is truly remarkable. Although this species has been detected outside burned forest conditions, particularly in unburned, beetle-killed forests, the numbers therein are small, and nest success therein is substantially lower than in burned forests (Saab et al. 2005). Neither Powell (2000) nor Morrissey et al. (2008), for example, found any black-backed woodpeckers in surveys of mountain pine beetle-infested mixed-conifer forests even though they located northern flickers and three-toed, hairy, downy, and pileated woodpeckers. Similarly, a regionwide bird survey across a series of unburned, beetle-infested conifer forests within the Forest Service Northern Region (Cilimburg et al. 2006) yielded only two black-backed woodpecker detections (0.46 % of 433 point counts). This is less than one-tenth of the frequency of detection in forests burned 6 yr (Saab et al. 2007), so the probability of a severe fire occurring somewhere within an entire watershed in any given 6-year window is very high. Thus, when viewed on a landscape scale, it becomes easy to imagine that a sufficiently mobile plant or animal species (e.g., fire morel [Morchella angusticeps]; jewel beetle, Buprestidae; blackbacked woodpecker) could become specialized to use a burned forest condition that is ephemeral on a local scale but always present somewhere in the larger landscape."*
> *"…[T]he patterns of distribution and abundance for several other bird species (black-backed woodpecker [Picoides arcticus], buff-breasted flycatcher [Empidonax fulvifrons], Lewis' woodpecker [Melanerpes lewis], northern hawk owl [Surnia ulula], and Kirtland's warbler [Dendroica kirtlandii]) suggest that severe fire has been an important component of the fire regimes with which they evolved.* ***Patterns of habitat use by the latter species indicate that severe fires are important components not only of higher-elevation and high-latitude conifer forest types, which are known to be dominated by such fires, but also of mid-elevation and even low-elevation conifer forest types that are not normally assumed to have had high-severity fire as an integral part of their natural fire regimes.*** *Because plant and animal adaptations can serve as reliable sources of information about what constitutes a natural fire regime, it might be wise to supplement traditional historical methods with careful consideration of information related to plant and animal adaptations when attempting to restore what are thought to be natural regimes."*
> *"In addition, two lines of evidence suggest that it is the more severe fires that are needed to create conditions most suitable for this fire specialist: (1) not only is the black-backed woodpecker restricted to burned forests, but its distribution within burned forests is also relatively restricted to the more severely burned conditions (Kotliar et al. 2002, Smucker et al. 2005, Russell et al. 2007, Hutto 2008); (2) black-*

> *backed woodpecker nest sites occur in locations that harbor significantly larger and more numerous trees than occur around randomly selected sites within a burn (Saab and Dudley 1998, Kotliar et al. 2002, Russell et al. 2007).* ***Such nesting locations would be difficult to find in forests maintained as low-density, open, park-like stands due to frequent, low-severity fire."***
> *"How could a species evolve to depend on a condition that occurs only infrequently? The answer lies with the distribution and abundance of such fires across space and time.* ***The return interval for severe fire in one location may be several hundred years, but black-backed woodpecker populations persist in a particular fire for >6 yr (Saab et al. 2007), so the probability of a severe fire occurring somewhere within an entire watershed in any given 6-year window is very high.*** *Thus, when viewed on a landscape scale, it becomes easy to imagine that a sufficiently mobile plant or animal species (e.g., re morel [Morchella angusticeps]; jewel beetle, Buprestidae; black-backed woodpecker) could become specialized to use a burned forest condition that is ephemeral on a local scale but always present somewhere in the larger landscape."*

The Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin and Portions of the Klamath and Great Basin (Quigley et al. 1996) includes summaries of their findings. The "Highlighted Findings" note that **there has been a 27 percent decline in multi-story old forest structures** (Chapter 8, Findings, pg. 181). Given the extensive portion of forests that have already been logged on the landscape, mature and old forests (and the trees, snags, and logs within them) often provide some of the last high-quality wildlife habitat and connectivity corridors in and adjacent to timber sale areas.

III. Climate Change comments

BMBP asks that the EIS properly evaluate how climate change impacts the Blue Mountains Forest Plan. Given the scope, scale, and timing of the proposed forest plan, the Forest Service should consider how the best available scientific information requires more consideration of climate change and its impact on terrestrial and aquatic ecosystems. The 2012 Planning Rule (36 C.F.R. 219) sets out all requirements for developing, amending, and revising land management plans, as well as all requirements for the Blue Mountains Forest Plan. The Blue Mountains Forest Plan revision must also comply with the National Environmental Policy Act of 1969 (NEPA), which applies to all forest plan decisions.

Please also see Dr. David Mildrexler's 2025 BMFPR scoping comments and associated exhibits, incorporated and submitted along with these comments, for more information supporting BMBP's comments.

A. NEPA Requires that the Forest Service Take a Hard Look at Climate Impacts of the Blue Mountains Forest Plan Revision

NEPA requires an agency to take a "hard look" at environmental effects in a detailed statement that addresses the environmental impacts of the action, unavoidable adverse effects, and a reasonable range of alternatives (including a no-action alternative). 42 U.S.C. § 4332(2)(C)(i)–(v). Failure to consider the best available scientific information, including climate change

literature, undermines the purpose of the statute. Further, NEPA requires the analysis to discuss the relationship between local short-term uses of man's environment and long-term productivity, which suggests a forward-looking analysis.

Here, the Forest Service fails to take a "hard look" at the long-term effects of climate change on the Blue Mountains and therefore is out of compliance with NEPA. Climate change is not a speculative or unforeseeable future condition. It is an environmental problem that even the Forest Service itself previously studied and acknowledged. Halofsky and Peterson (2017). The agency's own analysis of climate change in the Blue Mountains provides a substantial basis of best available scientific evidence of how the projected changes will affect temperature, precipitation, snowpack, drought, wildfires, and other ecological conditions. Both the Forest Service and the Department of Agriculture (USDA) recognized the potential effects of climate change in the Blue Mountains in 2017 with the publication of a research article identifying climate change issues, as well as potential solutions to minimize negative effects. Halofsky and Peterson (2017). This article acknowledges broad scale impacts, as well as ecosystem dependent relationships currently being seen within the action area, such as decreased snowpack and drought.[1]

The existence of the Forest Service's own climate change research, not to mention the wealth of outside research, underscores why there is no excuse for why the Forest Service overlooked climate change in the DEIS. The Forest Service addresses climate change with a meaningless, conclusory two-sentence paragraph. The entire analysis of climate change in the DEIS is limited to the two sentences under "Carbon Driven Alternative." DEIS at 4. The Forest Service merely asserts the conclusion that alternatives that consider minimizing the removal of carbon from the landscape would not meet the multiple-use mandate nor contribute to ecological integrity required under 36 C.F.R. 219.8. *Id.* To support this conclusion, the Forest Service relies on "best available science." *Id.* This explanation bafflingly cites zero analysis or studies. The Forest Service does not supplement this statement, nor does it incorporate by reference analysis from an earlier NEPA review document.

The current state of the climate change analysis would not hold up in court. A reviewing court may defer to agency decisions "so long as those conclusions are supported by studies that the agency deems reliable." *Cascadia Wildlands v. U.S. Bureau of Land Mgm't*, 153 F.4th 869, 906 (9th Cir. 2025). However, the Forest Service fails to provide *any* studies to support its climate change conclusion. BMBP's critique of this analysis is not a mere disagreement with methodology. It is a flagging of the Forest Service's failure to put forth any evidence to support dismissal of climate change from the EIS alternatives altogether. The lack of any support is fatal because a reviewing court "cannot defer to a void." *Oregon Natural Desert Ass'n v. Bureau of Land Mgm't*, 625 F.3d 1092, 1121 (9th Cir. 2010). Because the Forest Service fails to refer to anything resembling evidence, the *Seven Cnty* decision and the purported deference under NEPA announced therein, *Seven Cnty. Infrastructure Coal. v. Eagle Cnty.*, 605 U.S. 168, 180 (2025), cannot save this climate change analysis.

[1] Alex Baumhardt, *Northwest late summer days marred by historic drought, exacerbating wildfires*, Portland Tribune (2026).

B. The 2012 Planning Rule Requires the Forest Service Analyze the Climate Impacts of Its Forest Planning Efforts

The DEIS should consider how the proposed action will affect present environmental conditions, including how climate change may alter the Blue Mountains over time. Climate change is explicitly referenced seven times in the planning regulations. 36 C.F.R. § 219.5(a) (specifying that the planning framework to account for climate change); § 219.6(b)(3) (providing for mandatory plan area assessment content, including climate change); § 219.8(a)(1)(iv) (specifying that plan components must account for climate change as a system driver); § 219.10(a)(8) (mandating that compliance with the multiple-use mandate must involve consideration of climate change); § 219.12(a)(5)(vi) (the Forest Plan must monitor "[m]easurable changes on the plan area related to climate change"); § 219.19 (definitions for ecosystem services, and regulating services, which includes the long-term storage of carbon and climate regulation). Climate change is integral to the Forest Service's compliance with the 2012 Planning Rule. Thus, the agency cannot treat climate change as speculative, lacking available science, or outside of the scope of the Forest Plan.

Intact forests support an exceptional amount of ecosystem services, including imperiled biodiversity, carbon storage and sequestration, intact aquatic networks, cultural values, and the maintenance of human health. Mildrexler et al. (2026). In fact, large trees (DBH $\geq$ 21 in) constitute around 3% of total stems, but store 42% of aboveground carbon storage in the Blue Mountains. Mildrexler et al. (2020). In the Climate Change Impacts Assessment for the Blue Mountain National Forests, the Forest Service states that climate change will cause warming temperatures, which lead to decreased snowpack accumulations and changes in streamflow. These changes in the hydrology of the Blue Mountains are expected to include increased water stress for vegetation in terrestrial and aquatic ecosystems. The Climate Change Impacts Assessment addresses these issues, while also providing viable adaptation options to address the changing hydrology in the Blue Mountains. Failing to utilize this wealth of information is an inadequate consideration of climate change as a system driver.

The Forest Service's own 2012 Planning Rule is designed expressly for the Forest Service to "adapt to changing conditions, including climate change." 36 C.F.R. § 219.5(a). The Planning Rule also requires that land management plans provide for ecological sustainability, which requires accounting for system drivers such as climate change. *Id.* § 219.8(a)(1)(iv). The 2012 Planning Rule requires the use of best available science, including the requirement that the responsible official, "explain the basis for that determination, and explain how the information was applied to the issues considered." *Id.* § 219.3. Meaning, the Forest Service must account for climate change and cite best available science to explain how it applies to the Blue Mountains Forest Plan revision. In deciding the relevant scope, scale, and timing, the responsible official shall identify and evaluate existing information relevant to the plan area, including climate change and the ability of terrestrial and aquatic ecosystems on the plan area to adapt to change. *Id.* § 219.6(b)(3).

Despite these requirements, the DEIS fails to identify or evaluate how climate change as a system driver is affected by the proposed standards and guidelines nor how the terrestrial and

aquatic ecosystems in the Blue Mountains adapt to climate change. Further, the DEIS fails to acknowledge how this will shape the project area. While the USFS acknowledges the public's urgency to address climate change, it claims this would not meet the multiple-use mandate nor contribute to ecological integrity, given the best available scientific information. Unfortunately, the Forest Service's analysis ends there, failing to both "identify what information was determined to be the best scientific information," and "explain the basis for that determination and explain how the information was applied to the issues considered" required under 36 C.F.R. § 219.3.

BMBP requests that the EIS account for how climate change will affect the Blue Mountains Forest Plan, in accordance with the 2012 Planning Rule. While the rule allows the relevant responsible official to determine what information is most accurate, reliable, and relevant, it also requires that the responsible official document how this information was used to inform the assessment. By relegating this information to a singular paragraph, the Forest Service failed to identify the information and explain how it was applied.

IV. Roadless Area comments

A. The DEIS Improperly Assumes the Roadless Rule Has Been Repealed.

While the USDA has proposed a rule eliminating the 2001 Roadless Area Conservation Rule (Roadless Rule), the Forest Service erred in drafting the EIS for the Blue Mountains with the expressed assumption that the removal will occur. A repeal of the Roadless Rule would open over 45 million acres of national forests to road construction, logging, and energy development. Because the Roadless Rule has not been rescinded, development of the proposed alternative with logging of prohibited roadless inventory is arbitrary and capricious.

The DEIS preferred alternative (Alternative 2) discusses the roughly 721,000 acres of Inventoried Roadless Areas within the Malheur, Umatilla, and Wallowa-Whitman National Forests as though the 2001 Roadless Rule no longer applies. This is legally and factually misleading. The Roadless Rule is currently still in full force. USDA's proposal to rescind it was published on August 20, 2026, with a comment period ending on October 5, 2026. Currently, it is still only a proposed rule. Like the DEIS for the Blue Mountains Forest Plan revision, the Roadless Rule is subject to its own notice and comment period where it may be amended or invalidated in litigation.

The Forest Service acknowledges its lack of authority to unanimously repeal the Roadless Rule, admitting "IRA regulations would remain in effect for all alternatives, until and if, a decision is made on the foreseeable future action underway at the USDA level to potentially rescind the roadless rule," DEIS at 218, and "recession is a separate process occurring simultaneously as the forest plan revision." DEIS at 4. Separately, the Forest Service states, "decisions about keeping or changing national regulations are outside the scope of this forest plan revision." DEIS at 7.

Despite this recognition, the Forest Service's preferred alternative depends completely upon the recession of the Roadless Rule. The DEIS states that, "alternative 2 analyzes the Blue Mountains planning area as if a national-level decision rescinds the Roadless Rule," arguing that not acknowledging the potential change prevents the Forest Service from making an accurate management plan. DEIS at 60. This approach to the preferred alternative is patently contradictory with the Forest Service's own assertions for its authority to consider the proposed rule. Thus, the decision making for the DEIS is internally inconsistent.

Agencies indeed may consider relevant policy in making or explaining its decision; but "of course, it would be arbitrary and capricious for the agency's decision making to be internally inconsistent." *Nat. Res. Def. Council. v. U.S. Nuclear Reg. Comm'n*, 879 F.3d 1202, 1214 (D.C. Cir. 2018). Internal inconsistency is particularly arbitrary when the discrepancy in logic concerns a central principle to the agency action. *See World Shipping Council. v. Fed. Mar. Comm'n*, 152 F.4th 215, 221 (D.C. Cir. 2025). The recission of the Roadless Rule is certainly central to the preferred alternative, and therefore the DEIS. The Forest Service's contradictory explanations for the authority to consider the recission thus renders the entire DEIS arbitrary and capricious under the Administrative Procedure Act.

The treatment of the proposed rule in the DEIS is also arbitrary and capricious considering the requirements of the 2012 Planning Rule. Despite the acknowledgement of ecological integrity as a binding constraint against considering a "Carbon Driven Alternative," DEIS at 4, the Forest Service fails to demonstrate how removing 721,000 acres of roadless area is consistent with the ecological integrity requirements of § 219.8, the species diversity and viability requirements of 219.9, or the multiple use and sustained yield requirements of 219.10. The Forest Service fails to explain how the preferred alternative's substantial reduction in roadless area aligns with the Planning Rule requirements. A plan revision cannot satisfy threshold requirements by choosing not to engage with them. Accordingly, failure to explain how this approach to the preferred alternative complies with the 2012 Planning Rule is arbitrary and capricious, or otherwise not in accordance with the law.

An EIS that disregards an existing legal constraint, before that constraint is removed, does not accurately describe the affected environment. This type of approach cannot adequately allow the public or affected parties to meaningfully compare the real-world consequences of each proposed alternative. Simply, an alternative cannot simultaneously be outside the scope of this action and the centerpiece of the agency's preferred management direction for the same project.

BMBP asks that the Forest Service consider an alternative that reflects the current legal protections of the Roadless Rule, and further, **develops an alternative that provides roadless area protections regardless of whether the Roadless Rule is rescinded or not**. Because the Forest Service built their entire environmental baseline on a contingency, the DEIS should be updated to reflect the Roadless Rule as it currently exists, consistent with their own understanding. DEIS at 67.

BMBP supports the Roadless Area Conservation Rule that is currently in place, and supports the strengthening of roadless area protections in the legislature and in Forest Service rulemakings.

Protections for all the Inventoried Roadless Areas (IRAs) that are already designated and for any future IRAs that may be designated must be retained. This would retain all the IRA protections provided by the Roadless Rule over about 720,000 acres across three National Forests in the Blue Mountains region of eastern Oregon and southeastern Washington. We would welcome further protections of the wild Inventoried Roadless Areas in addition to the existing protections from roading and logging—such as keeping livestock out of Inventoried Roadless Areas and not implementing biomass reduction in the IRAs.

B. The high cost to the timber industry to road and log the Inventoried Roadless Areas

Karen Coulter, BMBP's Director, has spent time over the last 34 years hiking in Inventoried Roadless Areas in the Blue Mountains National Forests, and has concluded that it is evident that logging would require incredibly extensive and expensive road construction, often on steep terrain, and far from local lumber mills and cities to access the interior of the Roadless Areas. Further, most Inventoried Roadless Areas do not have many commercially profitable mature and large trees. This is likely due to most IRAs being in high elevations and on ridgelines, where lightning is likely to strike and start wildfires that are not usually suppressed due to the difficulty of access. It's highly unlikely that the timber industry would want to spend so much cost to build roads and implement logging, with little profit if any at all, including the high cost of log hauling over very long distances.

C. The interactions between roadless areas, wildfire, global warming, and forest carbon sinks

The DEIS fails to adequately consider how repealing the Roadless Rule would affect future wildfires, instead relying on two falsely supported statements. The DEIS states that Alternatives 1 and 3 would see fuels "treated at a slower rate due to access limitations," and that under Alternative 2, because of the "potential rescission of the Roadless Rule we would have the ability to treat more areas with uncharacteristic fuel loads, thereby reducing high-severity fire in those locations." DEIS at 58. No acreage estimate of fuels expected to be treated in provided, no timeframe, no methodology, and no citation to support best scientific information was used to make the decision.

Proximity to roads are known to increase ignition frequency, as well as fragmenting and degrading habit, hindering the movement of wildlife, disrupting hydrology, and facilitating the spread of invasive plants. Aplet et al. (2026). Across the National Forest System in every region, the density of wildfire ignitions within 50 meters of a road is higher than in wilderness, IRA, and other national forest lands. *Id.* In fact, within the Pacific Northwest, wilderness has an average of 3 wildfire ignitions per 1,000 hectares, whereas 50 meter buffer lands had an average of 9.8 wildfire ignitions per 1,000 hectares. *Id.*

The DEIS does not address the substantial body of research finding that new and reconstructed roads are themselves associated with increased human-caused fire ignition risk. Nor does the DEIS address how future logging will contribute to rising temperatures and greater dryness in action areas. While the DEIS briefly mentions a future cumulative effects analysis for threatened

and endangered species "will be performed in a future ESA biological assessment, the DEIS does not consider cumulative effects of the roadless recalculation." DEIS at 64.

BMBP asks that the Forest Service include a direct, indirect, and cumulative effects analysis for the roadless area reclassification, including watershed function, wildlife connectivity, and recreation, with other reasonably foreseeable actions, rather than ignoring all potential cumulative impacts to a future ESA biological assessment. With the help of best available science, BMBP asks that the Forest Service address the research on road density associated with human fire risk and reconcile this with the DEIS's fire reduction rationale for Alternative 2.

The Forest Service acknowledges that plan content under alternative 2 "may have increased short-term impacts on species of conservation concern," but claims that these conditions would improve in the long term. DEIS at 31. Simply acknowledging the potential effect of these actions is not enough.

In many cases, climate change-driven wildfires are now more extensive and with higher intensity due to prolonged droughts, extended heat waves, unprecedented high ambient temperatures, and higher intensity storms, including extended high winds driving the flames. In both Inventoried Roadless Areas and Wilderness Areas there are many areas of forest that are still regenerating from past high severity wildfires, leaving mostly seedlings, saplings, old snags and logs, and a mosaic with many openings. The extensive high intensity wildfires will only increase until we are able to get the political will at the federal level to reverse climate change by stopping the use of fossil fuels as soon as possible before global warming is locked in and irreversible, based on a huge consensus from current international climate science. Notably, Oregon's biggest emissions of Carbon dioxide, a Greenhouse gas, is caused by commercial logging—even more than public and other commercial travel.

Inventoried Roadless Areas are critical to protect from road construction and logging as forest carbon sinks to offset more extreme global warming, with intact forest protection needed world-wide. James Hansen, a well-known climate scientist, warned that even if we are able to stop all fossil fuels, there will still be climate change extreme effects unless we protect the forests and the oceans as carbon sinks. None of this cumulative effects analysis regarding the interactions between forests and climate change is incorporated in the Blue Mountains Forest Plan Revision DEIS.

D. The public is strongly in favor of protected Inventoried Roadless Areas

The vast majority of the public wants Inventoried Roadless Areas to be fully protected from logging and roading, which would greatly degrade the never logged forest and by constructing new roads, there would be far more disturbance to wildlife, more poaching, more road kill, more fur trapping, more illegal firewood cutting, and far more introduction and dispersal of exotic invasive plants, which are hard to control. The Inventoried Roadless Area Rule was established after hundreds of thousands of people commenting supported full protection of IRAs from logging and roading. More recently, when the Trump administration tried to privatize public lands, with millions of people strongly opposing the private corporate take-over of public land, which was stopped by public opposition. Such management as timber sales in IRAs would also

have long-term detrimental soil impacts, long-term invasive plant establishment, and long-term loss of rare and wide-ranging wildlife species that require large territories to have viable populations.

The scope of the public in supporting full protections for Inventoried Roadless Areas spans the whole spectrum of politics—from progressive or liberal to conservative. The issue of Inventoried Roadless Areas bridges the difference from urban dwellers who want to find solitude and peaceful wildness without city noise, pollution, and development, and rural residents who use IRAs for their big wild back yard, for hunting, fishing, backpacking, hiking, camping, rock climbing, cross-country skiing, snow shoeing, huckleberry picking and other edible and medicinal plant gathering, and enjoying wildlife and wild flowers, nature photography, or out alone to try primitive skills. There are also researchers and those with scientific curiosity for identifying rocks, native plants, and wildlife species. There are also archaeological findings in indigenous cultural sites or in never managed wildlands except for indigenous people's burning of the forest or finding other artifacts, such as for hunting, to be left in place. These interests are widespread and not assigned to political perspectives.

Often hunters will camp adjacent to an Inventoried Roadless Area in order to hike into the roadless areas to hunt because they know that wildlife will not be as disturbed by human disruption, and that elk and deer often migrate to higher elevations to avoid rifle hunting. Inventoried Roadless Areas and Wilderness Areas provide core security habitat for elk, deer, Big Horn sheep, bears, and other hunted species. Public lands are precious to those who know them intimately or who visit them and have an awakening of cherishing wild lands.

As cities become more polluted, more noisy, more crowded, and with more traffic, with less green outdoor spaces, more of the public values connection with wild Nature. City residents find themselves in an increasingly virtual reality of the internet, social media, and "smart" phone time addictions. So protecting Inventoried Roadless Areas will be increasingly important to the public to be able to escape to wildness and nurture a relationship with wild Nature.

A. BMBP Staff and Volunteer Personal Experiences in Roadless Areas in the Blue Mountains National Forests

Here is a sample of human uses and wild Nature values in Inventoried Roadless Areas where I (Karen Coulter, Director of BMBP) have hiked in or have seen into adjacent roadless areas. Sometimes I have been field surveying within or next to Inventoried Roadless Areas where there were proposed timber sales within or adjacent to boundary roads. Those timber sales in IRAs were usually dropped or on the Malheur NF, managing edges of the IRAs along existing roads, which we opposed.

1. Malheur National Forest

<u>Aldrich Mountain Inventoried Roadless Area:</u>

We hiked into the Aldrich Mountain IRA in the 1990's, since the Forest Service wanted to log the Aldrich Mountain IRA before and after a high severity fire. It is a high elevation mixed conifer forest, with mostly north aspect slopes. We could squeeze water out of a down log before the

fire, despite this being in the summer. Moisture retention is critical in the high elevation moist mixed conifer for providing abundant water flows for wildlife, riparian wetlands, and human communities. We found a seven foot diameter old growth live Ponderosa pine there. However, there were not consistent mature trees and there were plenty of openings. The Aldrich Mountain IRA is not suitable for logging, with no foreseeable commercial profit from a timber sale there. There was a stand replacement fire, with part of the area helicopter logged, but we negotiated with the Forest Service to not construct roads, not log green forest, and minimize the post fire logging, which may have been outside the Aldrich Mountain IRA boundary. There was also an Inventoried Roadless Area adjacent to the Aldrich Mountain IRA on the south slopes that may have been another IRA or part of the Aldrich Mountain IRA. Linda Driskoll stopped the Thorn sale on the southern aspect IRA by using local radio adds, attracting public opposition in John Day and other local communities. Linda managed to stop that timber sale in an IRA through local public opposition. The Aldrich Mountain Inventoried Roadless Area is typical for steep slopes at high elevation and prone to lightning strikes starting wildfires, as with Wilderness Areas, with regeneration of small young trees after high severity wildfires.

North Fork Malheur Inventoried Roadless Area:

Inventoried Roadless Areas are often used to protect Wild and Scenic Rivers, including the Malheur River IRA and the Myrtle Silvies IRA, apparently associated with the Silvies River, and the Silver Creek IRA, which are sometimes granted Wild and Scenic River status. We enjoyed field surveying into an area planned for logging that both was along the Malheur River where it was not protected and also within the Malheur River IRA. We enjoyed cooling off in the river and taking photos of the river, interesting plants, and wildlife. We convinced the Forest Service to drop the commercial logging in the IRA, limiting management to non-commercial hand-thinning of small, young trees up to 9" dbh. There wasn't a lot of mature forest in the IRA and it was mostly immediately adjacent to the river, within the RHCA buffer for a river—generally 300 feet on each side of the river.

Dixie Butte Inventoried Roadless Area:

The Dixie Butte IRA is treasured largely due to the easy local access to the hiking trail. Hunters and local residents of John Day, Prairie City, and Austin Junction use the IRA for hiking, hunting, and having fun, as our volunteers did. There are rare White pines in the Dixie Butte IRA, which may be a reason that the Dixie Butte area was protected by the Forest Service, which the Forest Service wanted to use for seedlings to expand its original territory. I hiked into the Dixie Butte IRA probably in 2019 and I saw the White pines.

Utley Butte Inventoried Roadless Area:

The Utley Butte IRA was valued by local residents in the southern Malheur National forest who strongly opposed logging of Utley Butte. This probably took place in the late 1990's. We went there to the edge of the Utley Butte Inventoried Roadless Area but not far inside the IRA boundaries due to lack of a good map and a lack of snowshoes. The proposed timber sale in the Utley Butte IRA was scrapped due to the public opposition, although there might have been

some non-commercial thinning of small trees only up to 9" dbh by hand along the edges of the IRA.

Fox Creek Inventoried Roadless Area:

If I remember correctly, the Fox Creek IRA was known in the 1990's to be inhabited by the Pacific fishers, as a potential stronghold for fishers. I thought this Fox Creek IRA is on the Umatilla National Forest, but the boundaries of the two Forests may be nearby. Pacific fishers are barely starting to recover from their fur trapping and logging extirpation in Oregon, with fisher reintroductions in the Klamath-Siskiyou area and in the Coast Range, both on the west side of the Cascades in Oregon. Pacific fishers require very large old growth logs for runways through the forest and huge old growth snags or live firs with large cavities for their denning, both of which mostly disappeared due to logging of large and old growth trees for about a century.

Pacific fishers also depend on porcupines as they are the fishers' primary prey. The Forest Service set bounties for the noses of porcupines for decades, due to their eating the needles of young tree seedlings and saplings in Forest Service plantations, and diminishing their populations significantly. I no longer see porcupines in the area where I live in eastern Oregon, whereas there was once a mating pair on the land where we live. The porcupine courtship was loudly proclaimed by the male, who tried to convince her to allow copulation, while the female was silent at the top of the tree with the tail of spines facing the male and keeping him at a standstill. This courtship went on for three days.

I also have seen a Pacific fisher at night along a road in the Heppner District of the Umatilla National Forest, although the sighting was not absolutely positive or documented. I also saw what looked like a fisher crossing highway 20 at night between the Metolius River turn-off and Suttle Lake some years ago. A volunteer and I had our positive daylight sighting with a volunteer of a Pacific fisher running along a big old growth Douglas fir log in plain sight above the huckleberry shrubs. This was in a planned commercial logging sale unit that we were field surveying in the Wolf timber sale on the Ochoco National Forest at about 6,000 feet elevation. This was a tremendous sighting of a fisher, with nothing to impede our view, only about 20 or 30 feet away. The fisher was huge, which cannot be imagined unless you see it in the forest habitat. It was about three feet or more in length and we saw the head, the claws, the tail, and the color. This was in the early 2000's.

Inventoried Roadless Areas are critical to protect rare far-ranging wildlife and to recover declining rare species by protecting IRAs from logging and roading. After our sighting in that suitable habitat of old growth moist mixed conifer with big old growth firs—live, snags, and logs—the Forest Service annihilated that fisher habitat in multiple sale units in the Wolf sale at that elevation by logging these old growth moist mixed conifer sale units with big Grand firs and Douglas firs.

2. Umatilla National Forest

Grande Ronde Inventoried Roadless Area:

Many of my rafting friends and I rafted the Grand Ronde River fairly recently—possibly in 2019 or 2020. The Grande Ronde river probably flows through the Grande Ronde IRA, where there were no roads or communities. We saw multiple Big Horn sheep in the high desert rock formations on the upper slopes. We also watched otters playing in the river as we drifted by. These are experiences that will not be forgotten. It was a spring when there was very high water and a fast current. I had to ask a friend to help me from being dragged by the current under the raft as I was tying the boat to some willows.

I have been rafting with my friends on the Wild and Scenic John Day river stretch, where we saw a Golden eagle and Big Horn sheep high up in the rock formations, as well as my first sightings of Long-eared owls and Short-eared owls that seek prey in the daytime. In the Blue Mountains, we have also rafted the Owyhee river twice and in Hell's Canyon on the Snake River. Wild and Scenic Rivers are also protected to extend protections to wild ecosystems and retain core habitat for wildlife such as Big Horn sheep, Golden eagles, rare owl species, and many more. Inventoried Roadless Areas support wildlife species that also use Wild and Scenic River corridors, with some IRAs overlapping Wild and Scenic River corridors, extending habitat, including for TESC fish species and amphibians.

Mill Creek Inventoried Roadless Area:

We are currently trying to protect the Mill Creek Municipal Watershed overlapping the Mill Creek Inventoried Roadless Area, both of which are threatened by the current Tiger Mill timber sale. 95 percent of the drinking and irrigation water supply for the city of Walla Walla comes from the Mill Creek Municipal Watershed. The Mill Creek Municipal Watershed and the Mill Creek Inventoried Roadless Area were designated to protect the abundant water supply and high water quality. The Tiger Mill timber sale is also planned to include the Mill Creek IRA, as well as with the surrounding high elevation moist and cold mixed conifer that also drains into Tiger Creek, which feeds into Mill Creek, and including the drainages of the Walla Wall River and the Upper Touchet River. The Tiger Mill timber sale encompasses about 60% moist mixed conifer forest, about 87% forest on very steep slopes over the stream drainages feeding into Mill Creek and the rivers, and about 85% in never logged forest with old growth and mostly open understories. Logging this area would be catastrophic to water quantity and quality and loss of Threatened-listed fish species, as well as eliminating most of the never logged high quality old growth forest. The abundance of never logged forest supports core reproductive and security habitat for many elk and Black bears, along with Pacific marten and a great diversity of birds and plants. The Tiger Mill timber sale threatens the viability of populations of most of the Management Indicator species for the Umatilla National Forest, including Pileated woodpeckers, most of the primary cavity excavators, Pacific marten, and Rocky Mountain elk. There are also local packs of Endangered Gray wolves. The Tiger Mill timber sale also has Snowshoe hares and likely, Threatened Canada lynx, since Snowshoe hares are the lynx's primary prey.

The extensive and high intensity logging of the Mill Creek IRA and Municipal Watershed in the Tiger Mill timber sale is strongly opposed by Walla Walla residents, who were not informed of the proposed Tiger Mill timber sale. They did not have any opportunity to comment on the Tiger Mill EIS or to file an objection against the timber sale, which violates the National

Environmental Policy Act. The NEPA violations include lack of full public disclosure of the timber sale plans and opportunities to comment and file objections, even for Walla Walla residents and nearby communities, who use the area for: hiking, camping, hunting, huckleberry picking, cross-country skiing, ATV riding on existing roads, mushroom foraging, and many more recreational and cultural uses.

Notably, the City Council of Walla Walla, in coordination with the Forest Service, has allowed for the public to receive permits to hunt, hike, or camp in the Mill Creek Municipal Watershed overlapping the Inventoried Roadless Area. However, now that the Mill Creek IRA is planned for logging, there is a ban on people getting a permit to enter the IRA. Meanwhile there were about 97 people attending a Walla Walla City Council meeting to present their opposition to the logging of the Municipal Watershed and the IRA, as well as the surrounding Tiger Mill timber sale area. There was also an event with a scientist and environmental organization presenters at the Walla Walla airport about the Tiger Mill timber sale, wildfire, and logging, before over 100 people attending, most of whom were in opposition to the Tiger Mill timber sale.

From drone footage over the Mill Creek Municipal Watershed and IRA, it is evident that there are already many natural fire breaks, the rationale for the logging claimed by the Forest Service being the presumption of wildfire risk. These natural fuel breaks are evident throughout the drone photographs, showing big gaps of no trees where there are large meadows and where the slopes are dry with little grass or shrubs (probably due to past heavy livestock grazing) and identified wet alder groves within or around the sale units, in standing water or a very high water table.

Potamus Inventoried Roadless Area:

In the early 1990's, some friends or volunteers came with me on a hike through the Potamus Canyon, which is not far from where I live. It was interesting, including indigenous peoples' grinding stone, a mortar, and a stone pestle, which I left in place. I counted only about 5-10 live old growth Ponderosa pines per acre, but only in the steep drainages in the canyon walls. We were ecstatic about the lush riparian areas with thick willows and other riparian hardwoods—in the middle of a dry, high desert canyon. We had fun being there, as we explored. I wrote a poem about how good we felt there during our hike.

Years later, I rode our horse into Potamus Canyon, with flagging in her mane and tail, since she looked a lot like an elk in size and dark bay color. It was rifle hunting season. At that time the Forest Service was planning logging incursions into a drainage leading into Potamus Canyon, so I was field surveying that area of the canyon. I've also looked into the canyon from above at a vista point overlooking the depth and length of Potamus canyon.

From my various ways into Potamus Canyon IRA, I didn't see enough mature forest for it to be profitable, as there's hardly mature trees there at all. Most of the ways into the canyon are steep drainages and there are no roads within the canyon. The Forest Service may have identified Potamus Canyon as an Inventoried Roadless Area to protect the riparian areas and perennial creeks' integrity. As an Inventoried Roadless Area, Potamus Canyon protects indigenous people's artifacts from community sites and hunting. The Potamus IRA is also core wildlife

habitat for Mule deer, cougars, coyotes, bobcats, and potential Gray wolves, with little or no human disturbance.

Texas Butte IRA:

I field surveyed Texas Butte when I was doing old growth inventory for the Heppner Ranger District in 1992. I was given an aerial photo and a map and hiked into the Texas Butte IRA, which is roadless and has a hiking trail. There were not many large trees or even many fully mature trees. It would make no sense to construct roads and log that area. However the plants were interesting and it was quiet for bird watching or wildlife viewing. The public uses Texas Butte primarily for hiking, which is accessible from an access road below, and for hunting, where there is far less disturbance to elk and deer. By now Texas Butte is recognized as a recreational site, with potential wildlife sightings.

3. Wallowa-Whitman National Forest

North Mount Emily Inventoried Roadless Area and Mount Emily Inventoried Roadless Area:

The North Mount Emily IRA is shared between the Umatilla National Forest and the Wallowa-Whitman National Forest, with the Umatilla NF having 4,394 acres and the Wallowa-Whitman having 752 acres of the IRA. The Mount Emily IRA has 8,420 acres, with both IRAs supporting protection of core Rocky Mountain elk habitat with little disturbance. Mount Emily is most known as a stronghold for Rocky Mountain elk, which may also greatly protect Gray wolves, who are otherwise killed by poaching, trapping, roadkill, and potentially being shot by the Oregon Department of Fish and Wildlife Service due to livestock predations. Fortunately, both elk and wolves benefit from large areas protected from humans, due to the lack of roads and logging, retaining hiding cover and thermal cover for protection from severe storms and from extreme heat waves.

When I was field surveying the Mount Emily Categorical Exclusion timber sale a few years ago, I followed a large elk herd at a good distance to see whether they used the proposed logging sale units for hiding cover adjacent to the riparian corridors they used for foraging during evenings and nights. The elk did move into the adjacent sale units for hiding cover from predators and people. The elk herd likely uses the higher elevation IRA for core security habitat, which was adjacent to the Mount Emily CE sale units. The elk herd would probably head up slope to the Inventoried Roadless Area in advance of the rifle hunters camping in dispersed camp sites in the vicinity of the Mount Emily CE sale units in September. The beautiful moist mixed conifer forest does not need to be logged again, where I saw recreationists camping, hiking, and using ATV trails in the CE sale area. The combinations of thousands of acres of the Mount Emily Inventoried Roadless Areas secured the viability of such big elk herds. There has also been scientific research on elk distribution and susceptibility to human disturbance on Mount Emily. There are lots of birds and other wildlife on Mount Emily, including likely Gray wolves and cougars. The protection of the two IRAs on Mount Emily from logging and roading support the big elk herds as core security habitat. Logging and roading the Mount Emily IRAs would face strong opposition from residents in La Grande, Pendleton, and smaller local communities.

Upper Catherine Creek Inventoried Roadless Area:

The Upper Catherine Creek IRA was clearly meant to protect the upper source and drainage of Catherine Creek, which at the Catherine Creek State Park looks like a river. Catherine Creek supports Threatened salmon, probably Threatened Bull trout, and Threatened Middle Columbia Steelhead trout. The State Park is well used by recreationists, including camping, picnicking, swimming or wading, fishing, hiking on the trails, and engaging in bird watching and nature photography. This looks like a park where family gatherings would take place, with plenty of picnic tables, a restroom, and fire pits, with beautiful old growth Ponderosa pine and grassy lawns. Yet all of these recreational uses at the Catherine Creek State Park would be destroyed if the upper drainage of Catherine Creek was roaded and logged, by diminishing the abundance of water in Catherine Creek, increased sediment impairing water quality for the Threatened-listed fish species, as well as degrading the scenery and pristine forest in the Catherine Creek IRA.

B. Effects to Threatened, Endangered, Sensitive, and Candidate for federal uplisting (TESC) wildlife species from logging and roading Inventoried Roadless Areas

These rare and declining wildlife species that need large reproductive and foraging home ranges to survive, including Threatened-listed Canada lynx, Threatened Wolverine (who need 150 square miles for a reproductive pair), Sensitive Pacific fisher that were almost extirpated from trapping, and Pacific marten, which are Vulnerable ranked in Oregon and a Management Indicator species, who need about 1,500 acres for a reproductive pair. Other far-ranging wildlife species include those dependent on extensive seasonal migrations, including Mule deer, Rocky Mountain elk, Big horn sheep, Moose, and Pacific marten. There are also wildlife species that need huge ranges for genetic dispersal, including Endangered Gray wolves, who have dispersed from Idaho to California, with recovering packs establishing home territories in Oregon, Washington, and California, as well as their origins from British Columbia, Idaho, and Montana.

Most of the Inventoried Roadless Areas are connected to or adjacent to Wilderness Areas, which increases the potential of enough suitable habitat for population viability of declining TESC wildlife species. These include Endangered Gray wolf, Threatened-listed Wolverine, and Threatened Canada lynx, as well as Sensitive Pacific fisher. Pacific fisher, which should be Threatened-listed by now, due to the extirpation in most of Oregon's forests, where they were fur trapped.

Pacific fisher used to be common throughout Oregon's forests. Now the fisher is being reintroduced in the southwest Oregon Cascade mountains in the Klamath-Siskiyou region and in the Oregon coast range. We were lucky to see a rare positive sighting of a fisher running along a huge old growth Douglas fir log by myself and a volunteer in daylight. This sighting was unmistakable and took place in the then proposed Wolf timber sale at about 6,000 feet elevation in suitable old growth moist mixed conifer forest—where there was otherwise any knowledge that there was at least one Pacific fisher there. Yet the Wolf timber sale was logged, destroying suitable habitat for rare Pacific fishers.

Declining and Threatened predators such as Wolverine and Canada lynx have strongholds in Wilderness Areas and Inventoried Roadless Areas and extend their large ranges from there. The Wallowa-Whitman National Forest has a map of where the MIS Pacific marten sightings occur that shows that most martens are in Wilderness Areas, migrating and dispersing from there and Inventoried Roadless Areas, but then they are threatened by timber sales, since marten won't cross a clearcut or use fragmented forest, and by humans who may be trapping them or causing road kill. Timber sale logging and roads in Inventoried Roadless Areas eliminate the potential for re-establishing stable populations of far-ranging rare predators. Not all Wilderness Areas have enough suitable forest habitat such as for Pacific fisher and Pacific marten, so Inventoried Roadless Areas provide more suitable habitat to prevent their extinction and to extend their large ranges and good habitat for genetic dispersal.

Conservation biologists have warned that if the Inventoried Roadless Areas are not fully protected from logging and roading, wildlife species that are far ranging will not have enough suitable wildlife habitat left for ensuring the viability of their populations and for habitat for genetic dispersal beyond their core habitat. Iconic wildlife species that may be extirpated and eventually become extinct without Inventoried Roadless Areas in combination with Wilderness Areas include: Grizzly bears (now expanding their range into Idaho and being restored in Washington Wilderness areas); Threatened Wolverine (who are threatened by global warming, eliminating the at least three feet of snow pack for their winter den); Endangered Gray wolves, (who need to be able to avoid poachers, trapping, road kill, poisoning, and shooting related to livestock depredations, such as killing an entire pack by the Washington department of fish and wildlife—from humans); Threatened Canada lynx (who are also harmed by trapping and poaching, as well as road kill); and MIS Pacific marten (who require very specific habitat features, including high canopy closure, large snags, abundant down and elevated logs for winter foraging, and large areas of unfragmented forest.)

Similarly, large ungulates need large ranges, including seasonal migrations, such as Sensitive-listed Big Horn sheep, which need to be able to avoid susceptible domestic sheep diseases; Moose expanding their territory from Montana and Idaho into Oregon (seen on highway 7 to Baker City through the Wallowa-Whitman National Forest and scat found in both the Patrick timber sale area on the Wallowa-Whitman National Forest an in the Battle Bruin proposed timber sale on the North Fork John Day District of the Umatilla NF) and Pronghorns, who were nearly extirpated from Oregon by the pioneers, yet are still hunted although they used to be present in hundreds of thousands or millions in Oregon. Without the protections of no logging and roading in Inventoried Roadless Areas, many wildlife species may have extirpated populations or become extinct, such as those species with huge migrations or very large to enormous home ranges, and species requiring suitable habitat with little or no human disturbance, or very unique habitat feature combinations, as with Gray wolves and Pacific marten, respectively. The extirpations of wildlife viable populations and species' extinctions can be foreseeable cumulative significant negative effects. There should be no Finding of No Significant Impact for this Preliminary Draft EIS for the Blue Mountains National Forest plan, due to planned ecologically unsustainable increased roading and timber sales, including particularly within the Inventoried Roadless Areas.

V. Soil comments

The Introduction of "Soil" on p. 24 of the Preliminary Draft Proposed Malheur, Umatilla, and Wallowa-Whitman National Forests Land Management Plan (or DEIS) from 2025 supports the legal requirements:

"By law, management activities on National Forest System lands must not produce substantial and permanent impairment of soil productivity. The 2012 Planning Rule emphasizes the need for soil productivity to sustain the productive capability of the land, its ecological resources, and watershed functions. Current policies require that soil management include long-term soil quality and ecological function. FS Manual Chapter 2550 Soil Management defines six soil functions: soil biology, soil hydrology, nutrient cycling, carbon storage, soil stability and support, and filtering and buffering. National and regional (FSM 2520) soil management policy further requires land management plans to (1) maintain or restore soil quality and (2) manage resource uses and soil resources to sustain ecological processes and function so that desired ecosystem services are provided in perpetuity." (Preliminary Draft p. 24)

Further, the "Desired Conditions" also require that: "Soil productivity and function contributes to the long-term resilience of ecosystems, including soil types that support unique native plant communities....Organic substrates (vegetative litter, down wood, and soil organic matter) are present in sufficient amounts to support soil fertility and ecological functions....Volcanic ash-influenced soils are intact and retain unique properties, high porosity, high water and nutrient holding capacity." (Preliminary Draft pp. 24-25)

However, the standards and guidelines are watered down considerably by vague language that doesn't guarantee meeting the requirements of the 2012 Planning Rule and the Desired Conditions with the many exceptions and loop holes from the standards, such as:

"All management practices shall be designed or modified as necessary to maintain land productivity." There is no guideline to define how management practices would be designed or modified to maintain land productivity.

"In activity [logging and roading] areas with existing detrimental soil conditions exceeding or approaching 20 percent, soil restoration activities shall be addressed to improve long-term soil condition." Yet project design criteria usually do not prevent detrimental soil impacts and the commercial logging usually goes ahead even when existing detrimental soil conditions are exceeding or approaching the 20 percent limit, while promising that subsoiling will repair any damage, while all it does is break up compaction, while mixing the discreet soil layers and not otherwise repairing the detrimental soil damage.

"Project-specific best management practices for water quality and soil design features shall be incorporated into land management activities as necessary to maintain soil productivity." Yet "best management practices" have been debunked as the results have been long-term negative soil impacts and not clarifying what is "necessary to maintain soil productivity."

The guidelines are also riddled with exceptions, such as:

"Based on site-specific analysis of soil, slope, and equipment, a higher or lower slope limitation be authorized. Exceptions to this may include equipment designed for steep slopes that are determined appropriate to maintain soil function." What equipment is designed to log steep slopes in a way that would maintain soil function? Tethered-logging uses equipment to log steep slopes more cheaply is not designed for use on steep slopes, which is treacherous for the operator and as it is known to sometimes increase erosion significantly.

Regarding retention of organic matter and down wood for short and long-term soil ecosystem function and resiliency, all the guidance says is extremely vague: "Recommended acceptable amounts are based on best available science and multi-resource objectives." In other words, this is a way to pick their choice of what "best available science" and "multi-resource objectives" to maximize logging and biomass reduction at the expense of soil fertility and productivity and for depleting soil carbon storage.

And then there is the classic loophole: "Case-by-case exceptions may be made when the creation of new soil disturbance is the environmentally preferred option." The "environmentally preferred option" could be construed as the weakest option for protecting soils.

See page Preliminary Draft p. 25.

Another classic loophole:

"To maintain soil quality and stability, ground disturbing management activities should not occur on soils prone to mass wasting [which can be unstable for a thousand years with massive landslides]. Exceptions may be considered after site-specific soil or geological analysis results indicate low risks of adverse effects to soil and downstream resources." (Preliminary Draft p. 26)

Here are some of our concerns for eliminating long-term negative soil impacts and stopping using ineffective project design criteria and inadequate best management practices, as well as planned forging ahead regardless of causing permanent soil impairment and accelerated erosion, based on best available current science and warnings from Forest Service soil scientists, such as that ash soil is irreplaceable, in that it should not be: displaced, deposited as fine sediment into streams that would negatively affect the viability of fish species, or no longer be abundant in the region, losing moisture retention and soil fertility without ash soils.

The following are examples of updated soil science and of potential standards that could be used more effectively without loop holes, exceptions, and vague language that do not meet the requirements of the law regarding soil goals, the 2012 requirements, and guidelines as quoted above from the Preliminary Draft Proposed Malheur, Umatilla, and Wallowa-Whitman National Land Management Plans.

<u>Sisters Canyon Active Restoration Project:</u>

We are concerned that: "The mechanical removal of trees from activity areas and application of prescribed fire can potentially cause adverse changes in soil quality, including soil productivity and surface organic matter levels. Ground-based equipment can potentially increase the amount and distribution of soil disturbance within individual activity areas [e.g. commercial logging sale units] proposed for mechanical treatments [management]. The resulting soil disturbance and

reduction in ground surface cover in mechanical treatment [management] and prescribed fire activity areas may in turn have the potential to negatively affect key soil functions." (from the Sisters Canyon Active Restoration Project (SCARP) EA, p. 50, first two paragraphs under "Soils")

We agree that: "The long-term sustainability of forest ecosystems depends on the productivity of soils. Ground disturbing management activities directly affect soil properties, which may adversely change the natural capability of soils and their potential responses to use and management. Detrimental soil conditions often occur where heavy equipment or logs displace surface organic layers or reduce soil porosity through compaction. Detrimental disturbances reduce the soil's ability to supply nutrients, moisture, and air that support soil microorganisms and the growth of vegetation. The biological productivity of soils relates to the amount of surface organic matter and coarse woody debris retained or removed from affected sites." (SCARP EA p. 50, 2nd to last par.)

This science-based analysis supports our concerns regarding soil impacts. Repeated soil damage can become long-term degradation of soil productivity for up to 70 years or more.

"Sensitive soils occur on steep slopes, shallow or rocky areas, cinder buttes, and riparian zones where they are more vulnerable to damage from ground-based operations. High water tables, steep slopes over 30 percent, and shallow stony soils increase risks of erosion, displacement, rutting, and compaction in specific SRI units."

"Current soil conditions reflect the extent and timing of past management. Thinning, fuel reduction, and wildfire can disturb soils and affect long-term forest productivity, which depends on soil function and hydrologic stability. Ground-disturbing activities can displace organic layers or compact soil, reducing porosity and limiting the soil's ability to supply nutrients, water, and air. Soil productivity is also tied to the amount of surface organic matter and coarse woody debris retained on site." (SCARP EA p. 51, 4th and 5th par.)

A Deschutes Forest Service soil scientist confirmed that each timber sale implemented after a previous timber sale causes higher percentages of detrimental soil impacts, sometimes higher than the Forest Plan limit of 20% detrimental soil impacts for each sale unit. Thus repeated logging and heavy equipment use causes long-term negative effects to soil productivity:

"Harvest activities recorded from 1970-2017 include shelterwood, overstory removal, two-aged preparatory cuts, thinning, and limited tractor terracing. Some units have had multiple entries. Soil monitoring on similar land types shows that modern ground-based harvests typically disturb up to 20% of an activity area, while pre-1980 practices sometimes caused up to 40% disturbance due to heavier equipment use and fewer Best Management Practices…. Across the Forest, detrimental conditions associated with historic harvests generally range from 15-30%, depending on prescription [chosen management]. Repeated entries increase disturbance by an additional 5-10%. Natural recovery varies by site resilience, though compaction, displacement, and organic matter loss remain visible in some older units." (SCARP EA p. 52, 1st par.)

<u>Morgan Nesbit timber sale:</u>

We are concerned that most soils in the Morgan Nesbit project area has "a surface that formed or is strongly influenced by volcanic ash loess." (p. 7, 3rd to last par.) Ash soils are irreplaceable except on a geologic time scale, as the eruption of Mount Mazama that caused Crater Lake about 7,000 years ago spread the ash into top soil across the entire region. Such a quantity of ash soil being spread that far is unlikely to occur within our lifetimes. Thus the Forest Service should not be logging on steep slopes and displacing ash soil sediment into streams. Ash soils are critical for water retention, which is especially critical during extreme heat waves and prolonged droughts under climate change.

We observed a lot of past logging damage within many of the commercial sale units, including repeated logging such as overlapping high-grading and commercial thinning. The Soil Report confirms our field observations of considerable extensive damaged soil areas, showing cumulative long-term negative effects of too much logging, roading and ground disturbance related soil impacts. The Forest Service needs to stop logging the Morgan Nesbit project area [and need to stop other destructive logging and roading that cause long-term or permanent loss of soil fertility, integrity, and productivity]. Obviously the Project Design Criteria and Best Management Practices are not sufficient to restore soil compaction, nutrient loss, and other long-term soil impacts.

We are concerned by loss of moisture retention and loss of soil nutrients and carbon inputs from logging, especially in moist mixed conifer regarding moisture retention.

Requests:

Incorporate the following as standards in the Blue Mountains Forest Plan Revisions:

No logging or heavy equipment use on ash soils, as Forest Service soil scientists are now concerned that displacement or loss of upper ash soil levels are irreplaceable. The last regional distribution of ash into the soils was about 7,000 years ago from the Mount Mazama volcanic eruption. So we can't replace ash soils since the next regional distribution would probably not occur for thousands of years—in geologic time. Ash soils are important because of their higher moisture retention. "Productivity increases with thicker ash caps...." (SCARP EA p. 51, 3rd par.)

Prohibit all logging, roading, and heavy equipment use on Sensitive soils and ash soils.

Maintain the Forest Plan detrimental soil impact standard of 20%.

Prohibit heavy equipment use on areas that are within a post-fire footprint, including no post fire logging.

Prohibit steep slope logging, including tethered logging.

Prohibit heavy equipment use on shallow soils, including logging and biomass reduction.

Prohibit heavy equipment use and biomass reduction hydric soils, as well as road construction.

Prohibit high intensity and moderate intensity logging on ash soils.

Prohibit logging in RHCAs.

VI. Aquatics comments[2]

A. The 2012 Planning Rule and aquatic ecosystem protections

Rivers and streams in the Blue Mountains provide drinking water and irreplaceable recreation opportunities to many thousands of people, and support high-quality wildlife habitat and genetically important population of wild salmon and other imperiled species.

The Blue Mountains support key free-flowing rivers such as the John Day, Grand Ronde, Umatilla, Wenaha, and Minam Rivers. The John Day River is the longest tributary of the Columbia River, and the longest undammed river in the Pacific Northwest. It is also one of the longest free-flowing rivers in the contiguous United States, second only to the Yellowstone River. The unique and ecologically important streams in the Blue Mountains support key populations of native salmon and trout, and play an essential role in maintaining the genetic connectivity and diversity. They are crucial to the viability and recovery of ESA-listed salmon and trout and imperiled aquatic species across the Pacific Northwest and beyond.

The DEIS (pg. 113) notes that "Streams, rivers, and lakes provide habitat for a variety of native anadromous and resident fish species. For example, the Imnaha and Grande Ronde River drainages provide the highest upstream spawning areas for Chinook salmon and steelhead trout on the Snake River in Oregon. The John Day River is the second longest undammed river (280 miles) in the contiguous United States and supports four different species of naturally reproducing native salmonids. Several streams and rivers within the Blue Mountains region are also home to three federally listed threatened species: bull trout, summer steelhead and Chinook salmon. Other important fish species include Westslope cutthroat and inland redband trout."

The Blue Mountains encompass connectivity corridors of regional importance, the vast majority of which closely overlap with and follow riparian corridors. These riparian corridors provide critical opportunities for movement and migration, and are disproportionately used by wildlife. Approximately 75% of eastside terrestrial species depend upon riparian habitats for their life cycle needs or use these habitats more than others (Henjum et al. 1994).

Forested are crucial for providing drinking water to downstream communities. Forested streams are part of complex and intricate ecosystems that need protection in order to continue to supply clean, cold water for humans and other species. A recent study from the Forest Service in 2022 found that approximately 90% of people in the West are served by public drinking water systems that rely on water from national forests and grasslands. The study also noted that "*a century of research has demonstrated unequivocally that forested lands provide the cleanest and most stable water supply compared to other land types*" (Liu et al. 2022).

National Forests in the Blue Mountains provide unique opportunities for solitude and quiet recreation. Streams, rivers, and lakes are a key component of outdoor recreation on National Forests, providing recreation destinations as well as the habitats that help support activities such as fishing, hunting, wildlife viewing, and more. According to the Forest Service, national trends

[2] See BMBP's Aquatics Addendum and associated exhibits and resources in BMBP's DEIS submission materials for additional relevant aquatics commetns.

suggest that 42% of visitors list quiet recreation such as hiking (24.9%), fishing (5.4%), hunting (4.3%), wildlife viewing (1.5%), primitive camping (0.6%), backpacking (0.7%), cross country skiing/snowshoeing (2.9%), and non-motorized water (1.7%) as their primary reason for visiting National Forests (USFS 2018). Preserving undeveloped and unroaded landscapes, core habitats, and aquatic connectivity is vital for ensuring that quiet recreation opportunities such as fishing continue to exist. Only 6.5% for visitors report motorized uses as their primary activity, including driving for pleasure (4.3%), OHV use (1.0%), motorized trail activity (1.1%), and motorized water activities (0.1%) (USFS 2018).. The quiet, non-motorized uses that the vast majority of visitors report as their primary reason for visiting are, at least in part, dependent on ensuring that strong protections are in place for the aquatic and terrestrial ecosystems in the Blue Mountains.

B. Failure to include enforceable, quantitative standards needed to ensure ecosystem integrity

The 2012 Planning Rule § 219.9 requires that Forest Plan components maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, and maintain and restore their structure, function, composition, and connectivity. The 2012 Planning Rule regulations specify that the plan must include plan components that maintain or restore key characteristics associated with terrestrial and aquatic ecosystems, and rare aquatic and terrestrial plant and animal communities.

The draft Plan fails to comply with the 2012 Planning Rule direction to include components such as standards and guidelines that will "*maintain or restore the ecological integrity of terrestrial and aquatic ecosystems in the watersheds in the plan area*." Unfortunately, the absence of clear, enforceable, and mandatory standards that protect streams from logging, roads, and livestock grazing will result in degraded ecosystems-- not in maintaining or restoring ecological integrity as required. Unfortunately, the DEIS fails to include the quantitative, clear, and enforceable standards needed to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area. The DEIS completely lacks the standards necessary to ensure that streams have the structures, function, composition, and connectivity that are required for the survival of native species, including imperiled salmon and trout.

PACFISH and INFISH were originally adopted in 1995 by the United States Forest Service to protect riparian areas and streams that support fish, with the goal of preserving runs listed under the Endangered Species Act (ESA) and to avoid future listings. PACFISH applies to anadromous fish runs, whereas INFISH applies to streams with resident fish that do not migrate to the ocean. PACFISH/INFISH required the establishment of riparian habitat conservation areas (RHCAs) and riparian management objectives (RMOs). DEIS at 38. Despite the Forest Service's concession that these amendments "provide protective measures for fish species listed as threatened or endangered under the ESA," it proposes no alternative model to protect said riparian habitat conservation areas.

Instead, the Forest Service has eliminated every single one of the Riparian Management Objectives (RMOs) standards under PACFISH/INFISH proposed Blue Mountain Forest Plans. The current RMO standards are tailored to the specific biological and habitat needs of imperiled

salmon and trout, and are essential for protecting the fundamental components of aquatic habitats and ecosystem integrity. They include standards such as requiring an adequate amount of large wood in streams, number of pools per mile of stream, pool depth to width ratio, cool stream temperatures, shade, and low levels of fine sedimentation, among others. Without these standards, the DEIS does not have any mechanisms for maintaining, restoring, or protecting the habitat needs of imperiled aquatic and riparian species.

Abandonment of PACFISH/INFISH and RMOs, as well as the loss of quantitative and enforceable standards, will not protect ESA-listed aquatic and riparian species or their habitats during the implementation of the Forest Plan Revision. The increase pace and scale of logging; abandonment of designated old growth management areas and wildlife corridor standards, and the rollback of the 21" dbh limit on logging large trees—these will cause significant detrimental negative effects to ESA-listed species and their designated habitats. The proposed Forest Plan Revision does not contain any mechanisms to ensure that possible detrimental effects will not be long-term, and will not result in the loss of viability for at-risk and ESA-listed species or cause jeopardy for these species.

The DEIS's failure to include PACFISH/INFISH and RMO standards does not follow the best available science. Scientific research, including the agency's own research and data, have confirmed that PACFISH/INFISH standards have been essential for protecting aquatic habitats and imperiled trout and salmon. For example, a landmark study by Forest Service scientists concluded that implementing PACFISH/INFISH standards reversed negative trends for numerous key habitat components, and led to significant improvements in stream and riparian conditions (Roper et al. 2019).

The peer-reviewed published study *Did changes in western federal land management policies improve salmonid habitat in streams on public lands within the Interior Columbia River Basin?* (Roper et al. 2019) examined stream habitat data in the Columbia Basin, including in National Forests in the Blue Mountains in eastern Oregon and southeastern Washington. The authors note that "***Historic management actions authorized or allowed by federal land management agencies have had a profound negative effect on salmon, trout, and char populations and their habitats"*** and that their findings ***"…support the hypothesis that changes made in management standards and guidelines in the 1990s are related to improved stream conditions."***

The Roper et al. 2019 authors evaluated "*the status and trends of ten stream habitat attributes; wood frequency, wood volume, residual pool depth, percent pool, pool frequency, pool tail fines (< 6 mm), median particle size, percent undercut banks, bank angle, and streambank stability in managed and reference catchments following changes in management policies."* The authors note that their research *"provides affirmation that reducing or altering how resource extraction efforts are conducted near streams has fostered the conservation of habitats that sensitive and ESA listed aquatic species require."*

The findings from the Roper et al. 2019 study regarding stream habitat components crucial for ESA-listed fish found that the *"trends towards increased median particle size and fewer pool tail fines in managed stream reaches suggest efforts to limit sediment inputs from timber harvest,*

road construction, improved road maintenance, and by decommissioning road segments have likely led to streambed substrate conditions in managed catchments that are more suitable to salmonids today than they were two decades ago (Furniss et al. 1991; Cristan et al. 2016). As streambed sediment size plays an important role in salmonid occupancy (Al-Chokhachy et al. 2010b) and spawning success (Chapman 1988; Buffington et al. 2004), the trends in these stream habitat metrics should ultimately increase the capacity of managed stream reaches to produce salmonids. Increases in wood frequency and wood volume further support the hypothesis that changes in land management policies have improved stream habitat conditions."

The Roper et al. 2019 authors also noted that *"managed streams had approximately a third less wood than reference streams at the beginning of this study (2004) likely reflects historic land management activities that had greatly reduced the amount of wood reaching and being maintained in managed streams (Ralphs et al. 1994; Kershner et al. 2004b; Steel et al. 2016).* This finding further bolsters evidence that logging degrades crucial stream habitat components.

The Roper et al. 2019 study concluded that "*our analysis indicates the status and trends of stream conditions in a subset of managed catchments, as measured by their value to salmonids and compared to reference conditions, were generally improving within the study area. Improvements in stream conditions suggest the Forest Service and BLM are addressing their legal mandate to implement conservation actions that improve the habitat of ESA listed salmonid species. This improvement is likely in part due to more conservative riparian management standards implemented in federal land management plans in the Pacific Northwest (Boisjolie et al. 2017). In addition to limiting activities in 100 m wide riparian habitat conservation areas on both sides of fish bearing streams, federal managers have put in place best management practices to limit sediment input to streams from roads (Al-Chokhachy et al. 2016; Sosa-Pérez and MacDonald 2017), and have greatly reduced the amount of timber harvested from federal lands in the region (Adams et al. 2006). Given the conservative nature of these 20-year-old management plans, it should not be surprising that many stream conditions have responded positively to these changes over this timespan."*

Roper et al. 2022 notes that *"Less than half of the western wadable streams are considered to be in good condition (Faustini et al. 2009), and most large rivers have been substantially altered (Bond et al. 2019). We found that* ***natural disturbance events tended to have a neutral or beneficial effect on stream conditions important to salmonids.*** *This suggests that federal managers should strive to maintain the ecosystem components that foster natural disturbances, such as vegetated riparian areas, natural stream flows, and beavers (Pollock et al. 2014; Justice et al. 2017; Roper et al. 2019). To do this,* ***public land managers must continue to address legacy conditions that constrain stream channel response, such as the loss of beaver, roads in the floodplain, and areas where the riparian zone has been harvested*** *(Obbard et al. 1987; Meredith et al. 2014; Yeung et al. 2017) while making progress towards aquatic systems that are more resilient to climate change (Jaeger et al. 2014; Gendaszek et al. 2020).*

Roper et al. 2022 also note that *"Lastly, there appears to be a trend towards decreased stream flow in some channels (Zhang et al. 2021).* ***As stream channels in managed landscapes are more prone to diversion and are inherently drier than unmanaged catchments (especially***

those that are grazed; Table 1), they appear to be more susceptible to run dry at some point during the summer *(Jaeger et al. 2014)."*

The Forest Service has also admitted in past Forest Plan analyses that passive restoration is effective for restoring streams, recognizing that the upward trends towards aquatic recovery across the landscape are a result of PACFISH/INFISH protections. For example, the Blue Mountains Forest Plan Revision FEIS from 2018 repeatedly acknowledges that PACFISH/INFISH direction has been instrumental in creating upward trends towards recovery for streams, water quality, and riparian areas (USFS 2018, FEIS Vol. 1, Chap. 3, pg. 149, 162, 163, 368). The FEIS notes that "riparian areas in the project area are in improved condition and are trending toward continued recovery" and that "riparian and aquatic habitat conditions are currently trending upward" following the 15-plus years of management under PACFISH/INFISH (USFS 2018, FEIS Vol. 1, Chap. 3, pg. 149). Current PIBO reports from 2025 confirm that those trends persist (Saunders et al. 2025 PIBO reports for the Malheur, Umatilla, and Wallowa-Whitman NFs).

The Holthuijzen 2021 study *Passive Restoration of a small mountain stream in eastern Oregon* found that passive restoration of a small stream over 11 years resulted in substantially lower stream temperatures, increased shade, and increased trees and shrub cover over the stream. The author notes: *"In this study, I documented the results of 11 years of passive restoration of a small mountain stream in northeastern Oregon. Removal of the main stressors on the system, grazing and agricultural practices, resulted in a strong recovery of the riparian vegetation over the middle two-thirds of the reach. Cover of trees and shrubs tripled, tree density increased sevenfold, and stream shading fourfold over the period 2007 through 2018. Average maximum daily stream temperature declined by 2.1 to 2.8 °C, and average maximum diurnal temperature range narrowed by 3.7 to 4.6 °C. Recolonizing American beavers (Castor canadensis) played an essential role in improving the condition of the streambed over 18% of the reach. Their dams and ponds initiated the process of streambed aggradation and transformed the single-thread, incised channel into a multi-thread configuration within beaver complexes. Vegetation expansion was much stronger in impounded than in un-impounded parts of the stream. Passive restoration was not effective in two sections, together comprising one-third of the reach. In the upper part of the stream, recovery stalled because of continued (unauthorized) trespass grazing during late summer and fall. The channelized lower section of the stream was too severely modified for measurable recovery to occur. I concluded that* ***11 years of passive restoration improved the functionality of the stream from 24% to 32%, and within beaver complexes, up to 57% of its pre-disturbance condition."***

Recent data from the PACHFISH/INFISH Biological Monitoring program (PIBO) on the Malheur, Umatilla, and Wallowa-Whitman National Forests also confirm that unmanaged, reference streams are in substantially better condition compared to managed streams. Key habitat components for imperiled trout and salmon such as large wood in streams, pool frequency and depth, and stream bank stability, are consistently in far better condition in unmanaged, reference streams compared to managed streams. PIBO reports also show that managed streams have much lower overall stream health index scores, across all three Forests as well as each individual

Forest and at the watershed scale (Saunders et al. 2025 PIBO reports for the Malheur, Umatilla, and Wallowa-Whitman NFs).

The following figures are from the PIBO report (2025) for the Malheur National Forest. They clearly illustrate that unmanaged streams are in far better condition compared to managed streams, both overall and when looking at their habitat components such as large wood, residual pool depth, and pool percentage:

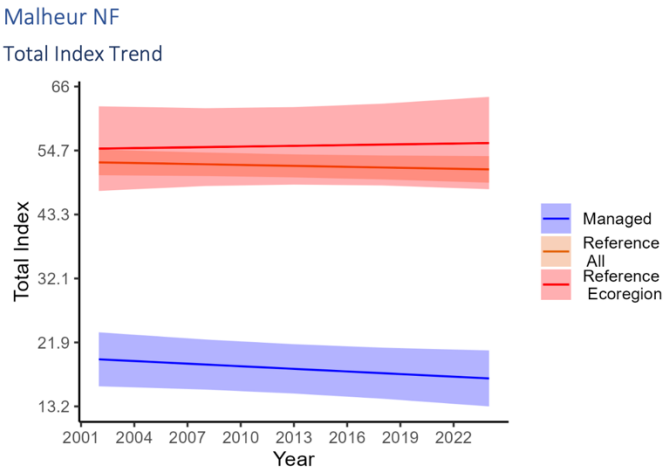


Figure 4. Modeled trend in Total Index across the Malheur NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

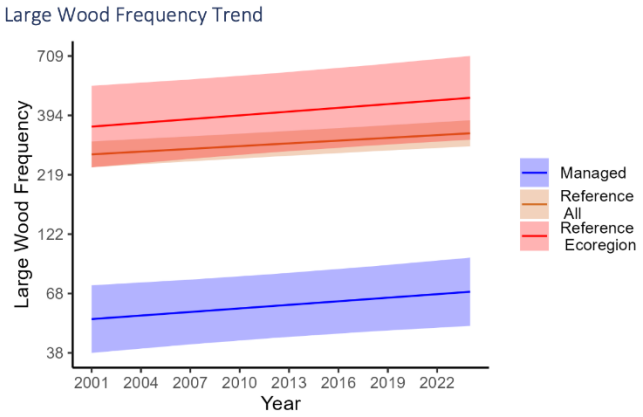


Figure 19. Modeled trend in Large Wood Frequency across the Malheur NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

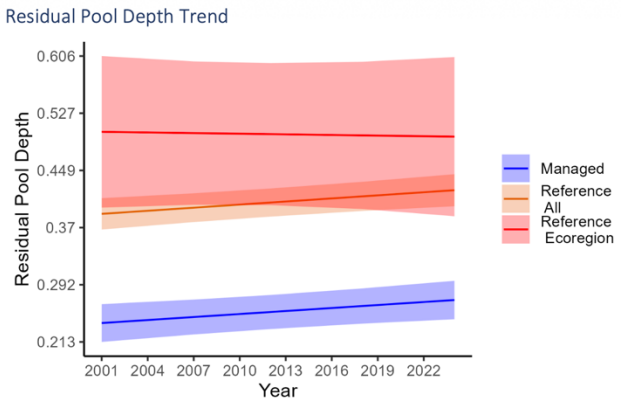


Figure 7. Modeled trend in Residual Pool Depth across the Malheur NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

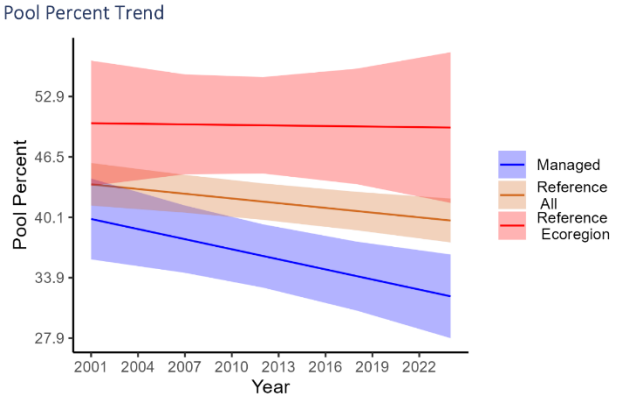


Figure 10. Modeled trend in Pool Percent across the Malheur NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

The following figures are from the PIBO report (2025) for the Umatilla National Forest. They clearly illustrate that unmanaged streams are in far better condition compared to managed streams, both overall and when looking at their habitat components such as large wood, residual pool depth, pool percentage, and bank stability:

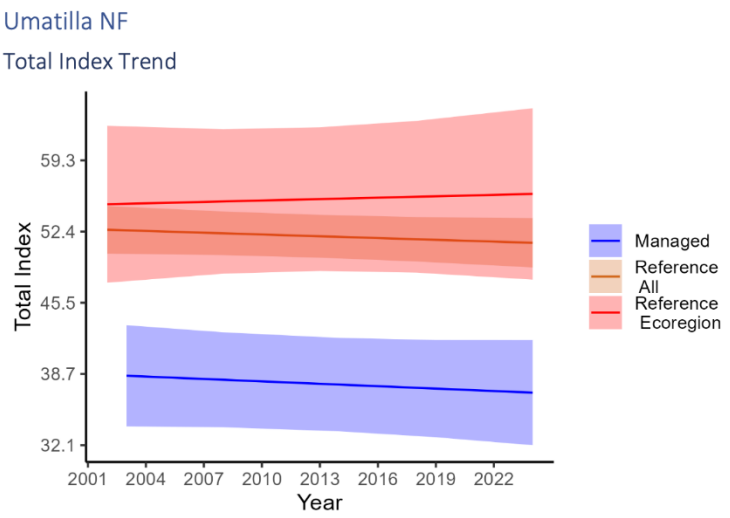


Figure 4. Modeled trend in Total Index across the Umatilla NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

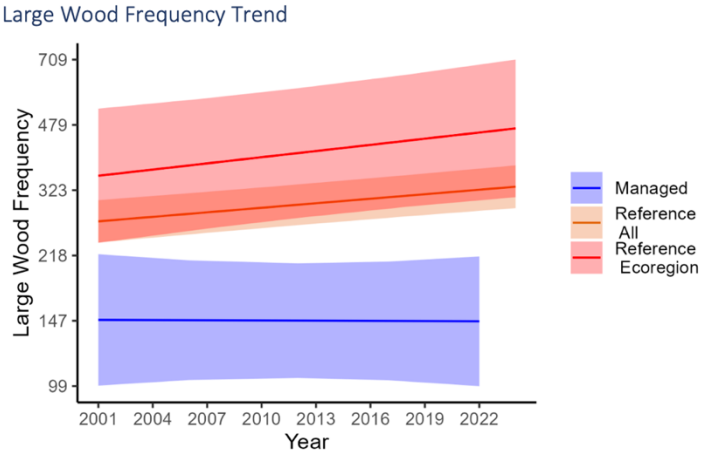


Figure 42. Modeled trend in Large Wood Frequency across the Umatilla as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

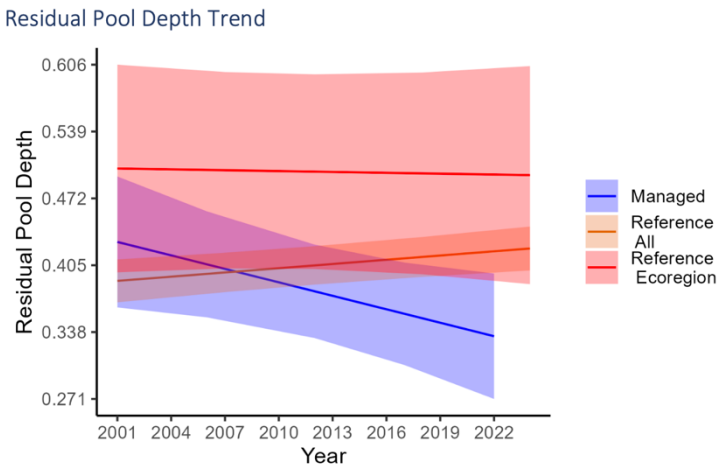


Figure 30. Modeled trend in Residual Pool Depth across the Umatilla as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red. Warning: the effect Geology has been removed from the managed model due to low variance within the sample range.

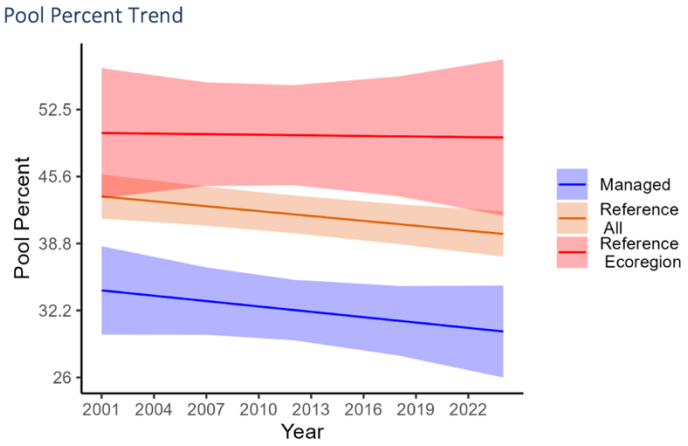


Figure 10. Modeled trend in Pool Percent across the Umatilla NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

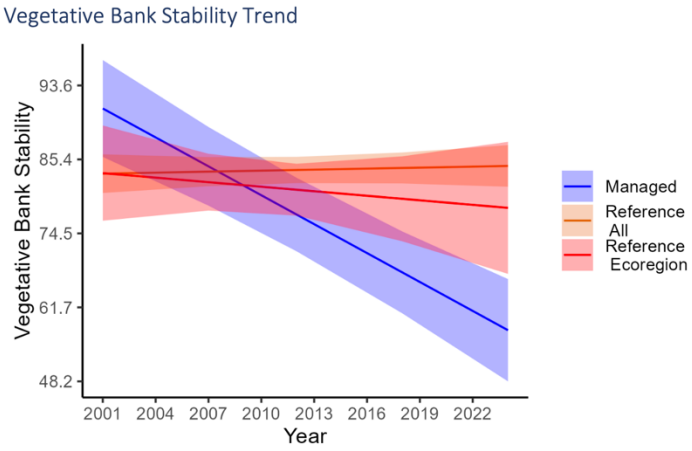


Figure 26. Modeled trend in Vegetative Bank Stability across the Umatilla NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

The following figures are from the PIBO report (2025) for the Wallowa-Whitman National Forest. They clearly illustrate that unmanaged streams are in far better condition compared to managed streams, both overall and when looking at their habitat components such as large wood, residual pool depth, pool percentage, and bank stability:

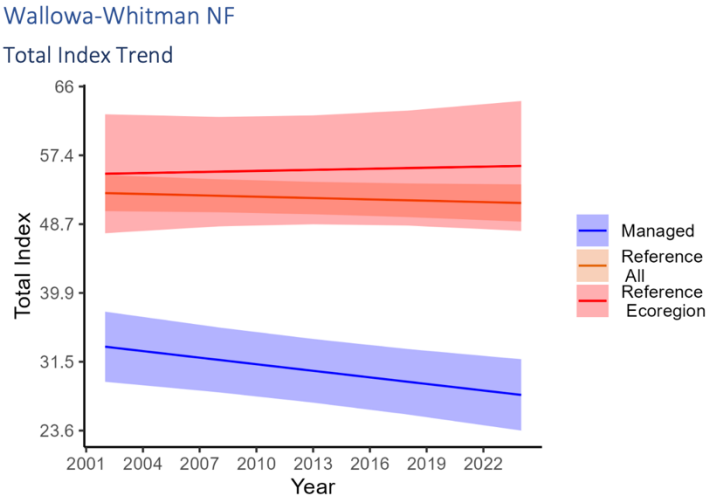


Figure 4. Modeled trend in Total Index across the Wallowa-Whitman NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

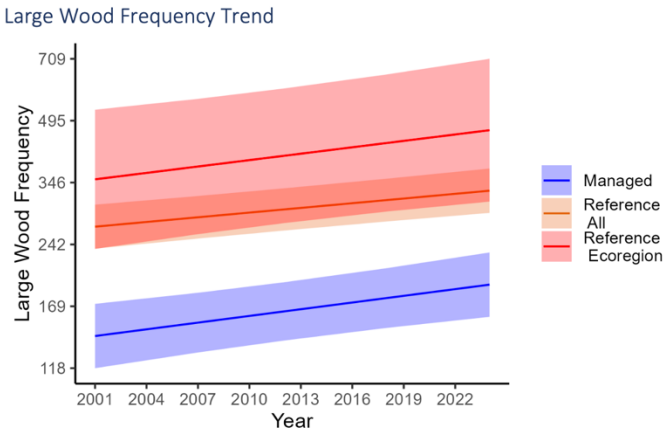


Figure 19. Modeled trend in Large Wood Frequency across the Wallowa-Whitman NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

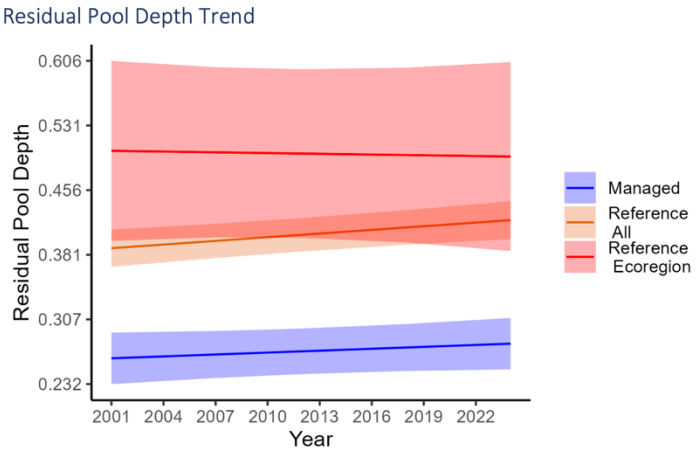


Figure 7. Modeled trend in Residual Pool Depth across the Wallowa-Whitman NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

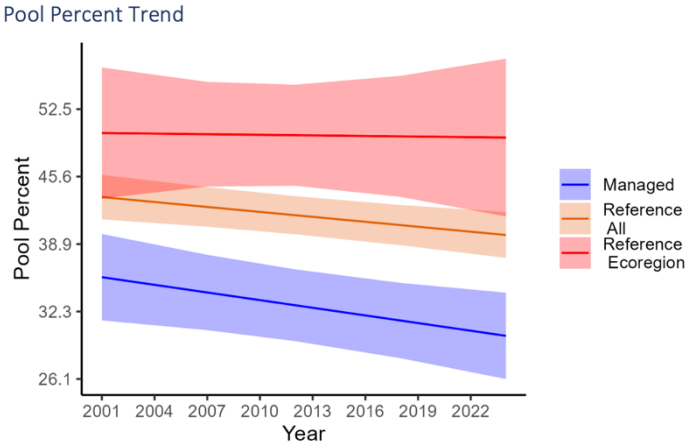


Figure 10. Modeled trend in Pool Percent across the Wallowa-Whitman NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

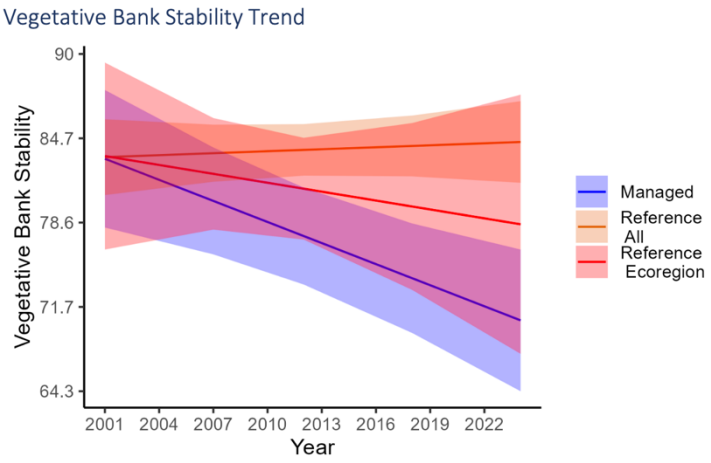


Figure 26. Modeled trend in Vegetative Bank Stability across the Wallowa-Whitman NF as a solid blue line. Shaded portion represents the 90% confidence interval. Modeled trend in reference sites are included for comparison with local ecoregion in orange and all reference in red.

The Roper et al. 2019, Roper et al. 2022, and Holthuizen 2021 studies, along with the PIBO monitoring reports, bolster extensive existing evidence that PACFISH/INFISH, in greatly limiting upland logging and providing large no-cut buffers along streams, have been responsible for moving stream ecosystems towards recovery and helping to restore ecosystem integrity over the past 30 years. It is unconscionable that the Forest Service is proposing to repeat the mistakes of the past by increasing streamside logging while simultaneously eliminating PACFISH/INFISH standards. The Roper et al. 2019 and 2022 studies also add to a large body of research that shows that logging and road-related impacts harm stream habitats, aquatic ecosystems, and water quality.

Unfortunately, the DEIS failed to take a hard look at any of the benefits associated with PACFISH/INFISH standards—despite the overwhelming scientific evidence that these standards have been essential to the restoration of stream habitats. As a result, the agency has failed to provide meaningful protections for streams, water quality, and aquatic habitats, or to meaningfully compare the no action and action alternatives.

While the Forest Service has, in recent years, increasingly been logging within RHCAs, the strong and quantitative standards in PACFISH/IINFISH stopped or curtailed most logging within RHCAs for approximately 30 years. In the past several years the agency has, regrettably and increasingly, been working to skirt regulations and exploit loopholes, in order to ignore RMOs and PACFISH/INFISH buffers. The agency has increased logging, including commercial logging, within streamside buffers-- despite strong evidence that logging degrades or destroys stream habitat components, ecosystem integrity, and water quality. Conversely, there is a veritable mountain of research showing that protecting riparian corridors from logging has helped streams and aquatic species move towards recovery. This includes evidence showing that the Eastside Screens and PACFISH/INFISH protections are key for the recovery of streams and ESA-listed and imperiled fish.

It is important to note that the USFS's PIBO monitoring project may be defunded and shuttered due to budget cuts, restructuring, cancelation of federal research programs, and other attacks from the current administration. While the USFS failed to include PIBO data in the DEIS, it is also likely that such data may not even exist in the future. We are extremely worried about the lack of baseline data for habitat conditions throughout the DEIS, and the lack of analysis on how the proposed Forest Plan Revision will affect habitat components. We are also very worried that, in the future, the agency will simply stop monitoring and collecting crucial data altogether. Baseline data and ongoing monitoring are required for adaptative management. The agency is failing to incorporate the data they have, and failing to ensure that such monitoring efforts are able to continue into the future.

Despite the scientific evidence showing that passive restoration has been responsible for moving streams towards recovery, the Forest Service is instead choosing to prioritize active vegetation management and silvicultural strategies (i.e., logging). While other active restoration methods are included, and often much less scientifically controversial, the Forest Service and the collaboratives have a long track record of being ahead of stated goals for logging, and lagging far behind on goals for other aquatic restoration methods such as culvert repair.

In addition, the 2012 Planning Rule requires that, in order to maintain ecosystem diversity, Forest Plans must include components that maintain or restore key characteristics associated with terrestrial and aquatic ecosystem types. PACFISH/INFISH protections have been effective in protecting diversity because they include standards that protect the key characteristics of aquatic ecosystems such as large wood in streams, pool frequency, and other RMOs. The draft Plan, which eliminates standards for key ecosystem characteristics, does not comply with the requirements of the 2012 Planning Rule.

We request that the Forest Plan Revision FEIS include an alternative that not only retains PACFISH/INFISH and RMO standards, but also strengthens them to protect streams from logging, livestock grazing, and other management which is clearly harming stream ecosystems and ecological integrity.

C. The DEIS's standards, guidelines, and management approaches fail to align with desired conditions. They also fail to address the primary drivers of degradation for water quality and stream habitats:

The guidelines and management objectives for RMAs, Water Beneficial Uses, Municipal watersheds, Species Diversity, and other components fail to further the goals outlined in their respective desired conditions. Instead, the DEIS emphasizes management actions which will have well-documented negative effects on water quality and stream habitats that are in direct opposition to the stated desired conditions.

1. Water Beneficial Uses

For example, the Desired Condition for Water Beneficial Uses as proposed in the DEIS reads as follows: "Stream flows are of sufficient quantity and quality, consistent with natural flow regimes and future climatic conditions, to contribute to human uses and ecosystem needs that support beneficial uses of water as defined by Washington and Oregon. See also FW-WTR-DC-

03, FW-TRSPT-DC-01, FW-RECDEV-DC-04, FW-RECSUP-DC 01 – 03, FW-RNG-DC-01, 02 and 04 – 06, FW-MEG-DC-03, FW-LAND-DC-01"

However, the DEIS's proposed guideline for Water Beneficial Uses emphasizes multiple use (which is largely used to emphasize timber and economic uses) and water rights—failing completely to support the stated Desired Conditions. Specifically, the DEIS's guideline for Water Beneficial Uses is "To support multiple uses in the national forest, forest management should follow state law to exercise federally reserved water rights, maintain existing permitted water rights, and look for opportunities to acquire new permitted water rights."

The DEIS completely omits any mechanism for achieving the Desired Conditions for Water Beneficial Uses—i.e., maintaining and restoring stream flows of sufficient quantity or quality consistent with natural flow regimes, or for maintaining and restoring the beneficial uses in those streams as defined by Washington and Oregon.

Furthermore, the DEIS's proposed Management Approach for Water Beneficial Uses is: "*Forest management seeks to make the most efficient use of existing water sources to benefit the public and multiple uses in the national forest and supports the water conservation goals of Washington, Oregon, and local counties."* Again, the DEIS has completely omitted any mechanism for achieving the goals stated in the Desired Conditions—i.e., maintaining and restoring stream flows of sufficient quantity or quality consistent with natural flow regimes, or for maintaining and restoring the beneficial uses in those streams as defined by Washington and Oregon. The guidelines and management approaches outlined in the DEIS do not support the Desired Conditions, and do not provide any mechanisms by which to maintain, restore, or protect stream flows, water quality, natural flow regimes, or state water quality standards.

The Forest Service has abdicated their responsibility to maintain, restore, or protect Water Beneficial Uses. Emphasizing multiple uses and simply pointing to supporting water conservation goals for the states and local counties is a smoke screen, and lacks any substantive requirements for stream flow regimes, or flow quantity or quality. The Forest Service is tasked with land management on National Forests, which includes developing the restoration plans for streams and aquatic ecosystems on National Forests. It is the Forest Service's responsibility to outline and define management plans to ensure that state water quality standards are met. The DEIS fails to fulfill this obligation through the glaring omission of the standards needed to actually achieve the Desired Conditions.

Washington and Oregon do have Clean Water Act laws regarding water quality parameters such as stream temperatures, fine sediments, and others. For most streams on National Forests, the states' Beneficial Uses for streams are tailored to the biological needs of native salmon and trout, which require clean, cold water and sufficient baseflows. While Oregon and Washington have state water quality standards, the states do not develop specific restoration plans for how streams and aquatic ecosystems are managed on National Forest lands in order to achieve the states' designated Beneficial Uses. If streams on National Forest lands are in violation of the state water quality standards, then TMDLs are developed in cooperation with the states. However, the actual

land management portion of the TMDLs on National Forests is, again, the responsibility of the Forest Service to develop and implement.

We also note with concern that the Forest Service has increasingly been using stream shade as a surrogate for water temperature. Maintaining cold water in streams is crucial for ensuring that Bull trout, steelhead, chinook, and other salmon and trout remain viable and move towards recovery—and that the beneficial uses that support salmon and trout are met. Unfortunately, the agency is increasingly attempting to sidestep stream temperature standards, instead claiming that maintaining a narrow width of stream shade will protect water temperatures. This is demonstrably false.

Stream temperatures and shade are not well correlated in many (perhaps the majority) of instances for which the Forest Service has those data. While stream shade standards create the illusion of temperature compliance, in reality stream temperatures are often excessively high and at levels recognized as limiting or lethal for ESA-listed and sensitive fish.

One has only to look briefly at NEPA documents to understand that data on the percent of shade in a streamside corridor is a poor substitution for water temperature data. For example, in the Aquatics Report of the Camp Lick timber sale on the Malheur National Forest, 25 out of the 31 stream reaches that the USFS surveyed for shade met fish habitat objectives. Yet, only 6 out of 25 of the reaches with stream temperature data met the USFS's fish habitat objectives in those streams (Camp Lick Aquatics Report pages 17-19). Clearly, using stream shade as a proxy for stream temperature in these eastside forests is not appropriate. While we understand that stream shade is an important driver of water temperatures, it is not the only one. Many factors influence stream temperatures, as we've discussed and provided scientific references for in numerous portions of these comments.

While protecting stream shade is a very important component of protecting stream temperatures, it is not the whole story. Particularly if watersheds are suffering from ongoing forest degradation and altered hydrology from logging and roads—then simply protecting shade does not sufficiently protect stream water temperatures. Potential negative effects to special status species due to logging and roading are well documented, particularly when conducted near riparian areas and when risks from climate change are considered. For example, the USFS's 2018 Draft Forest Plan Revision for the Blue Mountains (vol. 2 pg. 48) noted: *"Timber harvest can influence aquatic ecological condition via such activities as removal of trees in the riparian zone, removal of upslope trees, and associated understory or slash burning (Hicks et al. 1991). These activities can affect wood recruitment, stream temperatures, erosion potential, stream flow regime, and nutrient runoff, among others (Hicks et al. 1991). Effects of harvest are likely to be different at different scales. Hemstad and Newman (2006) found few effects of harvest at the site or reach scale, but found that harvest five to eight years earlier resulted in losses of habitat quality and species diversity at the scale of a stream segment (larger than a reach) or at the subwatershed level. Those losses were revealed in terms of increases in bank instability and fine sediment throughout the watershed and increased water temperatures and sediment problems throughout the channel segment. The cumulative effects of widespread harvest within a single drainage in a short period of time resulted in deterioration of the aquatic and riparian habitats, but evidence*

of effects lagged harvest by several years and different evidence of deterioration showed up at different spatial scales within the watershed".

The Walla Walla River Tributaries Temperature TMDL 2007 (Baldwin and Stohr pg. 62) also emphasizes unembedded cobble in streams as important for maintaining stream temperatures. For example, the TMDL notes that increases in fine sediments could increase stream temperatures in the Upper Touchet River: *"Currently the Wolf Fork and North Fork Touchet streams are staying cooler than some systems with similar levels of shading because the large size cobble substrate allows for a high level of intergravel mixing and contact with cooler springs and groundwater. Reduction in summer flows, reduction in spring input, or increase of fine sediment in the gravel and cobbles could cause this Upper Touchet River system to heat instead of maintain or improve temperature."*

Multiple lines of evidence from primary peer-reviewed literature suggests that logging, including riparian thinning and upslope logging, has negative effects on stream temperatures. For example, Guenther et al. (2012) found increases in bed temperatures and in stream daily maximum temperatures in relation to 50% removal of basal area in both upland and riparian areas. Increases in daily maximum temperatures varied within the harvest area from 1.6 to 3 degrees Celsius. Pollock et al. 2009 found that stream temperature was more closely associated with degree of logging within catchments than with streamside vegetation.

Small streams are particularly vulnerable to increases in temperature, even with limited selective logging. There is evidence to suggest that wider buffer widths may be necessary to protect stream temperatures, particularly in intermittent and headwater streams, and particularly when logging within 100' of streams.

Parameters that influence stream temperatures include, stream shade, overland flow, groundwater and hyporheic flows, and groundwater storage. Alteration of these parameters can increase stream temperatures, especially in small streams. Logging degrades the ability of these parameters to support cold water, and so is likely to increase stream temperatures. (Caissie 2006; Davies and Nelson 1994; DeWalle 2010; Kiffney et al. 2003; Groom et al. 2011; Groom 2011; Jones et al. 2006; Sweeney 2013; Sweeney & Newbold 2014; Newcombe & Jensen 1996; Pollock et al. 2009; Wigington et al. 2006; Poole et al. 2008; Poole and Berman 2001; Ebersole et al. 2015). Even in situations where logging within riparian corridors is limited to thinning of smaller diameter trees, logging may compromise the ability of the riparian buffer to protect streams or ameliorate the negative impacts from upland logging, including increased stream temperatures and the delivery of sediment and nutrients into waterways. Logging is also likely to increase surface runoff and overland flow, potentially delivering warmer water (and excess sediments) into streams more quickly and with a greater volume. As discussed in other sections of these comments, such inputs can also cause erosion and alter stream morphology. Such issues can, in turn, affect stream temperatures.

2. Riparian Management Areas

Similarly, the Desired Conditions outlined for Riparian Management Areas (RMAs) have the same issues of disconnection. There are no mechanisms within the Standards, Guidelines, and Management Approaches to achieve the DEIS's stated goals outlined in the Desired Conditions.

The Desired Conditions proposed for RMAs in the DEIS include, for example:

> *"03. Riparian Management Areas provide stream habitat and ecological conditions (e.g. bank stability, substrate size, pool depths and frequencies, channel morphology, large wood size and frequency) capable of supporting self-sustaining populations of native and desired non-native aquatic and riparian-dependent plant and animal species, including species at risk. See also FW-SPDIV-DCs.*
>
> *04. The transportation system has minimal impacts on Riparian Management Area conditions through reduced hydrologic connectivity of roads to streams, lower sediment delivery to streams, reduced road impact to floodplains, and restored aquatic organism passage, where transportation infrastructure affects these features.*
>
> *05. Livestock grazing of riparian vegetation is managed to retain sufficient plant cover, rooting depth and vegetative vigor to protect streambank and floodplain integrity against accelerated erosional processes and allow for appropriate deposition of overbank sediment."*

However, none of the four standards for RMAs contain requirements that further the goals outlined in the Desired Conditions #3-5. For example, the only RMA standard that addresses livestock grazing states that *"[a]uthorizations must be designed to avoid livestock trampling of federally listed threatened or endangered fish redds."* This standard does not provide any mechanisms for the achievement of goals outlined in the Desired Condition #5, which is the only Desired Condition dealing with livestock grazing-- namely to retain plant cover, rooting depth and vegetative vigor along streambanks. Nor does the standard address the goals in Desired Conditions #5 regarding floodplain integrity, protect against erosion, or support appropriate sediment deposition in relation to livestock grazing. Again, there is no mechanism within the Standards that achieve or uphold the Desired Conditions with regard to livestock grazing. This is one example, illustrating a repeated problem throughout the Aquatics-related components in the DEIS.

Also, none of the four standards for Riparian Management Areas (RMAs) include quantitative standards that define or protect specific stream habitat components or water quality. In addition, none of these standards address logging and activities associated with logging (such as road-related activities, hauling, skidding, landings, etc.). Logging and the associated road and log haul activities have many well-documented threats to stream habitat and water quality. The draft Plan's single standard for RMAs regarding livestock grazing contains no teeth for enforcement, and only includes direction to "avoid" livestock trampling of ESA-listed redds. "Avoid" is an extremely weak and subjective standard, and lacks any mechanism to ensure that livestock do not in fact trample redds—or salmonids at other life stages and other sensitive aquatic species.

Also of concern is that this "standard" only includes direction to *avoid* livestock trampling federally listed threatened or endangered fish redds. The standard should prohibit trampling of redds, as well as the degradation or destruction of ESA-listed species or their habitats. This is an unacceptably low bar that will not achieve viability or recovery of the ESA-listed fish.

We also note, for example, that the DEIS under 'management approaches' (MA3A-RMA-MAPR) asserts that stubble height isn't applicable in upper reaches, and provides numerous exceptions and maximum discretion for the agency and for livestock use. The photos below are from Grubb Creek on the Malheur National Forest, along upper reach small tributaries. The photos show trampled and denuded streambanks—with remnants of grass still visible in small patches. Clearly, stubble height is not only applicable here, but enforcement is sorely needed:





The other three standards for RMAs include requirements for herbicide use, mining waste, and the aerial application of fire retardant—none of which provide mechanisms for attaining any of the goals outlined in the Desired Conditions.

The few Guidelines for RMAs that do manage to include language connecting them to the goals stated in the Desired Conditions unfortunately do not contain any quantitative goals regarding the maintenance or recovery of key characteristics of ecosystem components. In order to protect ecosystem integrity, the Forest Plan Revision must include quantitative protections for key habitat components, such as those in current PACFISH/INFISH RMOs regarding how much large wood should be maintained in streams, how many pools should be present in stream reaches, what the pool depth-to-width ratio should be, limits on excess fine sediments or stream temperatures, or other guidance for ensuring that the biological needs and habitat requirements of native salmonids, trout, and other aquatic species are met. Current RMOs should be included in full, as standards, in the Forest Plan Revision.

The DEIS states that *"Riparian areas are not intended to be "no touch zones," but rather "carefully managed zones" with increased protection closer to waterbodies. In addition to stream category, minimum RMA widths, an inner zone of protection is established to encompass the stream channel and banks as well as adjacent features such as wetlands, channel migration zones, steep slopes, erosive soils, and potentially unstable areas. For smaller streams that lack these features current State Forest Practices rules are used to set the minimum width of the inner zone. If an existing system road is located within the inner zone, then the inner zone can end at the toe of the road fill. In some cases, the inner zone would extend throughout the entire MA 3A Riparian Management Area width."*

In abandoning the no-cut buffers under PACFISH/INFISH and instead emphasizing logging within RMAs, the Forest Service is ignoring the overwhelming scientific evidence, including research by agency scientists, showing unequivocally that PACFISH/INFISH and RMO standards have been instrumental for restoring streams. The research shows that unmanaged streams are in better conditions than managed streams, and that passive restoration has been successful in reversing negative trends in stream conditions (see our discussion above, in our comments on the 2012 Planning Rule and aquatic ecosystem protections). In addition, buffer widths under the State Forest Practices Act will not convey the same and needed level of protection on federal lands that have been in place under PACFISH/INFISH for the past 30 years. Evidence suggests that stronger protections and larger buffers are needed to protect small streams, imperiled trout and salmon, and stream habitats. (See discussion above under Water Beneficial Uses).

The DEIS notes that alternative 3 contains additional standards and guidelines that the alternative 2, the preferred alternative does not (DEIS pgs. 222-223):

> *"Standards (MA3A-RMA-STD) Alternative 2 does not have standard 5 and 6. Alternative 3 includes the following standards:*
>
> *05. Vegetation management projects must delineate an inner zone of enhanced protection that includes the stream channel and banks, and adjacent sensitive features such as wetlands, channel migration zones, steep slopes, erosive soils, and potentially unstable areas that may extend beyond RMA minimum widths.*
>
> *06. Tree felling and removal in the inner riparian zone must not occur unless it moves the RMAs closer to desired conditions. Guidelines (MA3A-RMA-GDL)*
>
> *Alternative 2 does not have guidelines 21-24. Alternative 3 includes the following guidelines:*
>
> *21. To maintain and restore riparian microclimate, stream bank stability, and channel complexity, trees felled in the inner zone should be left onsite unless down wood is in excess of what is needed to achieve aquatic and riparian desired conditions.*

22. To minimize ground disturbance and sediment delivery, vegetation treatments using ground-based equipment should not operate in the inner zone except for stream crossing construction and stream habitat restoration.

23. To retain adequate stream shade and microclimate, even-aged regeneration harvest should not occur within the inner zone.

24. To maintain large wood recruitment to streams, salvage harvest should not occur in the inner zone."

We note with alarm that the additional standards and guidelines for alternative three clearly illustrate that even-aged "regeneration harvest" (clearcutting) as well as salvage logging can occur in RMAs under alternative two (both within the inner and outer zones), and in the "outer zone" under alternative three. These standards and guidelines also illustrate that commercial logging—i.e., tree felling and removal (with tree removal implying that trees can be sold, since they can be removed)— can take place within RMAs without justification under alternative two, and with the FS only having to claim that it "moves the RMA closer to desired conditions" or that downed wood is "in excess" of subjective and ill-defined desired conditions under alternative three.

Commercial logging and industrial practices such as clearcut and salvage logging within RMAs have no place on public lands. The failure to protect riparian corridors and streams from such logging violates the Clean Water Act, as these practices will degrade water quality and cause violations of stream temperature standards and standards for dissolved oxygen and excess fine sediments.

The DEIS (pg. 222) includes an additional objective for RMAs in alternative 3: "Objectives (MA3A-RMA OBJ) Alternative 2 does not have objective 02. Alternative 3 includes the following objective: 02. Maintain or restore stream habitat conditions through active management, such as berm removal, large wood and boulder placement, beaver dam analogs, process-based restoration and floodplain restoration, and removal of barriers to passage for fish or other aquatic species of concern. Malheur NF: 80 miles per decade Umatilla NF: 40 miles per decade Wallowa-Whitman NF: 90 miles per decade."

We note that restoration strategies such as berm removal, large wood and boulder placement, and removal of fish passage barriers should be baseline actions in restoration plans. They should be included in both alternatives, and no only as objectives but as standards. Further, given that fish passage barriers block hundreds or even thousands of miles of fish habitat across the region (Conservation Biology Institute 2017), the goal of only 40-80 miles of restoration per decade (depending on the Forest) is far, far too low—especially given that all of these actions combined count towards that low number. Also, the agency should prioritize beaver recolonization, rather than beaver dam analogs.

In addition, the DEIS provides no scientific rationale for the creation of "inner" and "outer" zones within Riparian Management Areas. The Forest Service failed to disclose to the public

what scientific studies and research they've selected to inform the DEIS analyses, nor what rationale or justifications they used to include or exclude scientific studies.

a) RMA "Inner" and "Outer" zones, and the USFS's faulty conclusions regarding thinning in mixed-conifer riparian forests

While the draft Forest Plan does not make any direct references to Olson 2000 or Harley et al. 2020, those are usually the studies that the Forest Service points to in order to justify the creation of the "inner" and "outer" zones with riparian corridors, and to justify logging within them. We are including the following concerns about the Olson 2000 and Harley et al. 2020 papers in the assumption that they are implicitly being used by the Forest Service (or similar papers are being used, with similar issues), in the justification for inner/outer zones, logging within RMAs, and ostensible similarities with upland conditions.

The Olson 2000 research mapped fire years for "every year there was clear evidence of fire scarring" (Olson 2000 Appendix E. pp. 181- 237), and show data from 1428 through 1972. In our review of the Olson 2000 maps, we note that substantial portions of these areas had no evidence of any fire, including the headwaters/upper watersheds of Mill, Marble, and Salmon Creeks. In fact, the Olson fire maps show a distinct absence of fire, and so suggest that these areas have infrequent (and likely high severity) fire with long return intervals, and have been acting as fire refugia for centuries. Such forests provide important habitat for species that rely on mature and old forests, and dense and complex canopy forests, and will be instrumental for providing habitat and connectivity in a changing climate. Unfortunately, the complex mosaics of fire history become lumped together in the Olson 2000 analysis, essentially erasing the very real, on-the-ground results that depict an extremely variable landscape that includes very long fire return intervals.

We want to note some finer scale detail from those maps that we observed. Olson 2000 data shows no evidence of fire in higher elevation areas within the Baker study location, such as the upper portions of Mill, Marble, and Salmon watersheds portions of the study area:

- There appears to be no evidence of fire scars shown on the maps for the upper portions of high elevation watersheds such as the Mill, Marble, and Salmon watersheds. The lack of fire scars suggests that these forests are likely to have experienced infrequent, high severity fires historically.
- The maps also show no evidence of fire for these more incised, steep watersheds between 1428-1529 (~100 years).
- Between 1529 and 1645, there are only isolated incidents of evidence of fire scars at single sites in these watersheds, with the exception of 1581 when there was a second location that had "probable" fire evidence. So, between 1428 and 1646 there was no evidence of more than one isolated small fire until 1646 for the three watersheds (~218 years), with the exception of the "probable" other single location.
- Mill Creek had only isolated evidence of fire scars at single sites, with two exceptions, one with 2 sites showing evidence and the other with five (in 1783 and the other in 1828,

respectively). So, aside from single isolated locations showing evidence of fire scarring within Mill Creek, there was no evidence of fire in Mill Creek between 1428 and 1782 (352 years); between 1784 and 1827 (43 years); or between 1829 and 1972 (143 years).

Several of the locations in the Olson 2000 that show repeated fire included those along the mid and lower portions of Mill and Marble creeks appear to have very isolated and small-scale fire activity, possibly suggesting only extremely small fires such as those related to lighting strikes that burn less than one acre. I.e., it is likely that those locations are attracting repeated fire strikes at the same ridge tops and topographic high points.

We also note that the Harley et al. 2020 paper only sampled riparian plots at lower elevations in the Baker plots. The Harley et al. 2020 study notes: "At Dugout, we sampled riparian plots along the major streams throughout the extent of the upland plots. However, at Baker *we only sampled riparian plots at low elevation along the major streams* (below 1770 m) *because visible fire scars did not occur at high elevations at this site."* Wouldn't those higher elevation sites with no apparent/visible fire scars indicate either fire refugia/no fire and/or stand replacement fire in those areas—contrary to how the agency has characterized them, for example in the Suffering Springs timber sale?

The Harley et al. 2020 paper goes on to state: "*All the riparian plots were installed more than 46 m and downslope from existing upland plots (range 49 - 939 m, mean = 316 m; Heyerdahl et al 2001) where fire scars were visible on either lie or dead trees and within the riparian buffer."* It would seem that the targeted selection of sampling plots within areas where both upland and riparian forests showed clear signs of fire scars potentially skew the results and/or bias the conclusions about widespread low intensity fire. I.e., if it was a randomized selection, would there not be more potential evidence for infrequent and high severity fires within the project area?

The only data collected in higher elevation riparian areas was from the Olson 2000 study, which—again-- shows no evidence of fire in significant portions of higher elevation areas within the project area. The authors of the Harley paper stated that they left out possible sites in riparian areas at higher elevation because no visible fire scars were not present. Of course, this biases their findings towards detecting low severity fire regimes, because they left out the very areas that lacked fire scars and that would suggest infrequent and/or high severity fires.

The Harley et al. 2020 study also states: "As elevation increases and terrain becomes more dissected at Baker, *longer and more variable fire intervals also occurred. This is likely a result of forest composition changes related to both topography and elevational changes in temperature, as well as aspect controls on varying insolation levels (Olson 2000); Heyerdahl et al. 2001). When forests occur within interaction zones of climate and topography, such that riparian forests contain greater variety in vegetation composition relative to upslope forests, then fire intervals differ, suggesting that forest composition is important as landscape dissection increases.* Compared with Dugout, *riparian valleys at Baker are more incised and therefore receive less insolation, resulting in a north-facing slope and riparian forest composition that is more mesic compared with adjacent south-facing upslope forests.*"

We note that the authors found longer and more variable fire intervals DESPITE sampling at only lower elevation locations along major streams.

In addition, an overwhelming majority of sample sites in both the Dugout and Baker locations are predominantly on south or west facing slopes. The predominance of south or west facing slopes in the Harley et al. 2020 paper study may also have skewed the results towards more frequent and lower intensity fire being more common in riparian forests (and similar to uplands). If one is looking for statistical differences between riparian and uplands—then predominately choosing sample sites most likely to burn more frequently may dampen any statistical signals one might have found with a more robust sampling protocol. Any possible statistical signal from a small sample size with this composition is likely to be muted or overwhelmed by the larger number of sites that are drier, at lower elevations, and have more gentle and open topography. This is especially the case as the Harley study has an extremely small proportion of sample sites in locations that would be more likely to be more moist and have longer fire intervals (i.e., north, northeast, or east facing slopes; higher elevations; and more incised valleys and gulches).

- The Baker study area plots have a total of 35 upland sites. Twenty of those appear to be primarily on south-facing slopes. Of the 15 sites that have more of a northern or eastern slope orientation, five appear to also include strong southern or western influences, as they are somewhat northwest or southeast facing. Of the 35 upslope sites in the Baker study area, only 10 appear to be clearly on slopes that have a strong north, northeast, or east orientation.
- In the Dugout study area, there appear to be a total of approximately 75 upland sites. Only 12 of those sites appear to be on slopes with strong and predominant north, northeastern, or eastern facing. Of these, four are on ridgetops.
- Riparian sites are almost entirely situated all on the larger order streams within the study area, which tend to be less incised and more open. Only eight suites were situated on smaller tributaries, and only one of these sites faces N/NE.

Figure from the Harley paper:

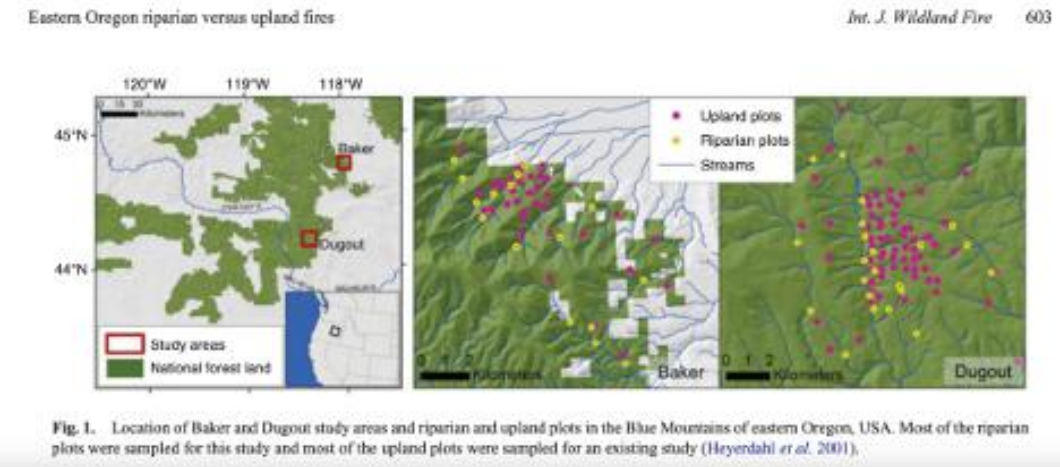


Fig. 1. Location of Baker and Dugout study areas and riparian and upland plots in the Blue Mountains of eastern Oregon, USA. Most of the riparian plots were sampled for this study and most of the upland plots were sampled for an existing study (Heyerdahl *et al.* 2001).

The Harley paper also states: *"[i]n the two study sites in the Blue Mountains of eastern Oregon during the period 1650–1900, historical fires burned more frequently in upland forests compared with adjacent, downslope riparian forests. However, the difference between riparian and upland fire intervals at both Baker (5 years) and Dugout (3 years) was not statistically significant (P . 0.10) and likely not ecologically relevant."*

Lack of statistical significance does not necessarily mean lack of data patterns or trends. Lack of statistical significance can be due to a variety of factors, including small sample size. In this instance, the sample size for sites representing north/northeast facing sites was an even smaller proportion of an already small sample size, and seems to have constituted far less than half of the sample sites. While statistically significant differences were not found between upland and riparian forests, there was a clear trend pointing to a difference between the two-- even with the small data sets in this one study. Choices and/or limitations in statistical analyses can also mute variation and complexity, especially when working with small sample sizes, large elevation gradients, and other confounding factors. The Forest Service's standard conclusion for timber sales across the region when applying this research is that most, if not all, forests are dry forests with historically low intensity and frequent fire regimes. This contradicts the data trends-- including the reality of very long fire intervals in large portions of the project area, such as the higher and mid elevation portions.

The Harley et al. 2020 authors also dismissed any ecological importance in the data trend of more frequent fire in uplands compared to the riparian areas (see quote from Harley et al. 2020 above). However, the authors provide no evidence to support this claim, and do not attempt to substantiate their declaration that this very important data trend would lack ecological importance.

The Harley et al. 2020 paper notes that an average of five trees (range 2 - 9 trees) were sampled per hectare by removing fire-scared partial cross-sections. These cross sections were sanded and looked at with a microscope, and were used to assign calendar years to tree rings through cross dating and against existing ring-width chronologies. This small sample size of trees at each plot then means that the study's already small sample size in riparian forests, especially in the Baker location, is an even smaller sample size for areas most likely to have infrequent and/or stand replacement fire. If the smaller end of the sample range was present at the more northern/eastern slopes and/or in the higher elevations and more incised valleys– then this is potentially only a couple of handfuls of samples in these locations.

Also, evidence of fire at a specific location(s) does not necessarily mean that the fire was widespread, or part of a larger fire regime. For example, lightning strikes may result in only a very small area burning, sometimes even one to several trees. Lightning can and does tend to strike certain ridges and areas repeatedly, also an important factor to consider. In addition, a relatively few trees were sampled at any sample site, potentially leaving room for misinterpretation of fire scars. I.e., some small fires may have been from lightning strikes (not widespread low intensity fires). It could also be the case that some of these fire scars were the

result of high severity fire mosaic patterns that include low intensity fire within the fire perimeter.

The Harley et al. 2020 authors also state that for smaller fire years that *"[s]maller fires were likely characterized by a mosaic of varied fuel dryness across the study area. Hence, fuel moisture levels may have varied enough within and between riparian forests and upslope forests, resulting in smaller fires and greater variations in burn severity."* This suggests that there was at least some mixed or high severity fire within riparian zones. High severity fire has specific dynamics and processes that are crucial for certain species and for the ecological integrity of forests that evolved with it. Managing the mixed-conifer forests-- especially those on north/northeast/east facing slopes and at higher elevations-- for a frequent and low-severity fire regime artificially homogenizes them, and degrades or entirely destroys the wildlife habitat and connectivity they provide, as well as greatly impairs their ability to support clean and cold water for fish and people.

The actual data from both the Olson and Harley studies suggest that the topographically and ecologically diverse areas than are recognized by the Forest Service, and are actually more varied in terms of fire intensity and frequency than the usual FS claims. The statistical conclusions of the Harley et al. 2020 paper are based on analyses of sample sites that are more likely to have frequent and low severity fires (lower elevation, west and/or south facing locations, gentle and open topography, etc.). Areas with less frequent and higher intensity fire were sampled in only a handful of locations, or excluded entirely (as with higher elevation sites at Baker in the Harley paper). These sampling biases, as well as the lumping in of data from higher elevations, steep and incised valleys, and N/NE/E facing slopes with data from lower elevations, open topography, and S/SW/W facing slopes— are very likely to have overwhelmed any possible statistical signals of variation, and skewed results towards overgeneralizations of frequent and low severity fire regimes. Lumping all forests in the area together as "*dry forests adapted with low severity fire"* reflects the agency's failure to take a hard look at the data, and the potential limitations of sampling, methodology, and analyses. The data from the Olson thesis fire maps clearly reflects very, very long fire return intervals (and/or stand replacement fire) in the upper and mid elevations of the project area.

In summation, the Forest Service lacks a credible scientific basis for dividing RMAs into "inner and "outer" zones, or for the widespread and heavy logging proposed for RMAs in the Forest Plan Revision.

b) Weaknesses with using fire scar analysis, in streamside riparian forests and uplands

Use of composite fire intervals tend to shorten the time between fires and give a false interpretation of the past fire history. For example, personal communications from George Wuerthner, in our communication regarding limitations of fire scar analyses used in research with similar methodology, include:

> *"Take a hypothetical situation: Let's say you have a 1000 acre study area. You note a fire someplace in that 1000 acres every single year over a hundred year period.*

However, for argument's sake, each of those fires burns less than a single acre. So you have a total of 100 fires and a fire interval of 1 year. I.e. the fire scar history suggests there is a fire every year. But because each fire is less than an acre, you have only burned 100 acres in a hundred years or only 10% of the 1000 acre study site. Even at a fire every year, it would require 1000 years to get to the fire rotation.

This is why it's important to note how large the fire is. You can do this in a number of ways including using air photos, fire atlas, or Government Land Office survey notes as Baker has done.

Using fire scars, the best way to do this is to only include fires that burn a significant amount of the study area. In other words, again using the 1000 acres. You would ignore all the fires that are only recorded at one or even a few sights and assume they are small fires of no consequence. After all we are trying to get to the notion of how important fire was in any area and the kind of fire that burned. The only fires you would include would be the years when the majority of the study sites burned, preferably across much of the 1000 acres. You could also note the occurrence of even-aged stands across large areas that might indicate regrowth after a stand replacement blaze. That would give you the real fire rotation."

Similarly, personal communications from William Baker, in our communication regarding limitations of fire scar analyses used in research with similar methodology (and so are also relevant here), include:

"There are no estimates of historical fire rotations, the essential rate parameter of historical fires. Composite fire interval estimates are done within each site, not across sites, which is OK. But, there is little correction to remove small fires, so their MFRI is close to a mean CFI-all fires in the Baker (2017) terminology. Using Baker (2017 Table 2), to estimate fire rotation, for mean CFI--all fires, we would multiply MFRI by 2.44. For the range of MFRIs in their Table 1, which is 10.6-21.2 years, the estimated range of historical fire rotations would then be 25.9 to 51.7 years.

Based on these fire rotations, these were not frequent-fire forests with fire rotations < 25 years that would have kept fuel loads generally reduced, since fuels can recover within about 10-20 years usually. Instead, historically there would have been ample time for fuels to fully recover between fires, including plenty of fully regrown shrubs, many small trees, lots of small wood, some larger wood etc. and some stands with higher tree density. It is important to estimate fire rotations because it is well accepted now in the scientific fire community that the MFRI used in Johnston et al. does not estimate historical rates of burning and should not be used to guide restoration programs (Baker 2017). See the quotes in this paper from well fire historians that make this very clear.

Also, in the intro Johnston et al. suggest fire regimes would have been mixed severity, but then they did no reconstruction of fire severity, which of course is

essential where fires where historically mixed in severity. The paper doesn't say so explicitly, but seems to assume that all fires were low-severity, and the final paragraphs even imply that higher-severity fires did not occur. Of course, what would be expected is that in moister forests, more of the fires that occurred would be higher-severity, including substantial patches of high-severity fire, whereas in ponderosa of course more of the fires would have been low-severity, with fewer that were higher-severity, as has been shown nearly everywhere that fire severities have been reconstructed in these kinds of forests. Showing, as they do, that MFRI did not differ between dry and moist forests has little meaning, since it is not the occurrence of fires, but instead fire size and fire severity that would be expected to differ. They have no data on the essential fire-severity parameter of historical fire regimes in ponderosa pine and mixed-conifer forests in their study areas, and certainly cannot conclude that historical fire regimes would have been similar in these two types of forest.

Also, their historical basal area estimates are based on just extant (live) historical trees, not dead trees present on the forest floor. Although fires may have been suppressed, there are many other sources of continuing tree mortality that could have killed and even removed many of the smaller trees present in the late-1800s (e.g., bark beetles, drought, competition, root rots etc.). They did not compare their basal area estimates to early historical reports, such as Munger 1917 to see whether extant live historical trees even approximately estimate basal area, tree density, and tree diameter distributions in the late-1800s to early 1900s. It is well known that smaller trees present in the late-1800s would likely have burned, died from competition or other mortality agents, and decomposed since then, particularly in moister forests. Since logging is often aimed at smaller trees, and they have no validation at all that smaller trees are correctly reconstructed by using just extant live trees that happen to still be present, this study does not provide a sufficiently sound basis for any restoration logging program."

The Forest Service claims that Douglas and Grand firs and other less fire-resistant trees are present in larger numbers and higher densities across the landscape than they were historically, as a consequence of fire suppression. However, the Forest Service abuses this rationale by applying it overly broadly and aggressively, and uses it as an excuse to extensively log old growth and mature forests– including in ecologically inappropriate areas such as forests with ample evidence of historic mixed-conifer and high-density forests, on north and east facing slopes; deep gulches and narrow valleys; forests on soils that hold more nutrients and moisture (such as ash soils); and other areas that show historic evidence of supporting mixed-conifer forests in general and Grand fir in particular.

A study from Bradley et al. (2016) challenges USFS assumptions about the fire risk associated with more protected areas—those area that have been less-managed or less-logged, but may still have experienced some degree of fire exclusion (such as Wilderness areas. riparian corridors have also, of course, seen much more protection than upland areas). The authors state:

"There is a widespread view among land managers and others that the protected status of many forestlands in the western United States corresponds with higher fire severity levels due to historical restrictions on logging that contribute to greater amounts of biomass and fuel loading in less intensively managed areas, particularly after decades of fire suppression. This view has led to recent proposals—both administrative and legislative—to reduce or eliminate forest protections and increase some forms of logging based on the belief that restrictions on active management have increased fire severity. We investigated the relationship between protected status and fire severity using the Random Forests algorithm applied to 1500 fires affecting 9.5 million hectares between 1984 and 2014 in pine (Pinus ponderosa, Pinus jeffreyi) and mixed-conifer forests of western United States, accounting for key topographic and climate variables. ***We found forests with higher levels of protection had lower severity values even though they are generally identified as having the highest overall levels of biomass and fuel loading. Our results suggest a need to reconsider current overly simplistic assumptions about the relationship between forest protection and fire severity in fire management and policy"***

"Protected forests burn at lower severities: We found no evidence to support the prevailing forest/fire management hypothesis that higher levels of forest protections are associated with more severe fires based on the RF and linear mixed-effects modeling approaches. On the contrary, using over three decades of fire severity data from relatively frequent-fire pine and mixed-conifer forests throughout the western United States, we found support for the opposite conclusion—burn severity tended to be higher in areas with lower levels of protection status (more intense management), after accounting for topographic and climatic conditions in all three model runs. Thus, we rejected the prevailing forest management view that areas with higher protection levels burn most severely during wildfires."

In addition, recent research suggests that Grand fir forests are more fire resistant than generally assumed by the agency. Moris et al. 2022 found:

"The grand fir forest type had severity values at the same level of forest types dominated by fire-resister species despite grand fir was classified as a fire-avoider species. … In many ponderosa pine forests maintained historically by a high frequency, low-severity fire regime, the transition towards denser forests dominated by Douglas-fir and grand fir would explain why ponderosa pine and Douglas-fir still compose a significant proportion of basal area in the grand fir forest type, and many maintain large, old, fire-resistant ponderosa pine trees (Johnston et al. 2021; Merschel et al. 2021). Therefore, the particular structure and composition of these "recent" grand fir forests (e.g., Merschel et al. 2014), with an important presence of large-diameter trees of fire-resistant species, may provide latent fire resistance (Larson et al. 2013)."

c) RMAs and Large Woody Debris (LWD)

We are very concerned that the increased logging of large trees, both within RMAs and uplands, will negatively impact the availability of large wood and future large wood recruitment for

large woody debris (LWD) in streams. Large wood recruitment and delivery to streams is a crucial cornerstone of ecological integrity for streams, essential for the viability of many native and ESA-listed aquatic species, and a driving force of recovery for stream morphology. Hyporheic flows and groundwater storage and movement depend in part on large wood and future large wood recruitment, and are important for maintaining cold water in perennial streams. Groundwater movement and storage is interconnected with a number of complex watershed processes and forest components. Large trees and LWD are also critical to ensuring clean, cold water—including for downstream drinking water.

Aquatic ecosystems include complex and interdependent interactions. The loss of large woody debris in streams negatively affects stream morphology, including pools. The reduction of LWD and smaller wood for streams, as well as future recruitment for these components, is already occurring through logging in many timber sales across the landscape. Should the Forest Plan Revision be implemented, logging of large trees will greatly exacerbate this issue, negatively affect aquatic ecosystems.

It is important to highlight that small intermittent streams, as well as perennial streams, would also be negatively affected by the loss of large wood, and that those effects are felt downstream. Loss of large wood in small intermittent streams will negatively impact recruitment of large wood in downstream reaches. This, in turn, will negatively impact instream habitats and water quality for aquatic species including imperiled salmon and trout. Loss of large wood in intermittent streams in small catchments will result in less large wood in perennial streams, and thus result in fewer large pools and habitat complexity. Large wood is very important for protecting underground water storage and movement of small intermittent streams. Small streams are crucial to maintaining cold water for downstream perennial waterways, and to creating and ensuring cold water refugia for fish.

Stream habitat components that currently have protections under PACFISH/INFISH and RMO standards including the number of pools per stream mile, pool width to depth ratio, stream shade, embeddedness and turbidity, bank stability, and others, are all crucial components of stream habitats and stream ecosystems integrity. PIBO monitoring and other research shows that these components are negatively impacted by logging, roads and road-related activities, livestock grazing, and other management actions.

The DEIS admits that (Table 9) that alternatives 2 and 3 will increase sediment delivery to streams. Quantitative estimates of increases in sediment delivery should be included. Additionally, the DEIS asserts that alternatives 2 and 3 will achieve desired conditions faster than alternative 1, with the highest rate of progress under alternative 2. As shown in our previous analysis, this statement is not based in sound science or balanced analyses.

It is also extremely problematic that the guidelines for RMAs—in addition to being discretionary and non-mandatory—are also rendered virtually meaningless by the subjective, voluntary, and optional language that the DEIS includes in these guidelines. There are at least 20 instances

within the 20 guidelines of language such as “where feasible”, “avoid”, “minimize”, “when possible”, “unless no practical alternative exists”, and “except where”. The subjective, voluntary, and unenforceable nature of the language in these guidelines, coupled with the lack of quantitative goals for key habitat components, renders them virtually useless for protecting water quality or stream habitat components.

Further, the four Management Approaches proposed for RMAs focus on emphasizing logging within RMAs, provide exceptions for protective indicators such as stubble height, and endorse replanting burned areas. None of these Management Approaches further the goals of as outlined in the Desired Conditions for RMAs. Also, none of these Management Approaches address or attempt to ameliorate the primary drivers of degradation of aquatic ecosystems and water quality on National Forests-- namely livestock grazing, roads, and logging. These Management Approaches will actively harm water quality, stream habitats, and imperiled species that rely on clean, cold water. The DEIS fails to recognize or avoid the harm caused by livestock grazing, roads, and logging, and instead will create immense harm by encouraging these activities and exacerbating the harm they have already caused.

It is unclear how and why it was determined that logging and thinning (including fuels treatments or other logging as “restoration”) in riparian areas would dominate the restoration activities for riparian and aquatic resources. The primary threats and stressors to fish, amphibians, reptiles, and other riparian and aquatic species on NF lands are due to grazing, logging, and roads, and include impacts related to fine sediment inputs, warming stream temperature, increased diurnal stream temperature fluctuations, stream bank instability, soil compaction and erosion, and fish passage barriers. The emphasis on logging and vegetation manipulation as the primary means of restoration is not in line with the actual impacts, threats, and stressors to listed and at-risk riparian and aquatic species. Logging and vegetation manipulation does little to alleviate these impacts, stressors, and threats, and in fact may exacerbate them. Furthermore, the proposed standards and guidelines would allow degradation of water quality and riparian habitat parameters.

Localized and short-term impacts can be devastating to small or struggling populations of aquatic species. For example, Reiman et al. (2001) noted in relation to accelerated restoration schedules that: *“…vulnerable aquatic species could be impacted in the short term in ways from which they could not easily recover, even if long-term benefits eventually became evident in later years”* (also cited in the USFS proposed Forest Plan Revision DEIS in 2014). When at-risk aquatic species such as Bull trout have already fragmented and small populations and are currently limited by water quality impairments such as high stream temperatures, cumulatively creating widespread situations in which their populations cannot easily recover from management effects across miles of streams is extremely risky at best.

The DEIS allows post-fire logging and reseeding within RMA buffers (DEIS pg. 202). However, scientific research points to post-fire replanting hindering natural recovery as well as potentially setting forests on an unnatural trajectory, and asserts that there are no ecological benefits to salvage logging.

Donato et al. (2009) found that *"high-intensity re-burn [high-intensity fire occurring 15 years after a previous high-intensity fire] had the highest plant species richness and total plant cover, relative to high-intensity fire alone [no re-burn] and unburned mature/old forest; and the high-intensity fire re-burn area had over 1,000 seedlings/saplings per hectare of natural conifer regeneration"*. An example of the importance of post-fire areas occurring after high intensity fires include these Donato et al. (2009) findings: *"[S]evere fires are typically expected to be deleterious to forest flora and development; however, these results indicate that in systems characterized by highly variable natural disturbances (e.g. mixed-severity fire regime), native biota possess functional traits lending resilience to recurrent severe fire. Compound disturbance resulted in a distinct early seral assemblage (i.e. interval- dependent fire effects), thus contributing to the landscape heterogeneity inherent to mixed-severity fire regimes. Process-oriented ecosystem management incorporating variable natural disturbances, including 'extreme' events such as SI severe fires, would likely perpetuate a diversity of habitats and successional pathways on the landscape."*

Post-fire logging has no credible ecological justification, and should be prohibited on public lands—particularly within riparian zones. The wealth of scientific studies done on post-fire logging have come to an overwhelming consensus that post-fire logging has extremely negative impacts on numerous species, sensitive ecosystems, snags and downed wood (both very important for wildlife habitats), water quality, and forest regeneration. Richard Hutto, in his study Towards Meaningful Snag-Management Guidelines for Postfire Salvage Logging in North American Conifer Forests (2006) goes so far as to state: *"I am hard pressed to find any other example in wildlife biology where the effect of a particular land-use activity is as close to 100% negative as the typical postfire salvage-logging operation tends to be."*

In an Open Letter to U.S. Senators and President Obama from Scientists Concerned about Post-fire Logging and Clearcutting on National Forests (DellaSala et al. 2015) and signed by 260 scientists, they state that *"Post-fire habitats created by fire, including patches of severe fire, are ecological treasures rather than ecological catastrophes, and that post-fire logging does far more harm than good to the nation's public lands."* Burned areas are best left to their own natural recovery processes. Several studies also showed that post-fire logging decreases the abundance and diversity of native plant recruitment. Post-fire logging and post-fire replanting can negatively impact forests' ability to regenerate, which can facilitate non-native species establishment and spread by creating spatial and ecological openings (Donato et al. 2006, Lindenmayer & Noss 2006, Titus et al. 2007). Titus et al. (2007) looked at vegetation in salvage-logged and replanted plots vs. vegetation in non-salvaged logged and unplanted plots in the blast zone of the Mount St. Helens eruption. They found that salvaged logged and replanted areas had lower herb and shrub diversity and richness, and more bare areas and moss than un-salvaged areas. Post-fire logging can also exhaust the natural replacement seed banks if plants begin to germinate following fire but then are destroyed by logging activity (Donato et al. 2006, Lindenmayer & Noss 2006). This is particularly true in areas where the remaining slash is burned (Keeley 2006), or when regeneration burns are used to promote the germination of particular varieties of commercial tree species (Lindenmayer & Noss 2006).

3. Municipal Watershed

The DEIS's Desired Conditions for Municipal Watersheds are stated as *"National Forest system lands in municipal supply watersheds provide water that meets or exceeds applicable state water quality standards."*

However, the DEIS has failed to include any standards, guidelines, or management approaches that would allow for the achievement of the stated desired conditions in Municipal Watersheds. As with other aquatic components in the DEIS, there is a disconnect between the desired conditions and the standards, guidelines, and management approaches. In this case, there are no standards whatsoever. The lone guideline provided in the DEIS for Municipal Watersheds is extremely general and vague, providing no substantive guidance beyond complying with existing MOUs. Alarmingly, the management approaches emphasize logging as a way to ensure high-quality, clean drinking water: *"To provide quality water to local communities, prioritize silvicultural practices and timber harvest that reduce fuel loading and fire risk in municipal watersheds."*

The management approach emphasized in the DEIS—to prioritize silvicultural practices and timber harvest—will actively harm water quality and retard the attainment of state water quality standards. Again, there is a veritable mountain of scientific research, data, evidence, and expert opinion documenting the negative effects from logging—especially logging within sensitive aquatic habitats and riparian areas—on water quality. The management approach is diametrically opposed to the DEIS's stated desired conditions to provide water that meets or exceeds applicable state water quality standards.

What scientific research and studies was this management approach based on? Why has the USFS failed to include an effects analyses of the many well-documented ways that logging, roads, and other management activities cause degradation to water quality and stream habitats?

At a minimum, standards for Municipal Watersheds should include binding municipal-watershed protections; deletion of the direction to "prioritize" timber harvest; permanent plan-level protection for roadless lands; actual analysis of drinking-water impacts (the current DEIS has none); protection against salvage logging in the municipal watershed; and actual drinking-water monitoring with enforceable thresholds; retention of the existing PACFISH/INFISH and RMO standards, as well as strengthened protections for large trees of all species; enforceable compliance with the watershed agreements such as the 1918 watershed agreement for the Walla Walla Watershed.

4. Priority Watersheds

The DEIS notes that: "Required Plan Content Priority Watersheds The 2012 Planning Rule requires land management plans to identify watershed(s) at the 12th Hydrologic Unit Code (HUC) scale that are a priority for maintenance or restoration (36 CFR 219.7(f)(1)(i)) (16 U.S.C. 1604(g)(3)(C)). (36 CFR 219.12(a). Identification of these watersheds is to focus efforts on the integrated restoration of watershed conditions in these areas. The latest priority watersheds for the Blue Mountains National Forests can be found on the USDA Forest Service Watershed Condition Classification and Prioritization Interactive Map. This interactive map is linked to

Forest Service databases that are updated as priority watershed projects are completed, and new priority watersheds are identified."

The link given in the DEIS is faulty, and there is no interactive map available through the link provided. The link for the map instead lands on a page stating that the mapping tool for that page is retired. The DEIS should have included the information regarding Priority Watersheds in its content (not outsourced to faulty or broken links).

The public has been provided with almost no information in the DEIS regarding Priority Watersheds, such as which have been identified, the identification process, what science the agency is basing their decision on, what baseline data exist, how the proposed Plan Revision and agency management will affect aquatic habitats and ecosystems, etc. The DEIS should identify priority watersheds for maintenance or restoration. The DEIS also failed to include key information such as baseline data and the best available science in order to inform the maintenance and restoration of aquatic ecosystems. We request that the Forest Service provide this information for public review.

We also request that the agency identify the science and research that has been used to inform the DEIS and all of the analyses and conclusions within the DEIS. We request that you provide the public with a list of what the agency is considering to be the best available science and what was used in the DEIS analyses. The agency should also provide a justification for excluding any of the scientific studies we have included in our scoping and DEIS comments.

We are extremely concerned that the agency is failing to include the full range of best available science in its management approach to stream habitats and aquatic ecosystems. Based on the management approaches within the DEIS, we are very concerned that the Forest Service will emphasize logging within priority watersheds, rather than implementing strong protections against logging, roads, livestock grazing, and other management activities. Currently, the proposed Plan Revision lacks adequate measures for protecting Priority Watersheds.

Again, the agency's own scientists and monitoring programs have found that PACFISH/INFISH standards have effectively reversed negative trends for streams and water quality, and that unmanaged streams are in far better condition across the Blue Mountains compared to managed streams. Research in the Blue Mountains has also found that imperiled fish recover from high-severity fire faster than expected, provided sufficient connectivity is in place (see our discussion with citations throughout these comments). Despite this well-documented evidence, including peer-reviewed studies, the Forest Service continues to exclude this research and monitoring data from its analyses and is instead choosing to ramp up logging. This contradicts the science, which clearly shows that PACFISH/INFISH standards, wide no-cut buffers for streams, passive restoration, and actions such as culvert repair/removal and road decommissioning are the best strategies to restore streams and watersheds. We are very concerned about the agency's emphasis for logging as "restoration" in sensitive aquatic habitats and streamside buffers, as well as in Priority Watersheds.

5. Species Diversity

Similarly to the lack of protective standards for RMAs, we see the same issues for Species Diversity. There are no corresponding, enforceable standards to ensure that the goals outlined in the Desired Conditions for Species Diversity will actually be implemented or obtained. Also, while the Desired Conditions outlined for species diversity include values that we generally support, we are very concerned that the DEIS does not provide for their attainment. For example, the FW-SPDIV-DCs for species diversity include the following goals for ecological integrity, beaver recovery and distribution, and amphibian habitat that we generally support (DEIS pg. 148):

> *"Ecological integrity provides the key characteristics, conditions and functionality of native ecological systems, and provides for habitat needs of diverse plant and animal species in the plan area. These ecosystems are resilient and provide social and economic benefits derived from observing, fishing, hunting, foraging and other recreational pursuits of fish, wildlife, fungus, and plant species."*
>
> *"Beaver habitat conditions enable beaver populations to persist at levels and distribution sufficient to modify the aquatic and riparian ecosystems to increase water holding capacity, expand the wetted surface area, and increase the complexity and connectivity of the aquatic and riparian ecosystems, which provides resiliency to these ecosystems."*
>
> *"Amphibian breeding, rearing, and upland habitat is of sufficient quality and distribution to support all life stages."*

However, only two standards are proposed for Species Diversity, one of which deals with apiaries not being allowed. The other standard addresses replanting with native seeds (with exceptions). Neither of these two standards address or will help with the attainment of the Desired Conditions in the DEIS that we've quoted above, that are focused on habitat components, aquatic species, and ecological integrity.

The guidelines for Species Diversity are largely focused on very minor concessions for mitigating or lessening the widespread and potentially catastrophic damage to aquatic ecosystems, unique habitats, soils, and other resources that will result from management activities such as logging, roading, and livestock grazing. These minor concessions fail to provide the protections or sideboards necessary to maintain, restore, or protect species diversity. The DEIS omits mechanisms for protecting against the widespread degradation or destruction of the habitats and ecosystem components and processes that native species depend upon.

Again, as with other aquatic components in the DEIS, rather than protecting against the primary drivers of habitat degradation (livestock, roads, and logging), the guidelines and management approaches emphasize more logging while failing to acknowledge or avoid negative impacts due to logging and other management activities. In addition, the guidelines for Species Diversity generally lack enforcement mechanisms and clear, quantitative direction. They are rendered unenforceable and almost meaningless by their extremely subjective, and voluntary language. There are at least seven instances within the nine guidelines that include language such as

“minimize”, “limit”, “reduce”, “where possible”, and “when appropriate”. The subjective and unenforceable nature of these guidelines, coupled with the lack of quantitative goals, renders them virtually useless for protecting species diversity.

The Eastside Screens and PACFISH/INFISH standards that protect stream and riparian ecosystems should be preserved and strengthened as part of the new Forest Plan revision. The Forest Plan Revision needs to include an alternative that preserves and strengthens standards such as RMOs, no-cut buffers, large tree protections, and other key ecosystem protections. Without the strong, enforceable, quantitative standards from the current RMOs, the Forest Plan Revision lacks the components to maintain or restore key characteristics associated with terrestrial and aquatic ecosystems.

The Forest Service lumps logging in with other much less controversial restoration strategies, all under the “active restoration” banner. This is a disingenuous greenwashing tactic, and creates confusion for the public and in monitoring efforts. It is important to make a distinction between “active” riparian restoration strategies that are generally non-controversial and supported by a berth of scientific research, vs. logging in riparian corridors. Generally non-controversial restoration strategies that are documented to be beneficial to streams include actions such as culvert repair and replacement, closing or decommissioning roads, placing large wood in streams, and facilitating beaver reintroduction. Logging within riparian corridors, on the other hand, is scientifically and publicly controversial, and has well-documented negative effects on riparian ecosystems, water quality, and imperiled aquatic species that depend on clean, cold water.

The DEIS does a bait and switch, claiming that “active management” is needed to “accelerate desired conditions”. For example, the DEIS (pg. 270) notes: “Proper management of Riparian Management Areas (RMAs, see Management Area 3A in Chapter 3) are a key element of both passive and active restoration. In some cases, for example, activities within these areas simply need to be managed in ways that protect these systems or to allow them to recover via natural processes. In other cases, active management (e.g., via vegetation management or stream or floodplain restoration) may be necessary to accelerate attainment of desired conditions.”

However, the majority of “active restoration” activities that collaborative groups in eastern Oregon accomplish, in partnership with the Forest Service is commercial. From 2014-2018 almost 60,000 acres of commercial thinning were implemented, while “watershed-related information” accounted for only 4,666 acres. Silvicultural activities, including commercial thinning, totaled approximately 107,831 acres (Davis et al. 2019).

While it may sound reasonable to the public that some “active management” may be needed to accelerate restoration, the reality is that the Forest Service lumps all categories of “active management” together, thereby conflating non-controversial and well-proven restoration strategies with controversial and risky logging-- including commercial logging-- within riparian corridors. The Forest Service then focuses almost entirely on the logging and silvicultural strategies of “active management”, often neglecting or failing to follow through on projects such as culvert repair and replacement or road decommissioning.

We also note that the link provided in the DEIS (pg. 24) for the USFS's criteria for ranking ecological integrity, as defined by the Terrestrial Ecosystem Assessment, does not work. This is an unfortunate theme in the DEIS. Other examples are the DEIS references to supplemental documents for Species of Conservation Concern (DEIS pgs. 38 and 69). Another example is the broken link for the interactive map that the DEIS repeatedly references, which is supposed to provide the public with the priority watersheds for Blue Mountains Forests as well as future updates as priority watersheds are added.

D. The DEIS violates NEPA by failing to analyze a reasonable alternative that reduces logging, livestock grazing, and other ecologically damaging activities.

The USFS should include an alternative which does not emphasize logging as the primary active "restoration" measure for stream and riparian ecosystems, and instead emphasizes well-proven beneficial active restoration such as culvert repair, fish passage improvements, and road decommissioning coupled with passive restoration-- a combination that would be less risky and more scientifically justifiable.

Passive restoration has been shown to improve aquatic habitat conditions since implementation of PACFISH/INFISH; restoration dollars can be saved and, in certain circumstances, used more efficiently through implementing the strongest protections possible in order to allow for low risk yet effective passive restoration. It is not clear how many stream miles are currently blocked by culverts, and what percentage of those stream miles would be treated for fish passage improvements.

The DEIS notes that many commenters requested the USFS analyze an alternative that included greatly reduced logging and minimal management. The USFS responded that these were not included in alternatives or analyzed in detail because they would *"not meet the legal requirements of the Multiple Use Sustained Yield Act and the National Forest Management Act."* However, we note that the Multiple-Use Sustained-Yield Act (MUSYA) of 1960 includes timber production as one of several co-equal uses, including watershed protection, ensuring viability and recovery of ESA-listed salmon and trout, and providing high-quality drinking water. The act does not require the Forest Service to log in or throughout every National Forests, nor to sacrifice water quality or stream habitats in the name of multiple use. The Forest Service can and should use its authority to ensure, through the use of strong, quantitative, and enforceable standards, that water beneficial uses support clean, cold water and imperiled aquatic species. The Forest Service is able to analyze and adopt a forest plan alternative for the Blue Mountains that limits or even prohibits commercial logging, livestock grazing, and mining. The DEIS failed to evaluate reasonable, protective alternatives that safeguard beneficial uses for native aquatic species such as imperiled salmon and trout. Currently, there is no alternative that is focused on biodiversity and habitat conservation, including in aquatic ecosystems.

The Blue Mountains Forest Plan Revisions should include, in an alternatives analysis, the reserve system proposed in the peer-reviewed research *Strategic reserves in Oregon's forests for biodiversity, water, and carbon to mitigate and adapt to climate change* (Law et al. 2022) and *Strategic Forest Reserves can protect biodiversity in the western United States and Mitigate Climate Change* (Law et al. 2023). Such a reserve system would ensure the maintenance and

restoration of aquatic and terrestrial connectivity and diversity, and protect key ecosystem components including those crucial to the structure, composition and function of aquatic ecosystems such as large wood, pool frequency and depth, base and peak flows, hyphorehic flows, and more.

Law et al. 2022 developed "*a regional framework to specifically identify at a fine resolution (30 m) high priority forestlands for preservation in Oregon, USA. We include a resilience metric that represents connectivity and topographic diversity, and identify areas within each ecoregion that are ranked high priority for carbon, biodiversity, resilience and drinking water. Oregon has less than 10% of its forestlands protected at the highest levels, yet its temperate forests are among those with the highest carbon densities in the world. Reserves for surface drinking water sources and forest habitat for birds, mammals, amphibians, and reptiles could increase to 50–70% protection at the highest levels by 2050. Protected aboveground biomass carbon could triple to 635 teragrams of carbon by 2050.*"

The authors also noted in Law et al. 2023 that they: "*developed a framework that prioritizes forestlands for preservation using spatial metrics of biodiversity and/or carbon within each ecoregion. We show that meeting this preservation target would lead to greater protection of animal and tree species habitat, current carbon stocks, future carbon accumulation, and forests that are important for surface drinking water. The highest priority forestlands are primarily owned by the federal government, though substantial areas are also owned by private entities and state and tribal governments. Establishing Strategic Forest Reserves would help protect biodiversity and carbon for climate adaptation and mitigation.*" The Forest Reserve system they propose, which includes reserves in the Blue Mountains, should be analyzed and adopted as an alternative in the Blue Mountains Forest Plan Revision. Such a Reserve system would actually meet the intent, language, and direction of the 2012 Planning Rule, and would protect terrestrial and aquatic ecosystem integrity and diversity.

- Further, work from Mildrexler et al. 2023 *Protect large trees for climate mitigation, biodiversity, and forest resilience* builds on this and other peer-reviewed work that is site-specific to the Blue Mountains. By adopting the recommendations in Mildrexler et al. 2023, streams and water quality would be protected through the retention of large trees, which are crucial for clean water, watershed hydrology, stream habitats and ecosystems, and aquatic and terrestrial diversity. Large trees comprise only 3% of trees on the landscape in the Blue Mountains, and should be protected from logging with strong standards.

- Riparian and aquatic ecosystems are heavily reliant on large tree structure (including large living trees, large trees with cavities, large snags, large downed wood, and large woody debris in streams). Aquatic ecosystem integrity is intertwined with mature and old forests—and includes large *and* old trees, not *just* old trees. Approximately 75% of eastside terrestrial species depend upon riparian habitats for their life cycle needs or use these habitats more than others (Henjum et al. 1994).

Unfortunately, the Forest Service is instead proposing to further fragment forests and degrade ecosystem integrity by eliminating the strong, quantitative standards that have protected streams and water quality for the past 30 years. The current Forest Plan protections for stream habitat components and water quality under PACFISH/INFISH are based on the biological needs of native trout and salmonids. The Riparian Management Objectives that protect streams and cold, clean water include measurable, quantitative standards for stream habitat components such as water temperature, fine sediment/embeddedness, shade, pool frequency, width to depth ratios for pools, amounts of large woody debris in streams, bank stability, degree of cutbanks, and more. In addition, no-cut RHCAs have served to protect many riparian forests and stream habitats for decades.

E. The DEIS fails to adhere to NEPA because it does not provide sufficient information for informed decision making and meaningful public participation

The Forest Plan Revision omits important information regarding threats, population trends, viability, connectivity, significance (or not) of trends, habitat condition, and other key information regarding Bull trout and other ESA-listed species. Also, the Forest Plan Revision did not give adequate consideration or analyses for aquatic ESA-listed species such as Western ridged mussels and other sensitive mussels, Pacific lamprey, Columbia spotted frogs, Rocky Mountain tailed frog, shortface lanx, Columbia pebblesnail, tightcoil snails, and others.

Imperiled aquatic species in the Blue Mountains include ESA-listed bull trout, Middle Columbia River and Snake River Basin steelhead, and Snake River spring/summer Chinook salmon, as well as Pacific lamprey, westslope cutthroat trout, Columbia Basin redband trout, Columbia spotted frog, Rocky Mountain tailed frog, western ridged mussel, shortface lanx, Columbia pebblesnail, and other aquatic mollusks and fish identified as species of conservation concern.

The previous Forest Plan Revision FEIS from 2018 (Vol. 1, Chap. 3, pg. 149) states: *"With localized exceptions, riparian areas in the project area are in improved condition and are trending toward continued recovery (Archer 2016 a-c). Much of the recovery to date has occurred in terms of riparian vegetation with recovery in stream morphology tending to be slower and more localized. In part, this is due to the nature of the processes involved (for example, vegetation can grow and reproduce relatively quickly given the opportunity while hydrologic process recovery takes more time). It is also due to the multiple impacts affecting stream hydrology (such as roads, livestock, Forest Service management, fire management, recreation, and so forth)"*. A large number of scientific studies have implicated roads as a driving or primary factor in altering watershed hydrology and/or declines in fish stocks (Bader 2000; Bradley et al. 2002; Carnefix and Frissell 2009; DellaSala et al. 2011; Frissell and Carnefix 2007; Public Lands Initiative 2004; Reiman and Clayton 1997; Reiman et al. 2000; Thurow et al. 2001; Public Lands Initiative/Trout Unlimited 2004; Quigley and Arbelbide 1997; Western Native Trout Campaign 2001), especially in combination with other impacts such as livestock grazing (Al- Chockhachy et al. 2010b).

Since an adaptive management framework is ostensibly being followed by the USFS, it would seem that the agency would continue to implement PACFISH/INFISH and its successful strategies—i.e., the strong and enforceable quantitative protections for water quality parameters

and RMOs-- in order to continue upward trends towards ongoing recovery. If anything, quantitative enforceable standards for water quality parameters and riparian habitat conditions should be strengthened to improve recovery trends for hydrologic processes and to ensure long-term successful recovery for sensitive aquatic species and riparian habitats. Unfortunately, the standards, guidelines, and desired conditions proposed in the Forest Plan Revision as replacements for PACFISH/INFISH provide *less* protection rather than more. The decision to abandon PACFISH/INFISH, and the underlying standards and RMOs that have made PACFISH/INFISH successful, is arbitrary and capricious. Additional focus is clearly needed regarding recovery of stream morphology, culvert and fish passage barrier repairs, road decommissioning and obliteration, and other similar non-silvicultural restorative actions in order to address the issues that need more recovery as identified by the Forest Plan Revision.

F. Aquatics and Roads

Road-related issues such as chronic erosion and fine sediment loading into streams, broken or faulty culverts that eliminate thousands of stream miles of habitat, changes to peak and base flows, potential stream temperature increases, alteration of watershed hydrology, and other issues caused by roads are far more direct and pervasive threats to water quality, instream habitats, native aquatic species, and ESA-listed fish than perceived problems with vegetation condition/HRV. For example, "[a]ccess to more than 3,700 stream miles on the three national forests is blocked or partially blocked by culverts that were not originally designed for fish passage" (MNF Forest Plan, pg. 19). Grazing is also a far more pervasive and direct threat to water quality and riparian ecosystems. For example, the Blue Mountains Forest Plan Revision FEIS from 2018 notes in relation to riparian impacts from grazing: "degraded stream channels may remain in relatively poor condition long after the original impact because changes in stream channel conditions may make these streams more susceptible to damage from subsequent floods, making it difficult to identify the principal cause of degradation. Maloney et al. (1999) reported elevated stream temperatures in intensively grazed watersheds in the John Day basin, and the lowest stream temperatures were observed in ungrazed watersheds, but results were confounded by 100 years of prior grazing history."

Road-related impacts are likely the primary driver of water quality and stream habitat impairments on National Forests, yet the Forest Service has consistently failed to address or take decisive action on this issue. Agency direction in the proposed Forest Plan Revision unfortunately does not align with addressing primary problems and drivers of water quality impairments and riparian habitat degradation such as roads, grazing, logging, and other actions that increase stream temperature and fine sediment loading. The agency's decision to instead focus on silvicultural-based solutions is arbitrary and capricious, and runs contrary to the best available science.

The DEIS admits (pg. 46-47): "Timber harvest activities under the alternatives 2 and 3 would increase log-haul traffic, particularly under alternative 2. Increased commercial traffic elevates road sediment production (Reid and Dunne 1984, Luce and Black 2001, Sheridan et al. 2006, Sugden and Woods 2007). Logging trucks typically carry about 5,000 board feet (80,000 pounds), and truck numbers scale directly with timber volume. Under alternative 2, timber

outputs of approximately 364 million board feet annually would result in roughly 72,800 commercial vehicle trips per year. Increased hauling accelerates aggregate breakdown, raising the potential for sediment delivery, especially near streams. Alternative 2 is projected to more than double the estimated log haul relative to alternative 1. We expect alternative 2 and 3 would have increase of log haul traffic compared to alternative 1 due to projected 244 percent and 52 percent increases in mean annual timber volume, respectively. This would likely lead to streams and riparian areas in experiencing water quality reductions in the action alternatives, compared to alternative 1. These relative increases in proposed activities would be much higher than the actual increases in sediment entering streams. Portions of these effects would be mitigated through implementation of plan components in the action alternatives and continued implementation of best management practices. Regardless of increased timber output, active management mitigations would be in place to ensure effects are within the range of consultation for critical aquatic riparian species."

Yet, the DEIS then inappropriately downplays the widespread negative effects of increased fine sediments or their impacts on imperiled fish and sensitive riparian ecosystems. The DEIS tries to imply, without any proof and in opposition to decades of research and management history, that increased use will somehow work out better for fish and streams: *"While road maintenance and reconstruction associated with timber haul can also generate sediment in the short term, these actions may also contribute to long-term improvements in road conditions. Higher timber volumes can support beneficial road upgrades such as additional drainage features, gravel surfacing, culvert replacements, and watershed improvements through stewardship contracting."*

The DEIS goes on to state that *"We expect public and administrative road use to remain similar across all alternatives."* Given that the DEIS is proposing to increase logging by 3-4 times present levels, such an increase will require extensive road-related activities, including new roads, opening and rebuilding of closed roads, and further expanding the already bloated road system that exists on National Forests in the Blues. This will necessarily change the public and administrative road use.

The DEIS goes on to state that "All three alternatives promote the use of fire for ecological restoration of riparian management objectives; however, because the overall acres of active management would be higher with alternatives 2 and 3, these alternatives would better address the risk of habitat loss due to large high-severity fires." The DEIS fails to incorporate a large body of best available science regarding issues such as: widespread, chronic ecological degradation and harm from roads on ecosystems; poor conditions of managed streams; data showing stronger fish stocks in forests with lower road densities; benefits of high severity fire; and relatively fast recovery of imperiled fish after fires, including high severity fire.

The Forest Plan Revision has a pervasive bias in favor or "restoring" vegetation HRV, rather than addressing the much more pervasive impairments and proven issues threatening water quality, native and at-risk aquatic and riparian species, and their habitats. Logging will require rebuilding and maintenance of existing roads, and building of "temporary" roads that have long-term impacts on the landscape. Logging and silvicultural-based activities within riparian corridors are

likely to increase stream temperatures and fine sediments, exacerbate climate change-related impacts, negatively affect wildlife habitats and corridors, and other potentially negative unintended effects.

Road densities that exceed current standards are a regular problem in watersheds and across eastside forests. Existing road densities in many areas of National Forests in the Blue Mountains are well above the 2-miles/square mile NOAA (1996) threshold for watersheds to be considered "properly functioning". NOAA (1996) notes: properly functioning: 2 miles/sq mile; at risk 2-3 mi/sq mi; not properly functioning >3mi/sq mile. The widespread, chronic negative impacts to watersheds and streams caused by the bloated, unsustainable, and badly managed road network across public lands must be addressed by the agency.

Furthermore, the Malheur and Wallowa-Whitman National Forests are among the only forests in across the nation that have not yet completed Travel Planning as required by the 2005 Final Rule for Travel Management. These Forests currently have existing road densities at levels that are recognized as threats to water quality, fish, and watershed health, and exceed Forest Plan standards for road density in many watersheds, including those designated for prioritizing the protection of water quality and fish. Wilderness and Roadless areas occupy a small percentage of National Forests in the Blue Mountains, and the excessive road density outside of these areas has serious and ongoing negative ecological consequences for the majority of watersheds on these forests. Wilderness areas, for example, occupy approximately 17.1 percent of the combined area of the Malheur and Wallowa Whitman National Forests, and only four percent of Oregon's total land area.

The bloated and sprawling road systems on National Forest lands, including the Malheur and Wallowa-Whitman National Forests, are fiscally burdensome as well as ecologically harmful. In discussing budget shortfalls, the Forest Service notes, for example, that on the Wallowa-Whitman National Forest, it would take approximately $64 million dollars to bring the entire road system back up to standard, and approximately $6.8 million dollars to keep it that way (US Forest Service (2015). Malheur National Forest Forest-Wide Travel Analysis. Pg. 28.)

Across Oregon and Washington, the USFS manages approximately 90,000 miles of roads. The agency notes that it is "a challenge to maintain all roads to proper safety and environmental standards to increased use, aging infrastructure, and decreasing budgets. Many roads, built between 1950 and 1990, have exceeded their designated lifespan and require costly repairs. Unmaintained roads and infrastructure can impact water quality and wildlife habitat, especially fish-bearing streams. Backlog maintenance projects top $1.2 billion, and funds available for road maintenance are only about 15% of what is needed to fully maintain the current road system." (US Forest Service. Webpage. Accessed at: https://www.fs.usda.gov/detail/r6/landmanagement/?cid=fseprd485439])

The Malheur National Forest contains 7,033 miles of open roads and 2,637 miles of closed roads, for a total of 9,670 miles of existing inventoried roads. The Wallowa-Whitman has 4,633 miles of open roads and 4,486 miles of closed roads for a total of 9,119 miles of existing roads. One could drive from the northwestern tip of Washington state to the farthest northeastern tip of

Maine, down to Miami, Florida, over to San Diego, California, and back up to the northwestern tip of Washington state, and still not have traveled as many road miles as are contained in either the Malheur or Wallowa-Whitman National Forests. The USFS notes that "of the 90,000 miles of Forest Service roads in Oregon and Washington, about 2/3 of those are currently open and maintained for both public and administrative uses." The USFS estimates that approximately 12% of the overall road network is "likely not needed", with many of these unneeded roads already being "closed or stored", and only about 20% or 2,000 miles being currently open to the public. (US Forest Service. Travel Analysis Report. Wallowa-Whitman National Forest. Table 3, page 19. Accessed online at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd486098.pdf)

What is the overarching plan with road access for such repeated management for this and other projects on the Malheur, Umatilla, and Wallowa-Whitman National Forests? Does the Forest Service intend to maintain the bloated and expensive road network that exists, which the FS has admitted it does not have the funding to maintain or fix? The agency has admitted the road networks on these Forests are causing detrimental impacts to fish and water quality, as well as negative impacts to species such as elk and other animals sensitive to roads. The Forest Plan Revisions must include the massive road system, and the widespread and often disastrous damage these roads are causing to streams, water quality, and imperiled aquatic species.

Repeatedly, managed watersheds suffering the effects of high road densities and other management impacts (such as those from logging and livestock grazing) have worse outcomes for water quality and imperiled fish. For example, a NOAA 5-Year Review of Snake River Salmonids (2011) found that: "*Information from the [PACFISH Biological Opinion Monitoring Program] PIBO monitoring program indicates that unmanaged or reference reaches (streams in watersheds with little or no impact from road building grazing, timber harvest, and mining) on Federal lands in the Interior Columbia basin (including the Snake River basin) are in better condition than managed streams (Al-Chockhachy et al. 2010b). In particular, managed watersheds with high road densities or livestock grazing tend to have stream reaches with worse habitat conditions than streams in reference watersheds. When roads and grazing both occur in the same watershed, the presence of grazing has an additional significant negative ffect on the relationship between road density and the condition of stream habitat (Al-Chockhachy et al 2010b). These results indicate that legacy effects of historic management still are manifest in the current condition of streams on Federal lands in the Interior Columbia basin and ongoing management may still be affecting stream recovery rates."*

The bloated road networks on National Forests lands threaten the long-term viability of imperiled and ESA-listed fish such as MCR steelhead and Bull trout, and other imperiled or sensitive aquatic species. The Forest Service notes (USFS 2015) that "*[t]he most important road related environmental issue is the effects of roads on aquatic resources in general, and specifically Threatened, Endangered and Sensitive aquatic species (bull trout, mid-Columbia steelhead, and Columbia spotted frog).*"

Increased road densities have been correlated with low population levels and declines in bull trout and other aquatic species that rely on clean, cold waters (USFWS 2010). Of particular

concern are roads that interact with stream channels. Such roads are likely to have disproportionately negative effects on water quality and sensitive fish (USFS 2018). Sedimentation from roads is known to be one of the largest contributors for degradation to water quality as well as a source of degradation to fish habitat and spawning areas. Roads in disrepair create safety issues and conflicts with protection for natural resources, especially for those such as water quality, aquatic species, and functioning wetland processes.

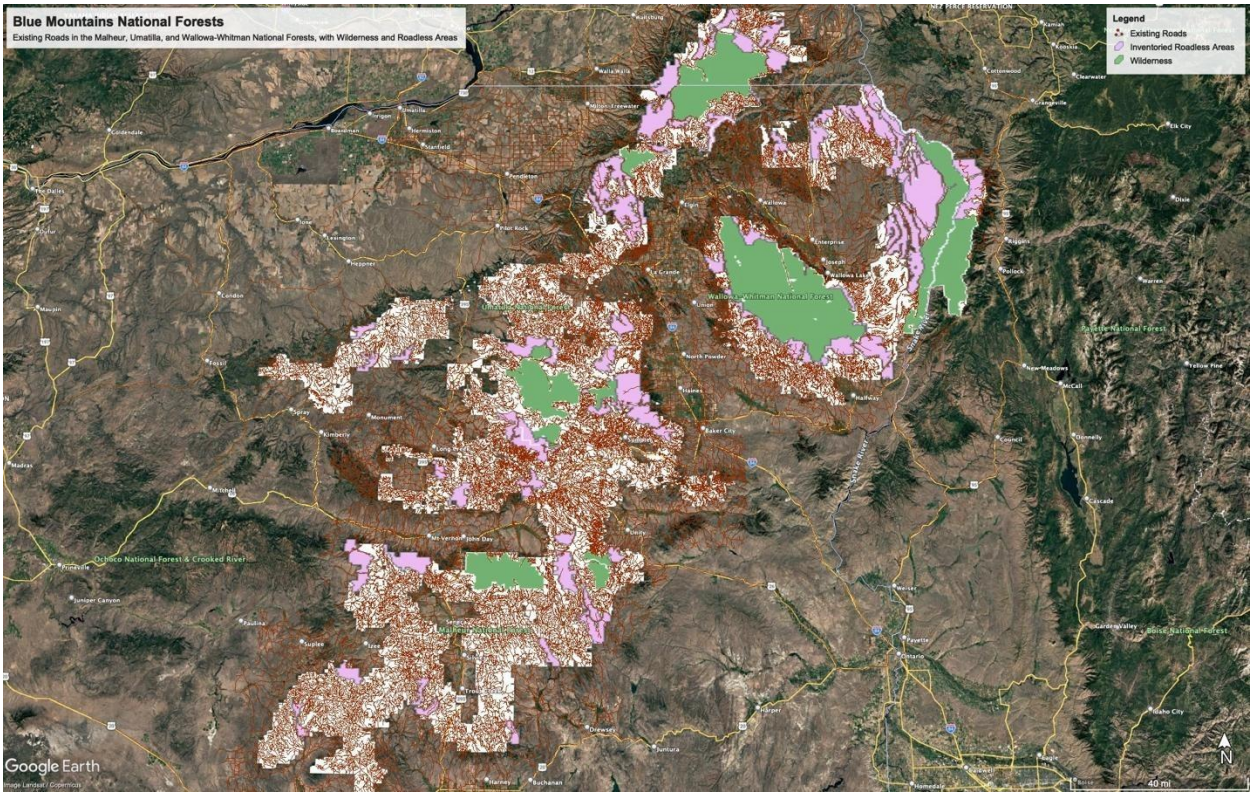
Carnefix and Frissell (2009) discussed impacts from roads, and show that significant negative impacts to sensitive aquatic species are present at road densities greater than one mile per square mile: *"Multiple, convergent lines of empirical evidence summarized herein support two robust conclusions: 1) no truly "safe" threshold for road density exists, but rather negative impacts begin to accrue and be expressed with incursion of the very first road segment; and 2) highly significant impacts (e.g., threats of extirpation of sensitive species) are already apparent at road densities on the order of 0.6 km per square km (1 mile per square mile) or less. Therefore, restoration strategies prioritized to reduce road densities in areas of high aquatic resource value from low-to-moderately-low levels to zero-to-low densities (e.g., 1 mile per square mile, lower if attainable) are likely to be most efficient and effective in terms of both economic cost and ecological benefit. By strong inference from these empirical studies of systems and species sensitive to humans' environmental impact, with limited exceptions, investments that only reduce high road density to moderate road density are unlikely to produce any but small incremental improvements in abundance, and will not result in robust populations of sensitive species."*

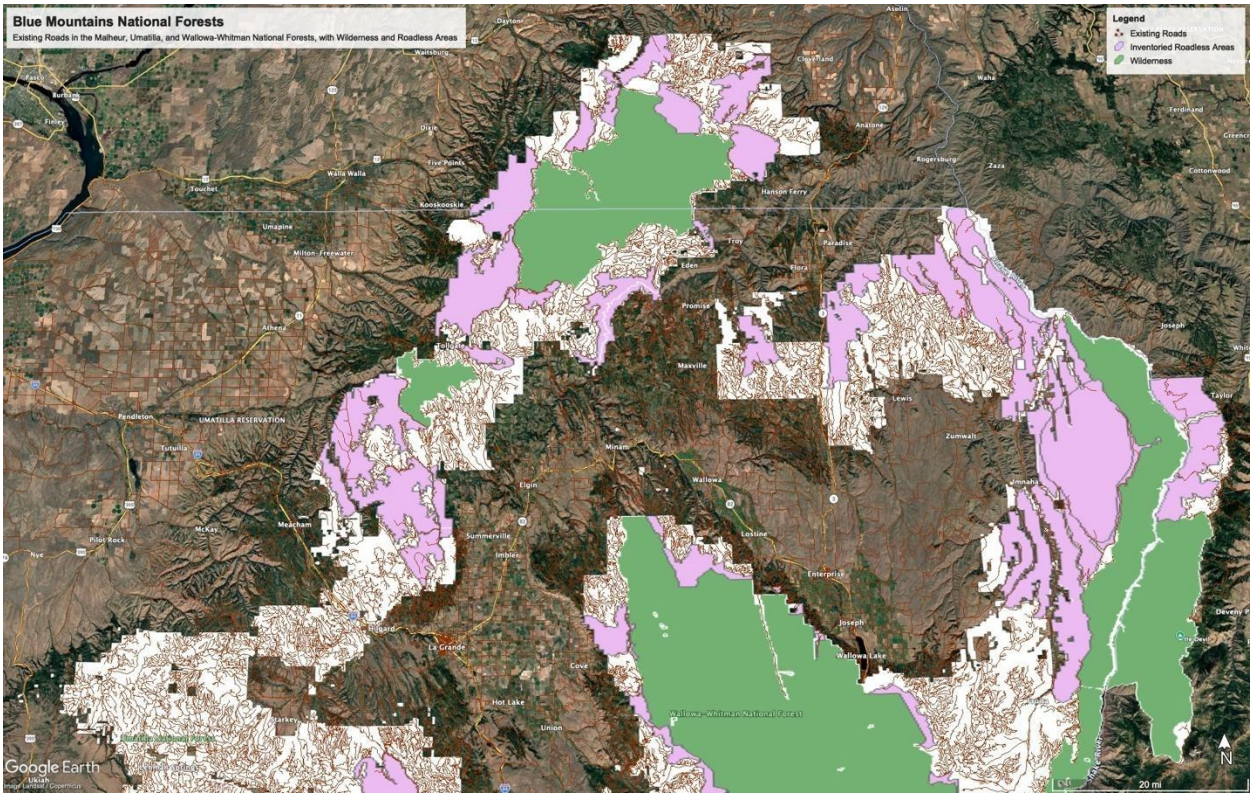
National Forests have acknowledged the risks that roads and high road densities have on fish and water quality, not only when limited to roads directly within riparian buffers. For example, in the Upper Touchet sale on the Umatilla NF, the FEA states: "*Road density is used as an indicator of potential for affects to hydrologic function (extension of the stream network) and water quality (sediment delivery to surface waters). Stream crossings are used as an indicator of the degree of connectivity between the road system and the drainage network. To the degree that roads are connected to the drainage network the risk of road sediment reaching surface waters is increased, the drainage network is lengthened and the potential for precipitation to drain more quickly, with less residence time in the watershed is increased. Roads have the potential to intercept surface and subsurface water, reducing infiltration and increasing the delivery of water to channels. Roads which are hydrologically connected are a risk to water quality. Sedimentation may be increased by surface erosion from roads and the ability of road drainage to route sediment to channels."*

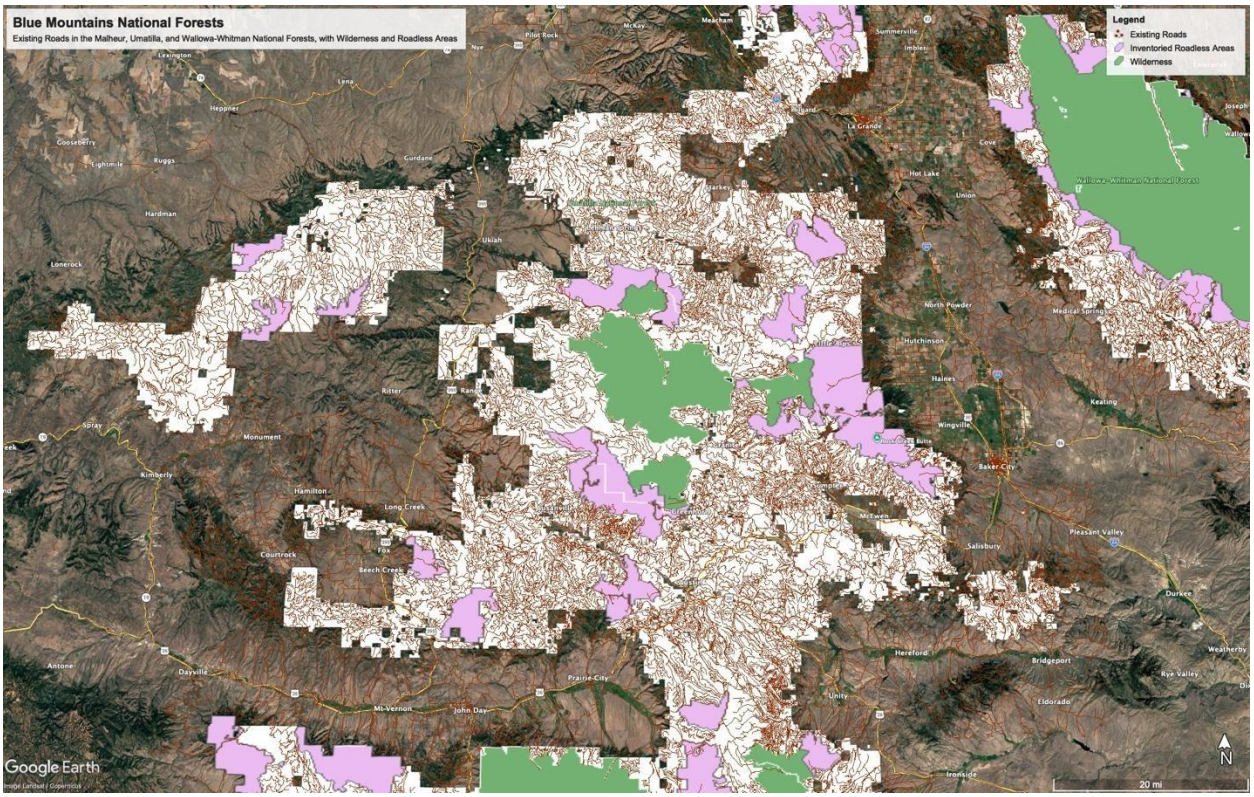
Also from the Upper Touchet DEA Hydrology Report: *"Roads have the potential to intercept surface and subsurface water, reducing infiltration and speeding the delivery of water to channels. Sedimentation may be increased by surface erosion from roads and the ability of road drainage to route sediment to channels. Road density alone does not indicate slope position, another critical factor. Valley bottom roads have the most direct effect on streams and riparian areas because of accelerated erosion and loss of streamside shade. Mid-slope roads intercept subsurface runoff, extend channel networks and accelerate erosion, and ridge top roads can influence watershed hydrology by channeling flow into small headwater swales, which may*

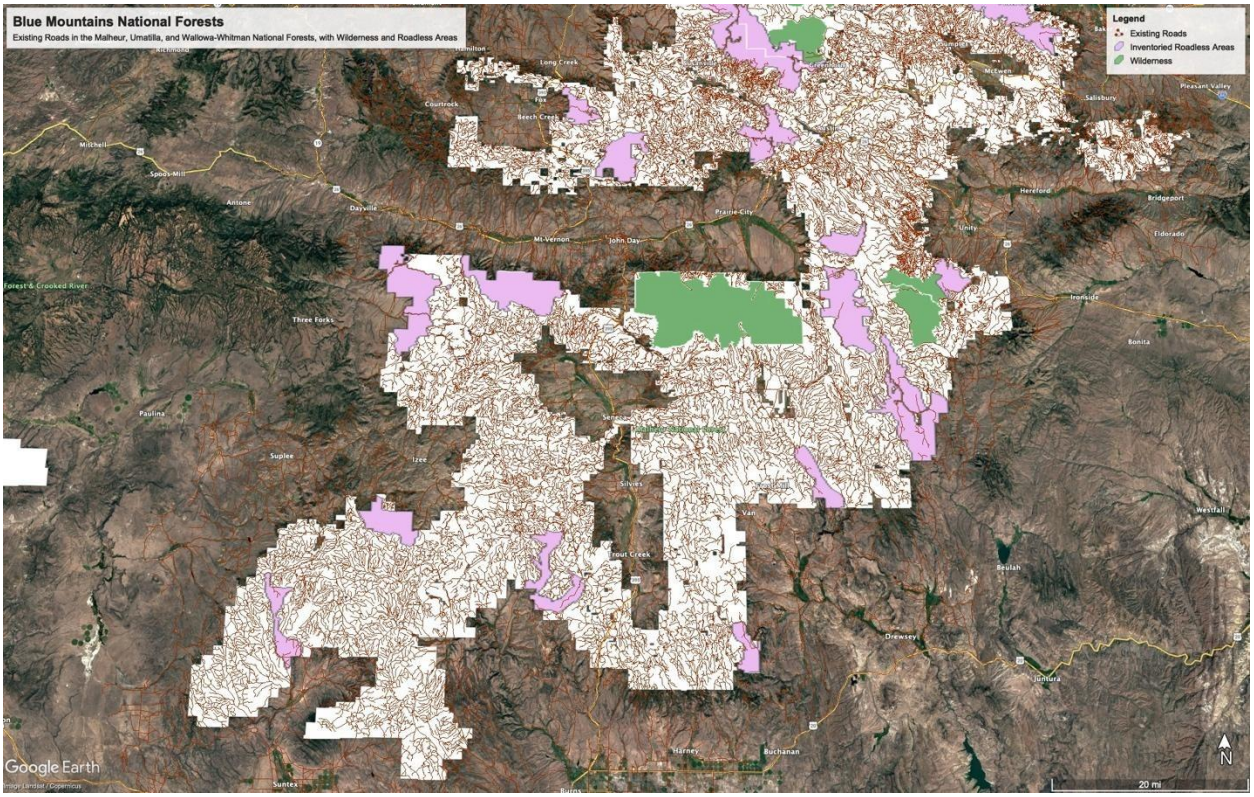
accelerate channel development. McCammon (1993) assigned three watershed risk classes based on road density (mi/mi2) to assess the potential of road impacts to adversely affecting hydrologic function and water quality: low (< 3), moderate (3.1-4.5) and high (> 4.5). The Upper North Fork Touchet SWS road density is 1.4 mi/mi2."

Another example the USFS's Draft EA for the Mill Creek sale in the Ochoco NF*: "Roads are a major source of erosion and stream sedimentation on forested lands. Roads can increase erosion rates and turbidity three orders of magnitude greater than the undisturbed forest condition (Megahan 1974). Sediment eroded from the road prism can be delivered to a forest stream, resulting in increased turbidity, sediment loads, and degraded habitat for fish. Research has shown that roads have the greatest effect on erosion relative to other forest management practices (Megahan and King 2004)."*




Blue Mountains National Forests
Existing Roads in the Malheur, Umatilla, and Wallowa-Whitman National Forests, with Wilderness and Roadless Areas
Legend
Existing Roads
Inventoried Roadless Areas
Wilderness
Pendleton
UMATILLA RESERVATION
Pilot Rock
Meacham
Summerville
Elgin
Wallowa
Lostine
Enterprise
Joseph
Wallowa Lake
La Grande
Cove
Hot Lake
Union
Starkey
Wallowa-Whitman National Forest
Google Earth
20 mi
N


Blue Mountains National Forests
Existing Roads in the Malheur, Umatilla, and Wallowa-Whitman National Forests, with Wilderness and Roadless Areas
Legend
Existing Roads
Inventoried Roadless Areas
Wilderness
Ukiah
Hardman
Lonerock
Monument
Kimberly
Hamilton
Long Creek
Courtrock
Beech Creek
Fox
Dayville
Mt. Vernon
John Day
Prairie City
Unity
Hereford
Bridgeport
Eldorado
Durkee
Pleasant Valley
Salisbury
Baker City
Wingville
Keating
Haines
Hutchinson
North Powder
Medical Springs
Wallowa-Whitman National Forest
Google Earth
20 mi
N



1. Roadless and Wilderness areas are crucial for providing cold, clean water, and for ensuring adequate baseflows

The prioritization of vegetation management and silvicultural treatments (i.e., logging) within RMAs—especially in combination with the elimination of RMOs and other PACFISH/INFISH standards--will increase their fragmentation, and so is not in compliance with the direction of the 2012 Planning Rules to maintain or restore connectivity.

Research shows that fish stocks are stronger and better distributed in areas of little or no management and low road densities, even in fire suppressed areas, and even if severe fires occur. Numerous studies have implicated roads as a primary factor in altering watershed hydrology and/or declines in fish stocks, and show that many benefits are gained by leaving forests unroaded and to their own ecological processes (including processes involving fire, insects, and disease). (Bader 2000; Bradley et al. 2002; Carnefix and Frissell 2009; DellaSala et al. 2011; Frissell and Carnefix 2007; Rieman and Clayton 1997, Rieman et al. 2000, Thurow et al. 2001; Public Lands Initiative/Trout Unlimited 2004; Western Native Trout Campaign 2001; Quigley and Arbelbide 1997).

However, the DEIS's preferred alternative proposes no new Wilderness, and would put Inventoried Roadless areas at risk of logging should the national Roadless Rule be rescinded. We request that the FEIS analyze an alternative that includes recommending all potential Wilderness areas for Wilderness designation, and includes protections for Inventoried Roadless Areas and maintaining them as unroaded, unfragmented core habitat blocks. In addition to supplying clean, cold water for human communities and ecosystems, Wilderness and Roadless areas serve as a

backbone for riparian and terrestrial connectivity. These should be the basis for a reserve system for biodiversity and carbon.

G. Water quality, watershed hydrology, and stream habitats

More than 1,240 stream miles on National Forest lands in the Blue Mountains are listed as not meeting water quality criteria. The most common water quality impairment on National Forest lands is stream temperature (Draft EIS for the Blue Mountains Forest Plan Revision (BMFPR), Vol. 1 pg. 272).

Elevated stream temperatures are known to negatively impact fish stocks on National Forest lands in the Blue Mountains, including anadromous fish, and listed and at-risk fish such as Bull trout. Water quality standards for temperature, sediment, and other water quality parameters are not being met on hundreds of miles of streams on these National Forest lands. Additionally, monitoring efforts such as the Middle Fork of the John Day River Intensively Monitored Watersheds (2017) found that *"Evidence strongly indicates that elevated stream temperature remains the most significant limiting factor for steelhead and Chinook populations, overriding the benefits to salmonids from observed instream habitat improvements from restoration actions in the MFJDR".*

Small streams are particularly vulnerable to increases in temperature, even with limited selective logging. There is evidence to suggest that *wider* buffer widths may be necessary to protect stream temperatures, particularly in intermittent and headwater streams, and particularly when logging within 100' of streams. Logging within riparian corridors, removing shade, road-related impacts, and degrading hyporheic flow can increase stream temperatures in small intermittent streams. Parameters that influence stream temperatures include, stream shade, overland flow, groundwater and hyporheic flows, and groundwater storage. Alteration of these parameters can increase stream temperatures, especially in small streams. Logging alters these parameters, and degrades the ability of these parameters to support cold water, and is likely to increase stream temperatures. (Caissie 2006; Davies and Nelson 1994; DeWalle 2010; Kiffney et al. 2003; Groom et al. 2011; Groom 2011; Jones et al. 2006; Sweeney 2013; Pollock et al. 2009; Wigington et al. 2006; Poole et al. 2008; Poole and Berman 2001; Ebersole et al. 2015). Even in situations where logging within riparian buffers is limited to thinning of smaller diameter trees, logging may compromise the ability of the riparian buffer to protect streams or ameliorate the negative impacts from upland logging, including increased stream temperatures and the delivery of sediment and nutrients into waterways.

Headwater streams and non-fish bearing streams are particularly at risk and need more, not less, protection. In order to protect downstream fish bearing reaches, headwater streams need at least as much protection as larger downstream reaches (Rhodes et al., 1994; Erman et al., 1996; Espinosa et al., 1997). Both Erman et al., (1996) and Rhodes et al., (1994) concluded, based on review of available information, that intermittent and non-fish-bearing streams should receive stream buffers significantly *larger* than those afforded by PACFISH/INFISH. Headwater streams and small intermittent streams do not have buffer widths that are sufficient to protect water quality and stream habitats. Wider buffers are needed in order to prevent excess fine sediments and nutrients entering waterways. (Freeman et al. 2007; Gomi et al. 2005; Nieber et al. 2011;

Sweeney and Newbold 2014). Negative impacts to upstream reaches, such as higher temperatures, increased sediment loading, down-cutting, and altered hydrographs also negatively affect downstream reaches.

Logging within riparian buffers has well-documented and negative effects on stream temperatures, including increased water temperatures. For example, Guenther et al. (2012) found increases in stream temperature in relation to selective logging. Studies have also found selective logging may be associated with increases of instream fine sediments (Kreutzweiser et al. 2005, Miserendino and Masi 2010). Upslope logging, particularly on steep slopes above streams, can increase fine sediment inputs into streams, contribute to stream temperature increases, cause increased variability in water quality and aquatic habitat parameters, and alter stream morphology and watershed hydrology. Additionally, logging on thin soils, ash soils, and rain-on-snow zones greatly increase the risk of soil damage, erosion, and excess fine sediments in streams. Zhang et al (2009) found long-term impacts to macroinvertebrate communities and streambed substrates. These impacts lasted for up to 40 years due to excess fine sediments associated with logging. Effects, such as changes to sediment loading and stream morphology, may not show up for many years after logging. (Beechie 2001; Beechie et al. 2005; Benda and Dunne 1997; Kelsey 1982 (from Swanson et al. 1982); Madej and Ozaki 1996).

Logging can be associated with changes in macroinvertebrate community structure or metrics (Flaspohler et al. 2002, Kreutzweiser et al. 2005), increases in stream temperatures (Guenther et al. 2012) and alterations in nutrient cycling and leaf litter decomposition rates (Lecerf and Richardson 2010). Flaspohler et al. (2002) noted that changes to biota associated with selective logging were found decades after logging. For example, the USFS's Draft Forest Plan Revision for the Blue Mountains (vol. 2 pg. 48) noted: *"Timber harvest can influence aquatic ecological condition via such activities as removal of trees in the riparian zone, removal of upslope trees, and associated understory or slash burning (Hicks et al. 1991). These activities can affect wood recruitment, stream temperatures, erosion potential, stream flow regime, and nutrient runoff, among others (Hicks et al. 1991). Effects of harvest are likely to be different at different scales. Hemstad and Newman (2006) found few effects of harvest at the site or reach scale, but found that harvest five to eight years earlier resulted in losses of habitat quality and species diversity at the scale of a stream segment (larger than a reach) or at the subwatershed level. Those losses were revealed in terms of increases in bank instability and fine sediment throughout the watershed and increased water temperatures and sediment problems throughout the channel segment. The cumulative effects of widespread harvest within a single drainage in a short period of time resulted in deterioration of the aquatic and riparian habitats, but evidence of effects lagged harvest by several years and different evidence of deterioration showed up at different spatial scales within the watershed".*

Logging, including upland logging, can cause decreases in summer baseflows in the long-term. Decreased canopy cover due to logging can cause more snow to accumulate in these more open areas, which alters the timing and magnitude of runoff from snow melt. This can also cause changes to peak flows (Harr and Coffin 1992). Logging creates more open canopies, increases solar radiation inputs, and so increases the amount of early snow melt. This, in turn, may further

alter peak flows and groundwater recharge and the hyporheic cold water delivery downstream, including to perennial streams. (Caissie 2006; Harr and Coffin 1992).

Logging also increases surface runoff and overland flow, which delivers warmer water and excess sediments into streams quickly, can alter peak flows and increase flood risk, as well as increase stream temperatures. In addition, increased surface runoff and faster delivery of water into streams also means that less water becomes groundwater. This decreases groundwater storage, groundwater flows, and hyporheic flows. (Coutant 1999; Croke and Hairsine 2006; Jones and Grant 1996). Protecting groundwater storage, groundwater flows, and hyporheic flows associated with intermittent streams is crucial for protecting temperatures in larger downstream perennial streams. Cold water inputs from intermittent streams to downstream reaches are essential providing cold water refugia for special-status and imperiled aquatic organisms, including ESA-listed fish (Caissie, 2006; Ebersole et al. 2015; Groom 2011; Groom 2011; Jones and Grant, 1996; Pollock et al. 2009). Small and intermittent streams are crucial for downstream fish habitat. Ebersole et al. 2015 notes: "*Although these streams are fishless,* ***water temperature in these smaller streams is important for fish habitat because cold water inputs from tributaries provide thermal refugia, and intermittent streams can still provide cold groundwater inputs even after surface flow ceases****."* Patches of cold water refugia are crucial for fish. Shallow groundwater patterns can be important for influencing stream temperatures, (Poole et al. 2008) and so are likely vulnerable to upslope logging (Caissie 2006).

Logging alters microclimates, creating hotter, drier, and windier conditions that stretch beyond forests directly affected and into adjacent forests, sometimes for distances of hundreds of feet. Such microclimate edge affects could extend into the entirety of riparian buffers, especially in smaller headwater streams. (Chen et al. 1992; Chen et al. 1995; Brosofske et al. 1999).

Jones & Grant (1996) found that watersheds with drier conditions and more intense summer droughts were more sensitive to the effects of logging and roads on increased peak flows. Hicks et al. (1991) found base flows increased for 8 to 9 years after clearcut logging because rainfall is not intercepted, evaporated, and transpired by trees. Instead, most rainfall becomes surface, subsurface, or groundwater flow once the trees are removed, and therefore contributes to base flow increases. However, the author found that base flow rates declined to lower than normal volumes in areas of hardwood riparian re-growth for the following 18 of 19 years in their study.

Also, logging within riparian corridors or forest wetlands can magnify water quality and hydrology impacts from upland logging. (Hicks et al. 1991; Moore and Wondzell 2005). Janisch et al. (2011 and 2012) and Buttle et al. (2009) found that wetlands associated with headwater and low order streams are more common and influential on stream hydrology and water quality than previously realized. Many of the wetlands associated with first order streams are small and fall below the size requirements for protection in relation to timber sales. Janisch et al.(2012) found streams in headwater catchments with wetlands had larger and more consistent increases in temperature in relation to adjacent logging than did the catchments that did not contain wetlands. The authors found that in streams with wetlands present in their catchments tended to have streams with finer sediments in their substrates.

Additional useful information regarding the Janisch et al. 2012 paper: *"....spatially intermittent streams with short surface-flowing extent above the monitoring station and usually characterized by coarse-textured streambed sediment tended to be thermally unresponsive. In contrast, streams with longer surface-flowing extent above the monitoring station and streams with substantial stream-adjacent wetlands, both of which were usually characterized by fine-textured streambed sediment, were thermally responsive."*

The Washington Department of Ecology provides a concise summary of the Janisch et al. 2012 research (https://apps.ecology.wa.gov/publications/SummaryPages/1203020.html):

"During approximately the past 50 years, stream temperature response to logging practices has been frequently studied. These studies have suggested that the amount of shade from stream-adjacent forest, as well as other variables such as elevation and aspect, can influence stream temperature when the streamside forest is removed by logging or otherwise disturbed.

Results from these studies, however, have been variable, and the magnitude of stream temperature response has not always been predictable by the amount of stream-adjacent forest removed. Recent thought and research on this topic has thus tended to consider why, given similar logging treatments, some streams increase greatly in temperature after logging whereas temperatures of others increase only slightly, and why occasionally temperatures of yet other streams after logging have appeared to decline. Hyporheic flow and streambed sediment texture have been proposed as possible explanations.

Recently, we observed that the temperature response of small forested headwater streams to logging were also highly variable. We further observed, however, that the degree of stream temperature response in the streams studied was strongly correlated with two landscape variables: cumulative surface area of small, stream-adjacent wetlands (0.93) and length of flowing surface water above our stream temperature monitoring stations (0.65). Additionally, stream sediment texture appeared important, with streams having coarse substrates being thermally unresponsive and streams having fine substrates being thermally responsive. Conversely, our measure of stream shade was not a strong predictor of stream thermal response.

These results suggest that very small headwater streams may be fundamentally different than many larger streams because factors other than shade from the overstory tree canopy can have sufficient influence on stream energy budgets to strongly moderate stream temperatures even following complete removal of the overstory canopy. This raises the possibility that there are several types of very small headwater streams, some being thermally responsive and some not. Such a finding is potentially of importance to several fields of natural resource management. Confirming our observations, however, will take substantial additional work."

The research cited here, as well as a plethora of other research, shows that the rollback and elimination of PACFISH/INFISH protections for streams and riparian forests will threaten the cold-water temperatures and refugia in streams that are important for ESA-listed aquatic species such as Bull trout, Snake River steelhead, Snake River Chinook, and other Sensitive and imperiled aquatic species. We are very concerned that the agency, in eliminating

PACFISH/INFISH protections, including RMOs, as well as weakening or rolling back Eastside Screens protections, will have catastrophic effects on ESA-listed fish and other aquatic species.

H. Aquatic species

The DEIS failed to include Forest Plan components that maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area, or maintain and restore their structure, function, composition, and connectivity. It has also does not include Forest Plan components that will maintain or restore key characteristics associated with terrestrial and aquatic ecosystems, or rare aquatic and terrestrial plant and animal communities. As a result, the DEIS has also failed to provide for the viability of aquatic species, particularly species that rely on clean, cold water such as ESA-listed Bull trout, Mid-Columbia River steelhead, and Chinook salmon.

The proposed Forest Plan Revision DEIS has eliminated the PACFISH/INFISH and RMO standards that have served as the cornerstones of stream restoration and protection for three decades. Instead, the DEIS proposes increased logging within Riparian Management Areas as a primary management approach, and offers no substantive protections from this logging or other ecologically destructive management practices. The agency is ignoring their own data and research, and is acting in an arbitrary and capricious manner in choosing to ignore proven restoration strategies, and instead proposing controversial and risky strategies with well-documented negative impacts on streams.

Without strong, quantitative, and enforceable standards, imperiled fish such as Bull trout, Columbia River steelhead, and Chinook salmon– which are already suffering from the effects of climate change and habitat loss– will be further pushed towards extinction.

A NOAA 5-Year Review of Middle Columbia River Steelhead (2011) states: *"**many ongoing threats to steelhead habitat could be ameliorated by strengthening existing regulatory mechanisms**".*

The Forest Service often downplays or ignores threats to fish and aquatic species from logging, roading, and livestock grazing—while simultaneously exaggerating the risk to ESA-listed fish from wildfire, despite research showing otherwise. For example, the Forest Service's proposed Forest Plan Revision (2014) vol 2. pg 60 admitted that Redband trout will recolonize a stream relatively rapidly after experiencing severe fire: *"Redband trout and bull trout have been shown to recolonize severely burned drainages within two years, provided the drainages were physically accessible (i.e., no culvert barriers, and provided that other fish in unburned areas were close enough to discover and move back into the recently burned habitat".*

In addition, Olson 2000, in her literature review for her master's thesis research on riparian forests in eastern Oregon noted: *"local extirpation of fishes is often patchy in the case of extensive high severity fires, and that recolonization is rapid."*

Similarly, the Forest Service study *Effects of Wildfire and Subsequent Hydrologic Events on Fish Distribution and Abundance in Tributaries of North Fork John Day River* by Howell (2006) looked at fish distribution after the Tower Fire in the Upper John Day Basin. Much of the Tower

Fire burned at moderate to high severity. Howell's research found that fish populations, including steelhead and Chinook salmon, were highly resilient to wildfire and had rebounded to approximately pre-fire levels by four years. From the study:

> *"After the Tower Fire, "intense spring storms in 1997 and 1998 triggered large floods, landslides, and debris torrents that affected streams within and downstream of the fire." The authors investigated "the effects of the fire and ensuing floods on fish distribution and abundance in three streams immediately after the fire through 2003. Immediately after the fire, no fish were found in moderate- and high-intensity burn areas. Fish began to repopulate defaunated reaches the year after the fire, and within 4 years distribution of juvenile steelhead (anadromous rainbow trout Oncorhynchus mykiss) and resident rainbow trout was similar to that before the fire. Juvenile spring Chinook salmon O. tshawytscha also began to use lower reaches of one of the streams after the flood, which had eliminated a culvert near the mouth of the stream suspected to be a barrier. Densities in most burned reaches and in unburned reaches downstream of the fire have rebounded to levels similar to or greater than densities in reference streams outside of the fire. An isolated introduced population of brook trout Salvelinus fontinalis also recovered. Thus, despite the size and severity of the fire, postfire hydrologic events, and human-induced changes to watersheds, fish populations were highly resilient."*

> *"The appearance of juvenile Chinook salmon in Oriental Creek after elimination of the culvert at the mouth and the contribution of roads to flood effects in that drainage emphasize that there may be threats to aquatic species other than fire that warrant management attention. Restoring landscapes and disturbance patterns to more closely resemble what native species evolved with may also be beneficial (e.g., Rieman et al. 2000), to the extent that is possible, especially given current climate trajectories (Meyer and Pierce 2003; Whitlock et al. 2003; Pierce et al. 2004). Managers need to carefully consider the risks and justification for fire-related forest management as well as other actions that may be of more immediate or greater consequence for aquatic species. Understanding how fish respond to fire is an important step in assessing those risks."*

Research by Rosenberg et al. 2012 *Fish Life Histories, Wildfire, and Resilience—A Case Study of Rainbow Trout in the Boise River, Idaho* found that rainbow trout are resilient to wildfire, except in very small and isolated habitats:

> *"Even without a steelhead life history present, freshwater resident rainbow trout appear resilient in the face of wildfire, except in the smallest and most isolated habitats, as would be expected in theory and from the few empirical data available for salmonid fishes (Dunham and others 2003). Resilience is shown in the ability of rainbow trout to rapidly recolonize habitats following disturbance, variable responses to changing environments (e.g., growth, age at maturity), and maintenance of large enough numbers of adults to avoid genetic drift in the face of disturbance. Lower resilience is evident when other constraints imposed by humans*

(e.g., movement barriers, nonnative trout) limit the species' ability to respond to disturbance (Bisson and others 2009; Healey 2009; Waples and others 2009; Greene and others 2010)."

"Wildfire can lead to a variety of changes in stream environments (Minshall 2003). In the Boise River, recent wildfires ranged from light to severe burns (Dunham and others 2007), leading to variable changes in riparian and hillslope vegetation, and in some cases initiation of major channel reorganizing events (Benda and others 2003; Miller and others 2003). These events often involved massive erosion of stream channels, sometimes throughout an entire tributary. In the latter case, local populations of rainbow trout were reduced to undetectable levels (Burton 2005). In others, a patchwork of wildfire appeared to eliminate rainbow trout from some reaches of stream, but not others (Rieman and others 1997). Following these wildfires, water temperatures remained elevated for several years, particularly for streams influenced by channel reorganization (Dunham and others 2007; Figure 1). In spite of these dramatic environmental changes, rainbow trout have remained widespread in streams within the Boise River (Dunham and others 2007). What characteristics of this species' biology have conferred resilience in the face of these massive disturbances? What constraints may limit resilience? One key to species resilience may be the expression of diverse and flexible life histories (Bisson and others 2009; Healey 2009; Waples and others 2009; Greene and others 2010). Our work on rainbow trout suggests the species is flexible in terms of how individuals and populations respond to variable environments, and that ***responses can be constrained by human influences that alter natural variability****. The two major constraints we focus on here* ***are invasions of nonnative trout (Neville and Dunham, in press) and loss of connectivity caused by stream culverts that block fish passage (Neville and others 2009)."***

In the peer-reviewed study *Loss of riparian forests from wildfire led to increased stream temperatures in summer, yet salmonid fish persisted* by Warren et al. 2022, the authors investigated salmon abundance after moderate and severe wildfire in Western Oregon. Contrary to the authors' expectations, they found that fish abundances persisted and even increased by more than threefold in both of the study reaches. The authors state:

"In the first summer following a severe wildfire in western Oregon, we observed the initial persistence of populations of O. clarkii clarkii (coastal cutthroat trout) and O. mykiss (rainbow/steelhead trout). The fire burned the entire catchment, including the riparian area (~76% of the watershed area burned at moderate or high severity), resulting in stream temperature that regularly exceeded 20C and represented increases of 6–7C relative to prefire conditions. However, the mechanisms enabling the persistence of cold-water fishes despite the dramatic increases in stream temperature remain unclear and require further investigation."

In the Swartz and Warren 2023 study *Wildfire in western Oregon increases stream temperatures, benthic biofilms, and juvenile coastal cutthroat trout size and densities with mixed effects on*

adult trout and coastal giant salamanders the authors found mixed results—including increased biomass, density, length, and weight of juvenile cutthroat trout in post-fire areas.

> *Our data support the suggestion that fish in these systems are resilient to this type of disturbance; however, temperature increases that are not accompanied by increased food availability may pose greater threats to aquatic vertebrate populations. The differential response of juvenile and adult fish seen here also suggests population-level resilience even if the adult fish are negatively affected in systems with large temperature increases.*
>
> *In contrast to adult fish, juvenile coastal cutthroat trout biomass, density, mean weight, and mean length increased post-fire (Fig. 6b). The increase in density is likely due to a number of factors including greater basal resource availability and earlier insect emergence (Malison and Baxter 2010; Harris et al. 2018).*
>
> *We evaluated wildfire impacts on aquatic ecosystems in a replicated Before-After Control-Impact study 1 year after a severe wildfire in western Oregon, U.S. Stream temperature, chlorophyll a accrual, and age-0 coastal cutthroat trout size, density, and biomass increased in all three burned streams relative to changes in three unburned references. When streams were evaluated collectively, fire did not have an effect on larger vertebrate density or biomass. However, considering streams individually, two severely burned sites had substantial temperature increases and declines in larger vertebrate density and biomass, but the moderately burned site had modest temperature increases and adult cutthroat trout and Pacific giant salamanders increased. The loss of riparian canopies post-fire increased temperature and algae, but fish responses varied with age class and larger vertebrate responses were inconsistent.*

Aquatic ecosystems in the Blue Mountains evolved with and are adapted to wildfires, including high-severity wildfires. Such disturbances are integral to the structure, function, composition, and dynamics of stream ecosystems. Logging cannot and does not mimic natural processes. Logging and roads have ubiquitous, long-term, and chronic detrimental impacts to watershed hydrology and aquatic ecosystems that these systems are not evolutionarily equipped to handle, and do not easily recover from. While wildfire may have variable and complex effects on imperiled fish and their habitats, they also benefit from wildfire. For example, wildfire is crucial for the creation of stream structures and habitats for aquatic and riparian species, ensuring habitat complexity and biodiversity, and more. While wildfire can have detrimental impacts on aquatic species, these effects are shown by research to be short-term. More negative and long-term negative impacts are generally associated with pre-fire habitat degradation and fragmentation, such as the presence of artificial fish passage barriers because of faulty culverts and stream crossings, heavy logging, degradation from livestock, and other such management.

Salmonids and other migratory fish are also facing dire and ongoing threats, including from habitat degradation and shrinking ranges, dams, and climate change. Such threats make it all the more important for the Forest Service to ensure that the forested stream habitat available to

salmon on National Forests are high-quality, well connected, and not blocked by artificial fish passage barriers. Salmon rely on forested streams for key portions of their life cycle needs, and require clean cold water and adequate spawning and rearing habitat. It is important that their spawning, rearing, and migratory habitat in forested landscapes is NOT exacerbating threats to these fish from dams, climate change, and worsening ocean conditions.

Unfortunately, across National Forests in the Blue Mountains and the PNW, past and ongoing logging, roading, and livestock grazing continues to cause habitat loss and degradation of water quality and stream habitats. High stream temperatures, elevated levels of excess fine sediments (turbidity, stream embeddedness) lack of large wood in streams, fewer and shallower pools, and other loss of habitat continue to negatively affect salmon and imperiled aquatic species and contribute to downward trends and a loss of viability in their populations.

The Nez Perce recently conducted the analysis: *Quasi-Extinction Threshold and Call to Action for Snake River Basin Chinook and Steelhead.* The analysis includes parts of Idaho as well as the Blues in eastern Oregon and southeastern Washington. A Nez Perce presentation, based on their 2022 report, showed that, for example, 42% of the populations they looked at are currently at or below the Quasi-extinction threshold of 50 spawers. 77% of populations are predicted to be at this threshold by 2025.

Rivers included in the analysis that are within the Blue Mountains Forest Plan Revision include rivers such as Wallowa River, Tucannon River, Grande Ronde River, Wenaha, Minam, Catherine, Lookingglass, Lostine, Big Sheep, Joseph Creek, Imnaha River, and Asotin Creek. The Tucannon, Asotin, Upper Grande Ronde, and Big Sheep were reported to already be at or below the quasi-extinction threshold of 50 spawners. The Wenaha, Minam, and Lostine have been at or below 50 spawners at least one year since 2017. Catherine and Lookingglass Creeks were predicted to be at or below 50 spawners by 2025.

The Idaho Statesman covered recent analysis by the Nez Perce Tribe in a series of articles, including Key salmon populations cross alarming threshold — and more are nearing that line by Eric Barker. The article includes quotes such as:

> *"Nearly half of the wild spring chinook populations in the Snake River Basin have crossed a critical threshold, signaling they are nearing extinction and without intervention may not persist, according to analysis by the Nez Perce Tribe.*
>
> *The river's steelhead populations, while doing better, also face alarming threats to their existence, according to the work.*
>
> *Modeling conducted by fisheries scientists at the tribe, and shared with other state, federal and tribal fisheries managers in the Columbia Basin, indicates if current trends continue, 77% of Snake River spring chinook populations and 44% of steelhead populations will be in a similar position within four years."*
>
> *The tribe found 42% of Snake River spring chinook and 19% of steelhead have reached the quasi-extinction threshold — an analytical tool used by the federal government to assess the risk of extinction or measure the viability of fish*

populations. The threshold is tripped when a natural origin population of fish has 50 or fewer spawners return to natal streams for four consecutive years.

"It's a return, a series of returns, that demonstrates you better do something or you are going to lose your ability to do much of anything," said David Johnson, director of the Nez Perce Tribe's Department of Fisheries Resources Management.

Further modeling by the tribe shows Snake River spring chinook populations that are protected as threatened under the Endangered Species Act declined at a rate of 19% over the past 10 years and steelhead fell at an 18% clip during the same time period.

Jay Hesse, director of biological services for Nez Perce Tribal Fisheries, examined data from 31 of the basin's 32 native spring chinook populations that return to places like the Middle Fork of the Salmon River, Loon Creek, the Grande Ronde River and the Imnaha River. Of those, 13 already meet the threshold and more will soon follow, according to the analysis.

"If you take that 19% rate of decline and say going forward, where does that put us, and project out for five years, you end up with 24 of the 31 populations being below 50 natural origin spawners by 2025," he said.

Hesse analyzed 16 of the basin's wild steelhead populations. The sea-run rainbow trout also listed as threatened under the ESA are doing better than chinook, but have declined rapidly during the past five years or so because of poor ocean conditions. The fish have posted a 10-year downward trend of 18%, nearly identical to the nosedive by spring and summer chinook.

That trend projected forward puts seven of the 16 native steelhead populations analyzed by the tribe, or 44%, below the quasi-extinction threshold by 2025. The slide for the big B-run steelhead cherished by anglers is steeper — more like 23%.

"If this isn't a wake-up call, I'm not sure what folks would be looking for," said Tucker Jones, ocean and salmon program manager for the Oregon Department of Fish and Wildlife. "We think their analysis is cause for concern," said Bill Tweit, special assistant in the Washington Department of Fish and Wildlife's Fish Program.

"Anytime you have a total spawner abundance less than 50 fish, that really puts you in a bad spot," said Lance Hebdon, anadromous fish manager for the Idaho Department of Fish and Game.

Earlier this year, scientists with the agency's Northwest Fisheries Science Center published a paper projecting that climate change could cause already low survival rates for Snake River spring chinook to plummet by 90% and the fish could face extinction by 2060. The study, led by Lisa Crozier, said urgent actions are needed

to counteract the fish-killing effects of warming oceans and reduced river flows brought on by climate change."

Commentary in the Idaho Capital Sun in August of 2025 by Pat Ford, who worked for the Save Our Wild Salmon Coalition for 22 years, also highlighted findings from the recent Nez Perce analyses:

"Most of these geographies hold from 50 to 150 miles of identified habitat for one or both fish. Thus, at the official 50 fish extinction threshold, one female or male Chinook, out of 25, must find a partner, also out of 25, in 50 to 150 miles of water.

"That is just a terribly low number of salmon in so much river," Jay Hesse says.

A landslide or flood scour could destroy a few salmon redds (nests) and their overwintering eggs, when a few are all that exist. Some eagles, bears and humans will find some returning fish before the fish find each other to spawn.

Such local events, of little harm to healthy populations, are major risks to those so near extinction. More destructive are recurring large-scale events – poor ocean conditions, low flows through reservoirs and dams, extended hot water during their long, obstructed upstream migration – that do outsized damage to populations already scraped so low.

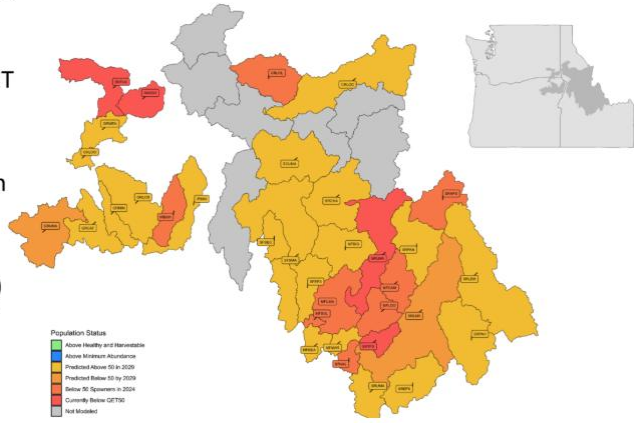
The Oregon Department of Fish and Wildlife, and NOAA Fisheries, both make the main scientific point.

The department: The 50 fish or less threshold "is not a milestone on a linear path to extinction." It is "a tipping point into accelerated extinction risk," with a "higher likelihood populations will no longer be able to respond favorably to improved conditions.""

Quasi-Extinction Threshold (QET)– 2024 Update

Snake Basin Spring/summer Chinook

- 4 populations (12%) currently meeting QET
- 8 populations (24%) below 50 spawners in 2024
- 10 populations (29%) predicted to be at or below 50 by 2029



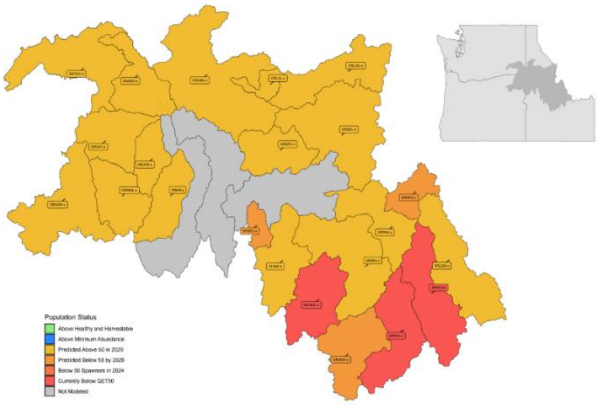
Hesse, J.A. and Kinzer, R.N., 2025. Snake River Anadromous Fish Status: Quasi-Extinction Threshold Analysis. Department of Fisheries Resources Management. Version: 09 June, 2025.

The quasi-extinction threshold results are mapped in four colors: populations at or below the 50-fish extinction threshold four consecutive years; those at or below the 50-fish threshold in the most recent year; those predicted, on current trend, to be at the 50-fish line within five years; and those predicted to be above that threshold five years from now.

Quasi-Extinction Threshold (QET) – 2024 Update

Snake Basin Steelhead

- 3 populations (14%) currently meeting QET
- 3 populations (14%) below 50 spawners in 2024
- 6 populations (27%) predicted to be at or below 50 by 2029



Hesse, J.A. and Kinzer, R.N., 2025. Snake River Anadromous Fish Status: Quasi-Extinction Threshold Analysis. Department of Fisheries Resources Management. Version: 09 June, 2025.

Cozier et al. 2021 also found alarming trends and predictions in their research paper *Climate change threatens Chinook salmon throughout their life cycle:*

> *"Widespread declines in Atlantic and Pacific salmon (Salmo salar and Oncorhynchus spp.) have tracked recent climate changes, but managers still lack quantitative projections of the viability of any individual population in response to future climate change. To address this gap, we assembled a vast database of survival and other data for eight wild populations of threatened Chinook salmon (O. tshawytscha). For each population, we evaluated climate impacts at all life stages and modeled future trajectories forced by global climate model projections.*

Populations rapidly declined in response to increasing sea surface temperatures and other factors across diverse model assumptions and climate scenarios. Strong density dependence limited the number of salmon that survived early life stages, suggesting a potentially efficacious target for conservation effort. Other solutions require a better understanding of the factors that limit survival at sea. ***We conclude that dramatic increases in smolt survival are needed to overcome the negative impacts of climate change for this threatened species."***

Fish, amphibians, and macroinvertebrate communities—including ESA-listed salmon and trout--may be negatively impacted logging and roads in forested watersheds, and the resulting excess fine sediment inputs into streams (Bryce et al. 2010, Nietch et al. 2005). For example, Coho salmon egg survival and fry emergence were negatively correlated with embedded fines of greater than 10%. In addition, when fines exceeded 20%, average survival decreases dramatically (Cederholm 1980). Increases in fine sediment loading can cause simplification of 6 complex habitats and channel structure either through settling on or scouring out the streambed (Cover et al. 2008, Nietch et al. 2005). As a result, habitats such as pools, riffles, and side channels required by stream organisms for egg laying, resting, hiding, and rearing of young may be degraded or eliminated (Bryce et al. 2010, USEPA 2006).

In addition, excess fine sediment loading, particularly in combination with the alteration of flow regimes and hydrologic processes, may negatively impact stream channel stability, limit hyporheic exchange, and alter groundwater inputs, potentially degrading conditions for stream organisms by further increasing sediment loading, decreasing necessary physical habitat, and altering stream water volume which can affect temperature and dissolved oxygen, and limit resources (Croke and Hairsine 2006, Moore and Wondzell 2005, Nietch et al. 2005, USEPA 2006).

Fine sediment inputs exceeding natural background levels may bury and smother fish and amphibian eggs or young, decrease dissolved oxygen (DO) levels, interfere with behaviors such as mating, feeding and predator avoidance, cause shifts in macroinvertebrate community structures, and increase macroinvertebrate drift rates (Bryce et al. 2010, Nietch et al. 2005, USEPA 2006). Macroinvertebrate drift rates increased significantly when exposed to suspended sediment concentrations of 8 mg/L for 5 hours, though ephemeroptera and plecoptera drift more rapidly upon exposure to sediments compared to those not exposed to sediments. Some ephemeroptera species, when exposed to concentrations of suspended sediments greater than 29mg/L for 30 days, 7 will disappear entirely. Longer exposure durations and smaller particle sizes caused increased rates of drift (IDEQ 2003).

Dynamics between stream temperatures and sensitive aquatic species may be far more complex, and often more delicate, than agencies are taking into account—including for ESA-listed species. The study *Key findings for Stream Temperature Variability: Why It Matters To Salmon* by Steele and Beckman (2014) found that: *"Commonly used degree-day accumulation model is not sufficient to predict how organisms respond to stream temperatures. Changes in how the degree days are delivered have the potential to alter the timing of life history transitions in Chinook salmon and other organisms. Emerging from the gravel a few days earlier or later could directly*

affect their survival due to changes in available food resources, competition for feeding grounds, or strong currents".

Bull trout are particularly vulnerable to logging, roading, and livestock grazing, as well as climate change. Since Bull trout are not anadromous, their responses to habitat loss and degradation can be used as an indicator of forest management on aquatic habitats and species. Despite Bull trout their crucial niche in aquatic ecosystems and their role as important indicators of the health of aquatic ecosystems and management actions effects on aquatic environments--the Forest Service barely mentions Bull trout in their SCC analysis or the draft Plan.

Bull trout are apex predators in aquatic ecosystems of the Blue Mountains, and so their continued viability and recovery is essential for ecosystem integrity and biodiversity in aquatic habitats. Despite their central role in ecosystem integrity and their declining population trends, the current draft Forest Plan Revision does not even mention Bull trout, much less provide for their habitat needs or continued viability.

Bull trout use National Forest lands in the Blue Mountains for spawning, rearing, or migrating, and have habitat needs that, if protected, would also serve as very effective umbrella protections for other aquatic species and for important stream habitat components that are essential for ecosystem integrity.

Also, evidence suggests that current BMPs and/or Project Design Criteria may not be sufficiently protective of sensitive aquatic species such as Bull trout. For example, the Fish and Wildlife Service Final Rule for Bull trout (Department of the Interior Fish and Wildlife Service 50 CFR part 17 2010) states that: *"Special management considerations or protection that may be needed include the implementation of best management practices specifically designed to reduce these impacts in streams with bull trout, particularly in spawning and rearing habitat. Such best management practices could require measures to ensure that road stream crossings do not impede fish migration or occur in or near spawning/rearing areas, or increase road surface drainage into streams."*

The negative effects of roads and stream sediments on stream integrity and aquatic habitats, as well as on imperiled fish such as Bull trout, Steelhead, and others are well recognized. The Federal Registrar, Department of the Interior Fish and Wildlife Service 50 CFR part 17 (2010) Final Rule for Revised Designation of Critical Habitat for Bull Trout also recognizes the ecological threats posed by roads to fish and water quality: *"Sedimentation negatively affects bull trout embryo survival and juvenile bull trout rearing densities (Shepard et al. 1984, p. 6; Pratt 1992, p. 6). An assessment of the interior Columbia Basin ecosystem revealed that increasing road densities were associated with declines in four nonanadromous salmonid species (bull trout, Yellowstone cutthroat trout (Oncorhyncus clarkii bouvieri), westslope cutthroat trout (O. c. lewisi), and redband trout (O. mykiss spp.)) within the Columbia River basin, likely through a variety of factors associated with roads. Bull trout were less likely to use highly roaded basins for spawning and rearing and, if present in such areas, were likely to be at lower population levels (Quigley and Arbelbide 1997, p. 1183). These activities can directly and*

immediately threaten the integrity of the essential physical or biological features described in PCEs 1 through 6."

Even in areas with comparatively high numbers of ESA-listed fish such as Bull trout, current population numbers are still low when compared to historic norms and to numbers needed for successful recovery. The USFWS 2010 Bull Trout Final Rule notes that "*Over 30 years of research into wildlife population sizes required for long-term viability (avoiding extinction) suggests that a minimum number of 5,000 individuals (rather than 50 or 500) may be needed in light of rapidly changing environmental conditions, such as accelerated climate change (Traill et al. 2009, p. 3)."*

The Forest Service must take responsibility for their part in the continued viability of fish that use key habitats on national forest lands, rather than downplaying and refusing to acknowledge the impacts from Forest Service management, including logging, roading, and livestock grazing.

Unfortunately, logging, roading, and livestock grazing on National Forests in the Blue Mountains continues to cause ongoing negative affects to anadromous and resident fish populations that have important consequences for long-term trends and continued viability. Elimination of strong protective standards and increased logging, as proposed in the draft Plan, will greatly exacerbate these negative impacts to ESA-listed species, harm ESA-listed aquatic and riparian species, jeopardize their recoveries, cause downward trends in their populations, result in local extirpations or extinctions, and losses of viability.

The PNW Research Station Science Findings from July 2017 also notes that salmon thrive from complexity and natural disturbance, including wildfires. Highlights from the research:

> *Disturbances such as wildfire contribute soil, sediment, wood, and coarse material to stream channels as pulses, with periods of recovery between inputs. This characteristic of the natural disturbance regime allows for the development and maintenance of complex habitats needed for salmonids.*
>
> *Bull trout (Salvelinus confluentus) are even more vulnerable to habitat degradation, according to Gordon Reeves. Whereas salmon, in their long travels, experience and can live through a range of temperatures, bull trout need consistently colder waters. They're listed as a threatened species throughout the western United States mostly because of rising water temperatures and habitat fragmentation. Timber harvests, cattle grazing—both of which expose the water to more sunlight—and the warming climate are causing bull trout to seek refuge in higher elevation streams where they can find pockets of colder water.*
>
> *Their remaining strongholds occur in headwater tributaries. These colder bull trout streams are poorly connected with other cold-water streams because of the presence of roads, dams, and other barriers, so their habitat is isolated, and they have fewer places to go to find cold water.*
>
> *Fire can be beneficial for bull trout, just as it can be beneficial to salmon, Reeves says, because it changes the landscape—something he calls a "disturbance*

event." The computer modeling work he and Flitcroft did for the Wenatchee basin looked at possible ways fish habitat could be improved with different approaches to management. They found that approaches that allowed for the possibility of disturbance events could potentially enhance habitat.

"Pick any creature and it's going to need some level of habitat complexity," Flitcroft says.

Not only does greater complexity contribute to the food possibilities in streams, it stimulates the innate ability of salmon to thrive under new circumstances. This adaptive capacity has been a key to their survival throughout time. The human imprint on the environment today has simultaneously created more barriers than salmon have ever had to face, and has simplified that environment.

"Many of the things we've done to simplify habitats have reduced opportunities for individuals to express their natural adaptation to disturbance in complex systems," she says.

Reeves notes that disturbance events have commonly happened throughout history in all forest types. Why wouldn't native fish have become highly adapted to them? "Look at Yellowstone," he says, referring to the forest fires in 1988 that burned more than a third of the national park. "Many postfire areas are thriving. It's like a big reset."

We are also extremely concerned about other aquatic and riparian species, including but not limited to lamprey, Rocky Mountain tailed frogs, Columbia spotted frogs, Western ridged mussels, Pearl mussels, Blue Mountain snails, and other special status, sensitive, at-risk, and imperiled species.

Additionally, we have concerns about the Species of Conservation Concern analyses and selections for the draft Plan. It is not clear why Columbia spotted frogs do not meet the criteria for SCC on the Malheur NF. Please provide further clarification. Why are Tailed frogs only considered SCC on the Umatilla NF? In addition, the most sensitive aquatic species that rely on clean, cold water—such as Bull trout—are largely ignored in the entire draft Plan. These species should be the focus for special protection efforts, as it would provide umbrella protections for other species too.

Further, many species of birds and animals rely on riparian forests—particularly in relation to the presence of large trees, mixed-conifer forests, and mature and old forests. For example, logging large trees in mixed-conifer forests within and adjacent to in riparian corridors will negatively impact wildlife. Northern goshawk and other accipiter hawks, American marten, Great gray owls, Black-backed woodpeckers, Three-toed woodpeckers, Pileated woodpeckers, Olive-sided flycatchers, and other species that rely on denser forests, mature or old growth mixed conifer forests will be negatively affected by logging in riparian corridors.

The primary threats and stressors to special-status and at-risk riparian and aquatic species on National Forests in eastern Oregon are livestock grazing, logging, and roads. These activities

result in increased fine sediment inputs to streams, warming stream temperature, increased diurnal stream temperature fluctuations, stream bank instability, soil compaction and erosion, fish passage barriers, and other widespread problems. Potential impacts of increased logging, roading, and other extractive management to water quality, watershed hydrology, channel morphology, fish, and aquatic species were not adequately analyzed, or avoided.

The Forest Service manages much of the land in core and critical habitats for spawning and rearing for numerous listed fish species. Spawning and rearing habitat quality is a primary limiting factor in the continued viability of these species. The Biological Opinion for the Effects to Listed Species from Operations of the Federal Columbia River Power System (USFWS 2000) states that: "[l]and and water uses that alter or disrupt any of the habitat requirements identified above can threaten bull trout. Examples of activities that have altered or disrupted habitats include: water diversions, dams, timber extraction, mining, grazing, agriculture, introduction of non-native fishes that compete or hybridize with bull trout, poaching, past fish eradication projects, and channelization of streams. These threats are prevalent throughout the Columbia River basin, **except in wilderness areas**" (emphasis added).

The USFWS (2010) goes to great lengths to justify why all of the core habitat designations are necessary to the continued viability of Bull trout. Many of the core habitats designated by the USFWS on these three national forests are not in Wilderness areas, and overlap greatly with timber management, grazing allotments, and other land uses on National Forest lands. In addition, foraging and migration use for Bull trout is also important, needs to be addressed and provided for, and also overlaps greatly with timber harvest, grazing, and other management activities on National Forest lands.

Unfortunately, the proposed Forest Plan Revision fails to identify threats to Bull trout viability due to land management actions on National Forest lands, as well as threats to Redband and other at-risk fish species. The FS needs to adequately address management impacts to these core areas as part of their effects analyses in the proposed Forest Plan Revision.

As discussed in depth and cited in these comments, anadromous fish in the interior Columbia basin have stronger stocks and healthier population numbers in areas of minimal or no human management and in areas of low road densities, including on NF lands, clearly showing a documentable response to management actions on NF lands. Anadromous fish on the three national forests also have distributions that greatly overlap with land management activities on NF lands.

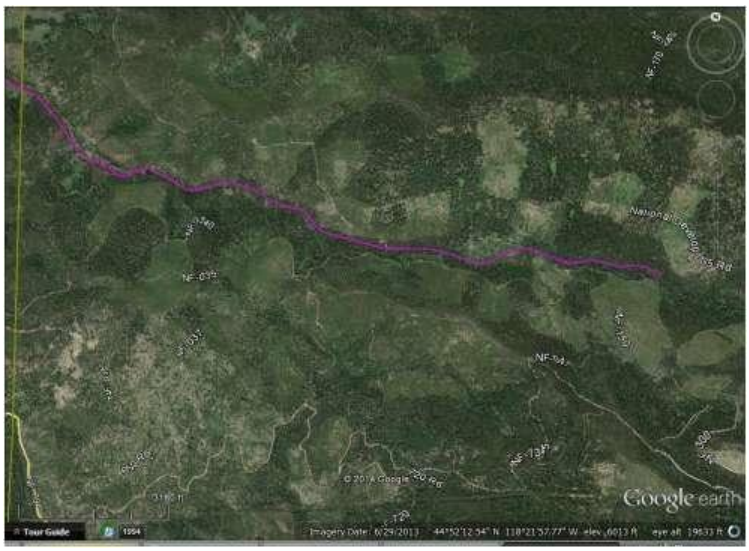
The Google earth satellite images below show logging adjacent to or downstream of Bull trout distributions. It is crucial that the USFS include baseline data for bull trout in the DEIS, as well as include them as an SCC species and monitor their populations with an adaptive management framework. USFS management actions can and do degrade their habitat, and, especially for resident Bull trout populations, make them ideal species for indicating how logging and other management is affecting aquatic ecosystems.



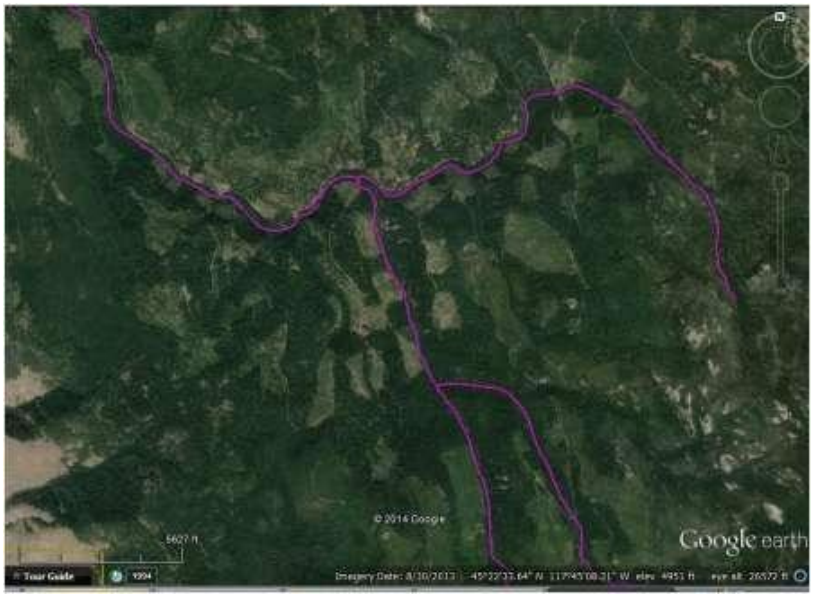
Middle Fork of the John Day and small portion of Granite Creek, Malheur NF. Logging in areas upstream of Bull trout distribution are clearly visible. Bull trout distribution is shown in purple and includes rearing and migration as well as spawning and rearing. Data sources: Google Earth, ODFW and Streamnet, accessed online 7/2014 at: http://www.wildtroutstreams.com/



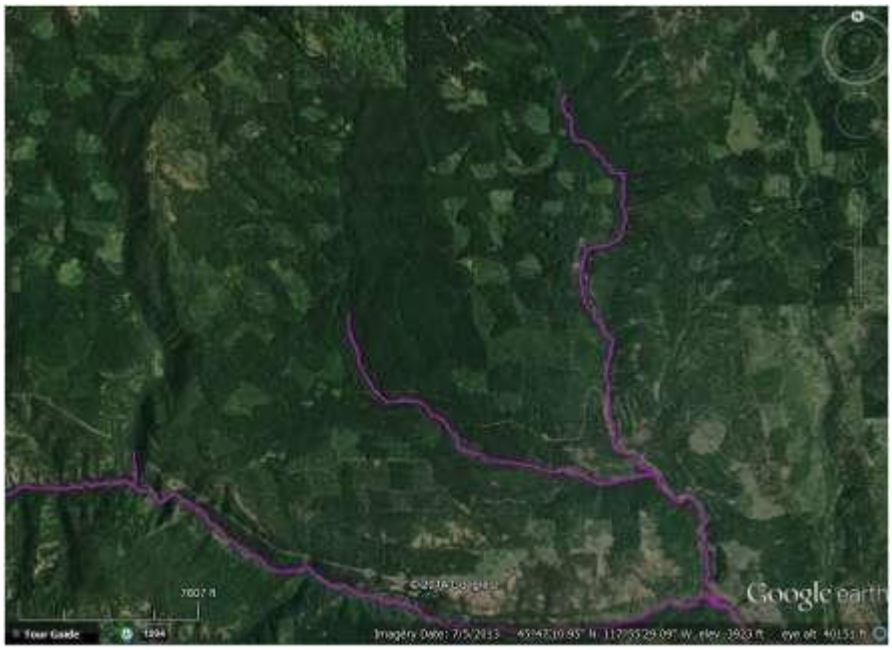
Clear and Reynolds Creeks, Malheur NF, with logging visible adjacent and upstream of Bull trout distribution that includes spawning and rearing habitat. Bull trout distribution is shown in purple and includes rearing and migration as well as spawning and rearing. Data sources: Google Earth, ODFW and Streamnet, accessed online 7/2014 at: http://www.wildtroutstreams.com/



Crane Creek, trib to N Fork John Day, Umatilla NF and includes logging in and adjacent to streams with Bull trout. Bull trout distribution is shown in purple and includes rearing and migration as well as spawning and rearing. Data sources: Google Earth, ODFW and Streamnet, accessed online 7/2014 at: http://www.wildtroutstreams.com/



Camp and Indian Creeks in Wallowa-Whitman National Forest, shows logging in and adjacent to streams with Bull trout. Bull trout distribution is shown in purple and includes rearing and migration as well as spawning and rearing. Data sources: Google Earth, ODFW and Streamnet, accessed online 7/2014 at: http://www.wildtroutstreams.com/



Mottet, Looking Glass, and Little Looking Glass Creeks, Umatilla National Forest. Bull trout spawning and rearing. The logging shown in and above the mid and upper reaches of Bull trout distribution in streams is on Forest Service land; the area surrounding the stream confluences to the SE is on private land. Bull trout distribution is shown in purple and includes rearing and migration as well as spawning and rearing. Data sources: Google Earth, ODFW and Streamnet, accessed online 7/2014 at: http://www.wildtroutstreams.com/



Wenaha River, Umatilla NF. The timber harvest and Bull trout distribution is on the Umatilla National Forest. Some private land in the NE and SE corners of this screen shot (boundary shown by yellow lines). Bull trout distribution is shown in purple and includes rearing and

migration as well as spawning and rearing. Data sources: Google Earth, ODFW and Streamnet, accessed online 7/2014 at: http://www.wildtroutstreams.com/



Sheep, Elk, and Swamp Creeks, and the N Fork of the Malheur River, Malheur National Forest. Shows logging in and adjacent to streams with Bull trout. Bull trout distribution is shown in purple and includes rearing and migration as well as spawning and rearing. Data sources: Google Earth, ODFW and Streamnet, accessed online 7/2014 at: http://www.wildtroutstreams.com/

I. Monitoring and Baseline Information

The 2012 Planning Rule requires the development of a monitoring program for the plan area. The monitoring requirement's purpose is to provide the responsible official with sufficient information to inform future forest planning decisions and amendments. This monitoring plan must include at least one monitoring question and associated indicators for each of the following; the status of select watershed conditions, the status of select ecological conditions, the status of focal species, the status of ecological conditions regarding the viability of species, the status of visitor use, changes related to climate change, progress towards meeting the desired condition, and the effects of each management system to determine they do not substantially impair productivity of the land.

The draft Plan has virtually no information on the status of selected watersheds, the status of focal species, what species will be selected as focal species, the status of ecological conditions or the viability of species, etc. Similarly, it has virtually no specifics on how monitoring will be conducted, what types of protocols will be used, what habitat parameters or species will be monitored, or what focal species will be included.

We are concerned that the proposed Forest Plan Revision fails to create an adequate adaptive management framework. The Forest Plan Revision does not have monitoring plans that include clear, enforceable triggers, decision trees, long-term studies, or adaptive management roadmaps in order to adjust management actions—particularly important in the event that goals, objectives,

and standards are not being met in relation to land management actions. Adjustments and benchmarks in relation management actions and monitoring data need to be clear and enforceable. Monitoring of water quality should be mandatory in streams that are water quality limited but continue to have land management activities taking place in their watersheds, or at least over a certain percentage of their watersheds, and should include monitoring of the pollutant(s) indicated in the 303(d) list. Monitoring of stream temperature and sediment (embeddedness and/or turbidity) should be required along with monitoring of other RMOs under PACFISH/INFISH. Monitoring efforts should take place at landscape, watershed, and project-specific scales. The Forest Plan Revision does not seem to provide clear plans for targeted monitoring of logging projects and grazing allotments. Prioritization plans for monitoring specific (or categories of) areas/watersheds/types of management projects should have included clearly laid out timelines and goals.

J. Addressing Issues with the USFS's Final Assessment Forest Plan Revision Aquatic, Wetland, and Riparian Ecosystems

The Forest Service's 2024 aquatic assessment presents an overly reassuring picture of aquatic habitat conditions when viewed through the lens of imperiled fish such as bull trout. Importantly, the assessment itself acknowledges that aquatic, wetland, and riparian ecosystems across the Blue Mountains national forests are departed from reference conditions, even while reporting that some individual indicators are stable or improving. A finding that certain streambank, sediment, or riparian indicators are stable or trending toward reference conditions does not necessarily mean that aquatic habitats are functioning well for species with highly specific habitat requirements. For bull trout, the relevant question is not simply whether individual habitat indicators are improving on average, but whether sufficient cold, clean, complex, and connected habitat remains available and accessible across the landscape to support all life stages and sustain viable populations**.** The USFWS has emphasized that habitat quality, quantity, distribution, and connectivity are fundamental to bull trout persistence, and that habitat conditions must be evaluated in relation to the biological importance of the areas affected—not merely the percentage of a larger landscape that appears to be in good condition.

The 2008 USFWS bull trout status 5-year review, submitted in BMBP' exhibits, illustrates why a broad characterization of aquatic habitat as generally good can obscure serious conservation problems. Of the 121 bull trout core areas evaluated nationally, 57 percent had low or moderate connectivity**,** while only 4 percent had high connectivity. Twenty-five percent had low internal connectivity, meaning that artificial barriers or degraded habitat impaired access to much of the available habitat. The USFWS also concluded that the vast majority of core areas had threats categorized as moderate or high severity. Critically, the USFWS cautioned that the geographic extent of a threat does not necessarily reflect its biological significance: degradation of a relatively small portion of a core area can have profound consequences if it affects spawning and rearing habitat or a migration corridor. This is particularly important in the Blue Mountains, where bull trout habitat is already fragmented and concentrated in relatively limited cold-water networks.

It is crucial that the USFS provide accurate baseline condition data, in order to protect the remaining high-quality cold-water streams, streamside habitats, and connectivity corridors

because these areas may represent some of the last viable habitat available to imperiled aquatic species.

Consequently, the Forest Service's assessment risks masking the severity of aquatic habitat problems by emphasizing broad trends and localized improvements rather than the condition and connectivity of the habitats that imperiled fish actually depend upon**.** A stream can be improving in one measured parameter while still being too warm, fragmented, inaccessible, sediment-impaired, or otherwise unsuitable to support a viable bull trout population. Likewise, describing conditions as stable or generally good at the Forest scale can obscure the cumulative effects of roads, culverts, water withdrawals, logging, grazing, wildfire, and other disturbances that have progressively reduced or fragmented high-quality aquatic habitat. For an imperiled species with limited tolerance for warm water and a low capacity to rebound from population declines, the loss or degradation of even relatively small but strategically important habitat areas can have consequences far greater than their acreage would suggest. The assessment therefore needs to be interpreted much more cautiously. The existence of areas showing localized recovery does not demonstrate that aquatic habitat across the Blue Mountains is generally in good condition, nor does it demonstrate that the remaining habitat is sufficient, connected, and resilient enough to sustain imperiled fish such as bull trout.

Under the National Forest Management Act (NFMA), the Forest Service must use a systematic interdisciplinary approach based on inventories of forest resources, and the 2012 Forest Planning Rule requires a plan revision to use the best available scientific information and to provide plan components that maintain or restore the ecological integrity of aquatic ecosystems and watersheds, including their structure, function, composition, and connectivity. 36 C.F.R. §§ 219.3, 219.6, 219.8(a)(1). The 2012 Planning Rule specifically requires consideration of water temperature, blockages of watercourses, sediment, aquatic habitat, and ecological connectivity, and requires additional species-specific plan components when ecosystem-level provisions are insufficient to provide the ecological conditions necessary to contribute to recovery of federally listed species. 36 C.F.R. §§ 219.8(a)(3), § 219.9. Thus, if the Forest Service characterizes aquatic conditions as generally healthy or improving while failing to adequately account for the documented fragmentation, loss of connectivity, thermal limitations, barriers, and other habitat constraints affecting bull trout, the resulting plan cannot logically be based on the best available scientific information or provide a legally adequate foundation for the aquatic and species-specific protections required by the Planning Rule. This is particularly consequential because bull trout are federally listed as threatened, and the Endangered Species Act separately requires federal agencies to use the best scientific and commercial data available and to ensure that their actions do not jeopardize listed species or destroy or adversely modify designated critical habitat.

The legal significance also extends to the Forest Service's eventual plan decision and administrative record. Under 36 C.F.R. § 219.14, the decision document for a forest plan revision must explain how the plan components satisfy the Planning Rule's sustainability and diversity requirements and must document how the best available scientific information was used to inform the assessment, plan components, and monitoring program. The planning record must

also contain the documents supporting the analytical conclusions and alternatives considered throughout the planning process. The Forest Service's aquatic analysis fails to adequately analyze documented conditions affecting bull trout, including habitat fragmentation, impaired connectivity, thermal limitations, barriers, and the particular importance of spawning, rearing, and migration habitat. Unfortunately, the USFS assessment presents an incomplete picture. These shortcomings and flawed conclusions are being used as the basis for the proposed Forest Plan Revision's standards, guidelines, desired conditions, and species-specific protections. The Forest Service has used assessments and analyses that do not satisfy the Planning Rule's requirements to maintain or restore aquatic ecosystem integrity and connectivity and to provide the ecological conditions necessary to contribute to recovery of federally listed species. 36 C.F.R. §§ 219.8(a), 219.9(a)-(b).

VII. Grazing comments (contributed by Western Watersheds Project)

Permitted livestock grazing is the most geographically extensive commercial use on these three national forests. According to the Summary Assessment, grazing lands cover about 69 percent of the plan area, or roughly 3.4 million acres. The forests administer 212 active cattle allotments and 11 active sheep allotments.

Yet the DEIS contains:

No rangeland effects analysis; no rangeland indicators; no capability or suitability determination for grazing; no carrying capacity analysis; no alternative that varies grazing direction in any meaningful way.

At the same time, the draft plans:

Replace the PACFISH/INFISH grazing framework and the 1990 plans' numeric utilization standards with guidelines and optional management approaches; remove the Malheur plan's prohibition on stocking domestic sheep in bighorn sheep range; set an objective to pursue "additional opportunities for livestock use" (FW-RNG-OBJ-01).

The agency's own specialists documented declining rangeland integrity, ineffective grazing best management practices, and uncertainty about whether current utilization standards protect the resource. None of those findings appears in the DEIS.

We ask the Forest Service to correct these deficiencies. Because they are fundamental, we ask that the agency issue a revised or supplemental draft EIS rather than attempting to cure them for the first time in the FEIS.

A. Legal Framework

1. The Multiple-Use Sustained-Yield Act

The Multiple-Use Sustained-Yield Act (MUSYA) directs that the national forests be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes (16 U.S.C. 528). It requires "due consideration" of "the relative values of the various resources in particular areas" (16 U.S.C. 529).

"Multiple use" is defined as "harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land." The definition also recognizes "that some land will be used for less than all of the resources" and that the right combination is "not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output" (16 U.S.C. 531(a)). The DEIS glossary reproduces this definition (DEIS at 244). MUSYA does not require that grazing occur on every acre, at current levels, or at all in particular areas.

2. The National Forest Management Act

The National Forest Management Act (NFMA) contains several requirements that bear directly on grazing:

Coordination of range with other uses. Plans must "include coordination of outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness" (16 U.S.C. 1604(e)(1)).

Availability and suitability of lands. Plans must determine management systems and procedures "in the light of all of the uses" and "the availability of lands and their suitability for resource management" (16 U.S.C. 1604(e)(2)).

Suitability guidelines. The planning regulations must include guidelines that "require the identification of the suitability of lands for resource management" (16 U.S.C. 1604(g)(2)(A)).

Diversity. Plans must provide for diversity of plant and animal communities (16 U.S.C. 1604(g)(3)(B)).

No impairment of productivity. Management systems must be evaluated through continuous monitoring to ensure they do not produce "substantial and permanent impairment of the productivity of the land" (16 U.S.C. 1604(g)(3)(C)).

Consistency. All permits and other instruments for the use of National Forest System lands must be consistent with the plan (16 U.S.C. 1604(i)).

The DEIS itself invokes 16 U.S.C. 1604(e)(2) as the basis for its detailed timber analysis (DEIS at 309). The same provision applies equally to range.

3. The 2012 Planning Rule (3 C.F.R part 219)

The following provisions apply:

§ 219.1(g): Plan components must be within "the inherent capability of the plan area."

§ 219.3: The responsible official must use the best available scientific information and document what information was determined to be the best available, why, and how it was applied.

§ 219.6(b): The assessment must address multiple uses, including range.

§ 219.7(e)(1)(ii)–(v): Defines objectives (concise, measurable, time-specific), standards (mandatory constraints), guidelines (constraints that allow departure only if the purpose is met), and suitability of lands. Under § 219.7(e)(1)(v), suitability identifications "may be made after consideration of historic uses and of issues that have arisen in the planning process." Grazing is both.

§ 219.7(f)(2): Management approaches are optional content, not plan components.

§ 219.8(a)(1)–(4): Plans must include "plan components, including standards or guidelines," to maintain or restore ecological integrity and to protect soils, soil productivity, and water quality.

They must establish riparian management zones in which no management practices causing detrimental changes in water temperature or chemistry, blockages of water courses, or sediment deposits that seriously and adversely affect water conditions or fish habitat are permitted.

They must ensure implementation of national best management practices.

§ 219.9(a)–(b): Plans must provide the ecological conditions necessary to contribute to recovery of listed species and maintain viable populations of species of conservation concern (SCC). Species-specific components are required where ecosystem-level components are insufficient.

§ 219.10(a)(1): Plan components, "including standards or guidelines," for integrated multiple-use management must consider, among other things, "forage" and "grazing and rangelands."

§ 219.12: The monitoring program must include questions on watershed conditions, ecological conditions, focal species, at-risk species habitat, stressors, progress toward desired conditions and objectives, and whether management systems impair land productivity (§ 219.12(a)(5)).

§ 219.15(d): A project is consistent with plan suitability if it occurs in an area identified as suitable, "or for which the plan is silent."

4. Range Statutes and Regulations

The legal framework for grazing permits includes:

Granger-Thye Act (16 U.S.C. 580l): term grazing permits are limited to ten years.

36 CFR Part 222: Forage-producing lands are managed for grazing, and allotment management plans must be consistent with land management plans (36 CFR 222.2(c)). The regulations also authorize modifying, suspending, or cancelling permits, including where lands are devoted to another public purpose or resource conditions require adjustment (36 CFR 222.4(a)).

FLPMA and PRIA (43 U.S.C. 1752(d); 43 U.S.C. 1901 et seq.): govern allotment management plans in the western states.

Permit renewal provisions (43 U.S.C. 1752(h)–(i)):

Subsection (h) authorizes categorical exclusions for permit renewals when the current grazing management "has met, or has satisfactorily progressed towards meeting, objectives" in the land management plan.

Subsection (i) continues permit terms pending NEPA.

Under this scheme, the plan's standards and objectives become the yardstick for whether thousands of permit renewals may proceed without further environmental review. The agency's own rangeland specialist reports that the forests have not had capacity to complete the quantity of range NEPA needed. That makes the precision and measurability of plan components more important, not less.

The agency's directives provide further requirements for permit administration, annual operating instructions, and monitoring. These include FSM 2200, FSH 2209.13, FSH 2209.16, and FSH 1909.12.

5. The National Environmental Policy Act

NEPA, as amended in 2023, requires a detailed statement addressing:

The reasonably foreseeable environmental effects of the action; unavoidable adverse effects; "a reasonable range of alternatives to the proposed agency action ... that are technically and economically feasible, and meet the purpose and need"; the relationship between short-term uses and long-term productivity; irreversible commitments of resources (42 U.S.C. 4332(2)(C)(i)–(v)).

Agencies must also:

Ensure the professional and scientific integrity of their analysis (42 U.S.C. 4332(2)(D)); make use of reliable existing data and resources (42 U.S.C. 4332(2)(E)); study, develop, and describe alternatives to recommended courses of action in any proposal involving unresolved conflicts concerning alternative uses of available resources (42 U.S.C. 4332(2)(H), formerly § 102(2)(E)).

Procedures now in effect. The Council on Environmental Quality's former regulations at 40 CFR Parts 1500–1508 have been rescinded. USDA's NEPA procedures are now at 7 CFR Part 1b, which the DEIS itself invokes (DEIS at 74). Our scoping comments cited the former CEQ

regulations and the 1982 planning regulations (36 CFR 219.20 and 219.3 (1982)). We restate those points here under the statute, the 2012 Planning Rule, and current procedures.

Deference. We recognize that courts afford agencies substantial deference in NEPA matters (*Seven County Infrastructure Coalition v. Eagle County*, 605 U.S. ___ (2025)). Deference presupposes a reasoned analysis grounded in the record. Under the Administrative Procedure Act (5 U.S.C. 706(2)(A)), an agency still may not ignore its own data, rely on reasons that run counter to the evidence before it, or omit an important aspect of the problem. As detailed below, the DEIS does each of these with respect to grazing.

6. Additional Statutes

Endangered Species Act. Federal agencies must use their authorities to conserve listed species (16 U.S.C. 1536(a)(1)) and must consult to ensure their actions are not likely to jeopardize listed species or adversely modify critical habitat (16 U.S.C. 1536(a)(2)). Land management plans are agency actions subject to consultation (*Pacific Rivers Council v. Thomas*, 30 F.3d 1050 (9th Cir. 1994)).

Clean Water Act. Federal agencies engaged in activities that may result in discharge or runoff of pollutants must comply with state water quality requirements (33 U.S.C. 1323(a)).

National Historic Preservation Act. Effects of range improvements on historic properties must be considered (54 U.S.C. 306108).

B. The DEIS Does Not Respond to the Grazing Issues Raised in Scoping

The DEIS reports that scoping produced 872 letters containing about 4,471 unique comments (DEIS at 73). It explains that comments were sorted into substantive and non-substantive issues and that non-substantive issues were "removed ... from further consideration" (DEIS at 74).

Grazing was not identified as a substantive issue. Rangelands, forage, and livestock grazing appear only in the list of topics "considered but not included in detailed analysis" (DEIS at 13). The only grazing-related alternative raised in scoping was dismissed in a single paragraph (DEIS at 3). Responses to comments are deferred entirely to the FEIS (DEIS at 356).

The public therefore has no way to know whether or how the agency considered the grazing issues raised in scoping. The following crosswalk summarizes what we requested and what the DEIS contains.

Our scoping comments asked for a credible and transparent capability and suitability analysis for livestock grazing. The DEIS identifies no grazing suitability at all. The plan's suitability identifications are made only for timber production, timber harvest, and mechanical fuel treatment, and the suitability matrix contains no row for grazing (DEIS at 108, 212). This is a complete omission. Under the plan's own consistency rule, a project is consistent with suitability

wherever the plan is silent (36 CFR 219.15(d); DEIS at 115). The plan's silence therefore makes every acre of the three forests suitable for grazing by default, without any analysis.

We also asked for a carrying capacity analysis tied to measured forage production. The DEIS lists current AUMs by forest in FW-RNG-OBJ-01 but provides no capacity basis for them (DEIS at 176). It discloses no forage supply, no forage demand from livestock and wildlife, and no comparison of the two. The public cannot tell whether current or expanded livestock use is sustainable.

We requested quantitative, mandatory riparian standards for stubble height, streambank alteration, and woody browse. The draft plan provides only a guideline for end-of-season stubble height of 4 to 6 inches (MA3A-RMA-GDL-20). Other indicators are to be applied only "as appropriate" under an optional management approach (MA3A-RMA-MAPR-01) (DEIS at 206).

There are no riparian grazing standards. The 4-inch floor also runs contrary to the science we cited, which shows that about 6 inches of residual stubble is needed to protect streambanks and sensitive species.

For uplands, we asked that utilization of key forage species be limited to 30 percent. The draft plan instead sets a guideline range of 35 to 50 percent utilization "by all ungulates" (FW-RNG-GDL-06, DEIS at 178). Because this is only a guideline, departures are allowed. For rangelands in unsatisfactory condition, it is also less protective than Alternative 1. The existing plans cap use on such lands at 0–30 percent to 0–40 percent, depending on vegetation type and management level (DEIS at 99–100).

We asked that cattle be excluded from ESA fish-bearing streams and that protections for redds be strengthened. MA3A-RMA-STD-04 now requires grazing authorizations to be "designed to avoid" livestock trampling of listed fish redds (DEIS at 203). This is an improvement in wording over the scoped draft. It still includes no timing restrictions, no exclusions, and no protections for designated critical habitat beyond redds themselves.

We asked the agency to analyze a reduced-grazing alternative. The DEIS dismissed it as outside the scope of the plan revision and as contrary to MUSYA and NFMA (DEIS at 3). As a result, no alternative in the DEIS varies grazing direction in any meaningful way. Alternatives 2 and 3 are identical on grazing except for the targeted grazing objective.

We asked for mandatory rest from livestock grazing after fire. The draft plan offers only a guideline that burned areas "should be evaluated" to determine grazing re-entry (FW-RNG-GDL-03). It adds a management approach to "consider" deferment or rest for one or more growing seasons (FW-RNG-MAPR-01) (DEIS at 177–178). There is no minimum rest period and no objective criteria for vegetation recovery before grazing resumes.

We asked the agency to consider the best available science on how livestock grazing contributes to the spread of invasive annual grasses and the loss of biological soil crusts. The DEIS does not address that science. It instead adds a new objective to use targeted grazing on 5,000 acres per forest each year (FW-RNG-OBJ-02). The DEIS itself acknowledges that this targeted grazing may exceed the plan's utilization limits and increase invasive species. The science is unaddressed, and the risk has been expanded rather than reduced.

For bighorn sheep, we asked the agency to use risk of contact modeling and to designate allotments within foray distance of bighorn herds as unsuitable for domestic sheep and goats, following WAFWA recommendations. The draft plan provides only a guideline to "minimize risk of contact" (FW-SPRSK-GDL-06). It relegates site-specific separation plans within 35 kilometers of bighorn herds to a management approach (FW-SPRSK-MAPR-08) (DEIS at 154–155). The DEIS contains no risk of contact analysis and no suitability determination for domestic sheep and goats. It also removes the existing Malheur standard prohibiting domestic sheep in bighorn sheep range.

We asked that the plans allow voluntary relinquishment of grazing permits and retirement of the affected allotments to other multiple-use purposes. The DEIS does not address this request at all. Instead, the plan promotes returning vacant allotments to livestock use (FW-RNG-OBJ-01, FW-RNG-MAPR-04).

We asked the plans to provide for coexistence with large carnivores, emphasizing non-lethal tools. The draft plan's wolf guideline is framed around reducing the potential for "livestock conflict" (FW-SPRSK-GDL-05). The related conflict-reduction practices are optional best management practices in a management approach (FW-SPRSK-MAPR-07) (DEIS at 154–155). The plans contain no enforceable components committing to non-lethal measures or coexistence.

We asked the plans to retain and increase carbon both above and below ground. The DEIS carbon analysis is limited to forest stand carbon (DEIS at 39–43). It does not analyze rangeland or riparian soil carbon or the effects of livestock grazing on these carbon stores.

Requests:

Identify livestock grazing and rangeland management as a substantive issue. The DEIS already describes clear cause-and-effect relationships between grazing and water quality, riparian vegetation, soils, invasive species, and at-risk species (e.g., DEIS at 26, 29, 43, 48). The agency's assessments document those relationships in detail.

Provide, in a revised or supplemental draft, a written response explaining how each grazing issue raised in scoping was considered and why each requested component was accepted or rejected.

C. Grazing was Improperly Excluded from Detailed Analysis

1. The DEIS's Rationale is Circular and Contradicted by the Record

The DEIS offers two reasons for not analyzing grazing in detail (DEIS at 13):

The contribution of grazing to local economies "would not vary between alternatives" because "all of the alternatives would maintain similar levels of permitted livestock grazing"; and the "outcome of permitted livestock grazing plan direction is not anticipated to vary between alternatives 2 and 3."

The alternatives do not vary on grazing because the agency eliminated the only grazing alternative (DEIS at 3) and then wrote identical grazing direction into Alternatives 2 and 3, apart from targeted grazing. An agency cannot avoid analyzing a resource by designing alternatives that treat it identically, then cite that sameness as the reason analysis is unnecessary.

The rationale also ignores the largest difference in the record: the difference between Alternative 1 and the action alternatives. Alternative 1 retains:

The PACFISH/INFISH grazing framework, including riparian management objectives and Enclosure B grazing guidelines; numeric maximum utilization standards for forested uplands, grasslands, shrublands, riparian grass, and riparian shrubs, differentiated by satisfactory and unsatisfactory condition (DEIS at 99–101, Tables 30–34); a Malheur standard barring domestic sheep from bighorn range (DEIS at 101).

Alternatives 2 and 3 replace this framework with a guideline range of 35–50 percent upland utilization, a 4–6 inch riparian stubble height guideline, and optional management approaches. That is a substantial change in management direction for 3.4 million acres. Its effects must be analyzed and disclosed under 42 U.S.C. 4332(2)(C)(i).

2. The Agency's Own Assessment Findings are Missing from the DEIS

NEPA requires the agency to make use of reliable existing data (42 U.S.C. 4332(2)(E)). The DEIS states that the 2024 Assessment and its supporting reports are the foundation for the plan (DEIS at 16, 116). Yet none of the following findings appear in the DEIS.

Rangeland integrity is declining. The Summary Assessment concludes that "the ecological integrity of rangelands in the Blue Mountains is declining to some degree." It states that "new scientific information and data show a need to shift management strategies to improve range conditions." It adds that "long term ecological trend data is needed to assess whether the current utilization standards are adequate to protect and improve ecological integrity" (Summary Assessment at 69). Grasslands and sagebrush shrublands exhibit "moderate but declining ecological integrity" (id. at 31–32, 34).

Most rangelands are departed from reference condition. The Rangeland Resource Report found that the general condition of rangelands appears more departed from reference conditions than forestlands. On the Malheur, 72 percent of rangeland is in Phases C and D, and the figures for the Umatilla and Wallowa-Whitman are 57 and 58 percent. The Terrestrial Ecosystems

Assessment reports that 79 percent of dry upland grassland on the Malheur is in Phase C or D (Terrestrial Ecosystems Assessment at 30, Table 15). It identifies grazing among "the biggest threats to the sensitive species occupying grassland habitat" (id.).

Recovery has stalled. Upland forage condition trends have slowed to a static trend over the last 30 years. Poor-condition (Phase D) rangelands are not expected to change without intensive rehabilitation. The Summary Assessment agrees that some sites have "exceeded a recovery threshold" (Summary Assessment at 68–69).

Grazing best management practices are failing. In the 2021–2022 National Core BMP effectiveness evaluations:

On the Malheur, one of the three "not effective" ratings was for Range A – Grazing Management (Watershed Condition and Water Quality Assessment at 12, Table 3).

On the Wallowa-Whitman, two of the three "not effective" ratings were for grazing and livestock management (id. at 14, Table 4).

The Summary Assessment attributes fair and poor BMP performance in part to "BMPs applied to grazing and livestock management implemented through an allotment management plan and term grazing permit" (Summary Assessment at 24).

Livestock contribute to water quality impairment. Livestock are an identified source of nutrient and bacteria impairments on 303(d)-listed waters (Summary Assessment at 24; Watershed Condition and Water Quality Assessment at 10).

Unique habitats lack grazing protections. The Summary Assessment notes that while vegetation projects have restrictions to protect unique habitats, "other activities such as livestock grazing ... do not provide the same restrictions" (Summary Assessment at 44).

Livestock effects on soils are not understood. The soils assessment identifies a need to understand livestock effects on soil quality "and understanding soil thresholds by different soil types" (Soils Assessment at 25; Summary Assessment at 15).

Species listed since 1990 need grazing conservation measures. The Summary Assessment states that "forest plans will need to incorporate grazing conservation measures for species that have been federally listed since the 1990 plans were drafted" (Summary Assessment at 69).

Each of these findings is directly relevant to the choice among alternatives. Omitting them from the DEIS fails the hard look NEPA requires. It also fails the best available science documentation requirement of 36 CFR 219.3.

3. The Contrast with Timber Shows the Omission is Not a Matter of Programmatic Scale

The DEIS devotes substantial analysis to timber:

A full appendix on timber analysis methods (Appendix D, DEIS at 309); a second appendix on timber suitability (Appendix E, DEIS at 317); a six-row suitability classification table by forest (Table 42, DEIS at 170); sustained yield limits; decade-by-decade output projections; county-level job and income estimates.

Grazing, which occupies a comparable or larger share of the landscape, receives none of this. If programmatic scale permits a quantitative capability, suitability, and output analysis for timber, it permits one for range. NFMA's suitability requirement (16 U.S.C. 1604(e)(2), (g)(2)(A)) draws no distinction between the two.

4. No Cumulative Effects Analysis for Grazing

The word "cumulative" appears in the DEIS only in reference to the future ESA biological assessment (DEIS at 64). The DEIS does not analyze the combined effects of the following on the same rangelands and riparian areas:

Permitted livestock; elk, deer, and other native ungulates; the Murderers Creek wild horse herd; drought and climate change; invasive annual grasses; expanded prescribed fire and mechanical treatments.

The Designated Areas Assessment documents that riparian objectives for stubble height, bank alteration, and utilization were not attained in the Murderers Creek area, "in some cases" even when pastures were rested from livestock (Designated Areas Assessment, Murderers Creek section). The Climate Assessment predicts earlier on- and off-dates and "reduced overall AUMs where forage production declines" (Climate Assessment at 34). The plan's utilization guideline applies to use "by all ungulates" (FW-RNG-GDL-06). The DEIS nevertheless never analyzes whether combined herbivory stays within that guideline under any alternative.

5. Reliance on Undisclosed Supplemental Information

The DEIS refers readers to "DEIS Supplemental Information 2026" for compliance determinations (DEIS at 63) and to other supplemental documents (DEIS at 33). It relies on assessment findings without disclosing them. If a rangeland specialist report or supplemental analysis was prepared for the DEIS, it has not been made reasonably available with the DEIS for public review and comment.

Requests:

Prepare and circulate for comment a rangeland, forage, and livestock grazing effects analysis comparable in rigor to the timber analysis. It should include measurable indicators such as:

acres suitable for cattle and sheep grazing, by forest and alternative; estimated forage capacity versus permitted and authorized use; rangeland condition by phase and trend; riparian condition in grazed versus ungrazed reaches; BMP effectiveness for range; effects on SCC and listed species habitat; effects on soils and biological soil crusts.

Disclose the comparative effects of replacing the Alternative 1 grazing framework with the Alternative 2 and 3 components, including whether the action alternatives are more or less protective for riparian areas and for rangelands in unsatisfactory condition. Carry forward and address each assessment finding identified above. Analyze cumulative herbivory from livestock, native ungulates, and wild horses, together with drought and climate projections.

Make publicly available, and incorporate into a revised draft, the final 2024 Rangeland Resource Report and the documents it relies on. These include "The Rangelands Capability and Suitability Assessment for the Blue Mountains" (Countryman 2011), the rangeland forage supply and use analysis (Countryman 2011), and the rangeland condition and trend analysis (Countryman et al. 2012). Several of these are cited as unpublished papers. Also release any range supplemental report prepared for the DEIS.

Reconsider the dismissal of soils (DEIS at 8–9) and invasive species (DEIS at 9) from detailed analysis as they relate to grazing, in light of the assessment findings above.

D. The Plans Must Identify Lands Capable and Suitable for Livestock Grazing

1. The Plans Make No Grazing Suitability Determination, and Silence Makes Everything Suitable

The draft plan states that "generally, lands on the national forest are suitable for most uses and management activities ... such as ... grazing ... unless otherwise restricted." It confirms that "in this plan, suitability identifications are made for timber production, timber harvest, and mechanical fuel treatment" only (DEIS at 108). The suitability matrix (Table 59, DEIS at 212) contains no row for grazing.

Under the consistency rule the plan adopts, a project is consistent with plan suitability if it occurs in an area "for which the plan is silent with respect to its suitability for that type of project or activity" (DEIS at 115; 36 CFR 219.15(d)). The practical result is that the plans treat every acre as suitable for grazing by default:

Research Natural Areas; botanical areas; the Mount Howard–East Peak National Natural Landmark; occupied Spalding's catchfly habitat; fens and springs; burned areas;
Phase D rangelands; domestic sheep allotments near bighorn herds.

The plans do this without any analysis.

The planning rule allows suitability identifications to be made "after consideration of historic uses and of issues that have arisen in the planning process" (36 CFR 219.7(e)(1)(v)). Grazing is

the archetypal historic use of these forests. Its suitability was raised as an issue in scoping, in the assessment, and in our comments. NFMA requires the agency to determine "the availability of lands and their suitability for resource management" (16 U.S.C. 1604(e)(2)) and to identify "the suitability of lands for resource management" (16 U.S.C. 1604(g)(2)(A)). Failing to do so for a use on 3.4 million acres, while doing so in detail for timber, is arbitrary.

2. The Agency Already Has a Capability and Suitability Framework and Chose Not to Use It

The agency does not need to invent a methodology. Its own documents supply one.

The Soils Assessment defines capable grazing lands by specific criteria: slopes under 45 percent rise for cattle and under 60 percent for sheep, tree and unpalatable shrub canopy under 60 percent, and inherent capacity to produce more than 200 pounds of forage per acre. It identifies lands with poor suitability as having "less resistance and decreased resiliency to grazing effects" (Soils Assessment at 22).

The Rangeland Resource Report begins by stating that rangelands suitable for grazing produce at least 200 pounds of forage per acre per year. That is the same threshold our scoping comments urged, (Carter, Vasquez and Jones 2020).

The same report states that GIS was used to assess rangeland capability and suitability. It identifies a 2011 capability and suitability assessment that analyzed cattle and sheep separately. The report also flags the analysis as stale. Because allotments have become active, vacant, or closed since 2013, suitable acres need to be reanalyzed. The report further states that the methodology for determining range capability and suitability must be adhered to for consistency across the three forests.

In other words, the agency's own rangeland specialist told the planning team that capability and suitability needed to be updated and applied consistently. The DEIS responds by dropping grazing suitability altogether.

3. The Standard on “Inherent Capability” Cannot Substitute for a Plan-Level Analysis

We recognize that the draft converted the scoped guideline into a standard: "Forage use by livestock must be managed within the inherent capability and sustainability of the site" (FW-RNG-STD-01, DEIS at 177). That is an improvement in form. As written, however, it is not a constraint the Forest Service can apply or enforce:

"Inherent capability of the site" is undefined. The glossary defines only "inherent capability of the plan area" (DEIS at 242).

The standard identifies no criteria, thresholds, or data by which capability is determined. The plan itself states that a standard's intent "should be clear and unambiguous so that consistency ... is easily determined" (DEIS at 107).

A standard that defers the entire capability question to unspecified project-level judgment is not a plan-level capability determination. The planning rule requires plan components to be within the inherent capability of the plan area (36 CFR 219.1(g)). That determination belongs in the plan and its EIS.

When an agency fails to explain how it applied capability criteria, declines to share its data, and provides no allotment-level display, it violates NFMA and NEPA's disclosure requirements (*Western Watersheds Project v. U.S. Forest Service,* No. 05-cv-189-BLW, 2006 WL 292010, at *6–7 (D. Idaho Feb. 7, 2006)).

4. The AUM Objective Has a No Capacity Basis and No Consistent Units

FW-RNG-OBJ-01 lists "currently about" 104,095 AUMs on the Malheur, 46,621 on the Umatilla, and 81,673 on the Wallowa-Whitman. It directs that "additional opportunities for livestock use are pursued where appropriate" (DEIS at 176). The assessment reports permitted use in head months instead: 163,047 cattle head months and 57,858 sheep head months (Summary Assessment at 68). The DEIS provides no crosswalk. The public cannot tell whether the AUM figures represent permitted use, authorized use, or an increase.

More fundamentally, the DEIS discloses no forage supply, no forage demand from livestock and wildlife, and no carrying capacity. The only capacity statement in the record is the rangeland report's summary of a 2011 landscape-scale evaluation, and that report simultaneously calls for suitable acres to be reanalyzed.

FW-RNG-OBJ-01 also does not meet the planning rule's definition of an objective as a "concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition" (36 CFR 219.7(e)(1)(ii); DEIS at 107). It is a narrative statement of current use paired with an open-ended aspiration to expand.

5. Criteria in the Capability, Suitability, and Capacity Analysis Should Apply

Consistent with our scoping comments and the agency's own criteria, the analysis should, at a minimum, address the following:

Physical capability: exclusion of private and non-NFS lands within allotments; exclusion of areas physically incapable of being grazed (roads, quarries, mines, rock, dense canopy); slope limits (the agency's own 45 and 60 percent criteria, and a more conservative 30 percent limit for cattle); and distance from reliable water.

Forage: forage production verified by field measurement, with lands producing under 200 pounds per acre excluded; livestock forage demand based on actual animal weights; allocation of forage to wildlife and to watershed and soil protection; and sustainable utilization that accounts for trampling, rodents, and insects.

Resource conflicts: exclusion of highly erosive soils, shallow scabland soils, and sites where biological soil crusts are a key component; exclusion or restriction of areas with conflicts with at-risk species habitat, recreation, or designated area values; and required residual vegetation heights for SCC and ESA-listed fish.

Management and conditions: season of use, regular rest, and deferment during critical growth periods; rangeland condition phase, with Phase D and many Phase C sites identified for restoration rather than continued use; drought and projected climate effects on forage; and actual use records and use mapping.

Requests:

Identify, in each plan, lands suitable and not suitable for cattle grazing and, separately, for domestic sheep and goat grazing. Display the results in a table comparable to Table 42 (DEIS at 170), with maps, by forest and alternative.

Disclose the capability and suitability methodology, criteria, data sources, and GIS results in an appendix comparable to Appendices D and E, including allotment-by-allotment results. Prepare and disclose a carrying capacity analysis comparing estimated sustainable forage supply to permitted and authorized livestock use and wildlife demand. Express use in consistent units (AUMs) with a documented conversion from head months.

Revise FW-RNG-OBJ-01 into a measurable, time-specific objective tied to rangeland condition, and remove the direction to pursue "additional opportunities for livestock use" unless supported by the capacity analysis.

Define "inherent capability of the site" in FW-RNG-STD-01 by reference to the capability criteria adopted in the plan.

At a minimum, identify the following as not suitable for permitted livestock grazing (see also Sections XII–XIV): designated and proposed Research Natural Areas, botanical areas, and the Mount Howard–East Peak National Natural Landmark, which the Designated Areas Assessment describes as "generally unsuitable for livestock grazing"; Spalding's catchfly key conservation areas; fens and peatlands; lands within the foray-risk zone of bighorn sheep herds (for domestic sheep and goats); burned areas until recovery criteria are met.

E. The Grazing Plan Components Are Not Measurable or Enforceable

1. The Plans Rely on Guidelines and Optional Management Approaches Rather than Standards

The draft plan defines standards as strict constraints "allowing no variation." Guidelines allow departure "so long as the purpose of the guideline is met." Management approaches "are not plan components" and "are not requirements for plan implementation" and "may be changed administratively" (DEIS at 107–108, 113).

Nearly all substantive grazing direction falls into the two weaker categories:

Guidelines (FW-RNG-GDL): utilization (GDL-06, GDL-07), grazing systems (GDL-05), post-fire re-entry (GDL-03), and use of non-native forage (GDL-01).

Riparian guidelines: stubble height (MA3A-RMA-GDL-20) and riparian areas not trending toward desired conditions (GDL-12).

Species guidelines: bighorn contact risk (FW-SPRSK-GDL-06).

Management approaches: post-fire rest, riparian indicators beyond stubble height, bighorn separation plans, and wolf conflict practices.

The planning rule requires plans to include plan components "including standards or guidelines" to maintain or restore ecological integrity and riparian areas (36 CFR 219.8(a)(1), (a)(3)) and for integrated multiple-use management of "grazing and rangelands" (36 CFR 219.10(a)(1)). Management approaches cannot satisfy these requirements because they impose no constraint at all.

2. Why Enforceability Matters Here

Plan components are the benchmark for permits, allotment management plans, and annual operating instructions. The Ninth Circuit has held that annual operating instructions on Malheur National Forest allotments are final agency action reviewable for consistency with the forest plan (*Oregon Natural Desert Ass'n v. U.S. Forest Service*, 550 F.3d 778 (9th Cir. 2008)). Courts enforce plan standards (e.g., *Native Ecosystems Council v. Dombeck*, 304 F.3d 886 (9th Cir. 2002)).

The practical effect of converting numeric standards into guidelines "determined at the allotment consultation level" (MA3A-RMA-GDL-20) is to remove the yardstick against which consistency can be measured. As noted in Section I.D, the plan's objectives are also the benchmark for categorical exclusions for permit renewal under 43 U.S.C. 1752(h). Vague components make that benchmark meaningless.

3. The Upland Utilization Guideline Is Less Protective Than the Existing Plans for Degraded Range

FW-RNG-GDL-06 provides that upland forage utilization "by all ungulates should range from 35 to 50 percent, depending on the ecological condition of the vegetation" (DEIS at 178). Compare Alternative 1, which caps utilization on rangelands in unsatisfactory condition at:

0–30 percent (stewardship), 0–35 percent (extensive), and 0–40 percent (intensive) in forested and grassland uplands; 0–25 to 0–35 percent in shrublands (DEIS at 99–100, Tables 30–32).

The proposed guideline's floor of 35 percent applies regardless of condition. For the Phase C and D rangelands that make up most of the rangeland acreage, it is less protective than current direction, and it is only a guideline. The DEIS never discloses this comparison.

In addition:

The guideline provides no method for determining where in the 35–50 percent range a site falls, beyond a "rangeland health assessment or appropriate data collection."

It specifies no key species or key areas.

It provides no consequence when use is exceeded.

The glossary lacks definitions of "satisfactory" and "unsatisfactory" condition, even though Alternative 1 refers readers to the glossary for them (DEIS at 99).

Our scoping comments documented that moderate use of about 30 percent of current-year growth on key species is appropriate for semi-arid bunchgrass ranges. The agency's own record acknowledges the sensitivity of Idaho fescue and bluebunch wheatgrass to persistent grazing (FW-RNG-DC-03, DEIS at 175–176; Johnson and Swanson 2005, PNW-GTR-641). The Summary Assessment states that trend data are needed to determine whether current utilization levels are even adequate (Summary Assessment at 69). Adopting a range whose floor exceeds the current cap for degraded range, in the face of that uncertainty, is not supported by the best available scientific information (36 CFR 219.3).

4. No Triggers, No Required Response

None of the grazing components establishes what happens when a limit is exceeded. MA3A-RMA-GDL-20 says only that short-term indicators "should be adjusted" if progress isn't made "and livestock grazing is the cause." There is no requirement to move livestock when an in-season threshold is reached. There is no requirement to reduce stocking after repeated exceedance. There is no requirement to rest pastures that fail to meet objectives.

Adaptive management without mandatory triggers is not adaptive management; it is discretion.

Requests:

Adopt the core grazing constraints as standards, not guidelines or management approaches. See the consolidated proposed language in Section XIX.

Replace FW-RNG-GDL-06 with a standard specifying maximum utilization of key forage species in key areas of no more than 30 percent in uplands. Utilization should be substantially lower, or rest provided, on Phase C and D sites and on range in unsatisfactory condition.

Define "satisfactory" and "unsatisfactory" rangeland condition, "key species," and "key area" in the glossary.

Adopt mandatory, trigger-based standards. Livestock must be moved within a set period (for example, five days) when an in-season indicator is reached. Stocking must be reduced in the following season when utilization or riparian indicators are exceeded in two consecutive years. Disclose, in the effects analysis, where the action alternatives' grazing components are less protective than Alternative 1 and the effects of that change.

F. Riparian Management Areas, Water Quality, and Aquatic Species

1. The Rule's Riparian Requirements Are Not Met for Grazing

The planning rule requires riparian management zones in which "no management practices causing detrimental changes in water temperature or chemical composition, blockages of water courses, or deposits of sediment that seriously and adversely affect water conditions or fish habitat shall be permitted" (36 CFR 219.8(a)(3)(ii)).

Livestock grazing is a management practice. Its effects on stream temperature (through loss of shade), bank stability, sediment, and nutrients and bacteria are documented in the agency's own assessments. The draft plans' only grazing-specific riparian components are:

MA3A-RMA-DC-05, a desired condition describing adequate riparian plant cover;

MA3A-RMA-STD-04, requiring authorizations to be "designed to avoid livestock trampling of federally listed threatened or endangered fish redds";

MA3A-RMA-GDL-12, providing that grazing in riparian areas not trending toward desired conditions "should include measures to alleviate adverse effects or relocate these activities";

MA3A-RMA-GDL-13, directing that new livestock facilities should be located outside riparian management areas;

MA3A-RMA-GDL-20, setting end-of-season stubble height of 4 to 6 inches along the greenline, with the "allowable use indicator and value ... determined at the allotment consultation level";

MA3A-RMA-MAPR-01, an optional management approach suggesting other indicators "as appropriate."

None of these ensures that no grazing practice causing the detrimental changes listed in § 219.8(a)(3)(ii) will be permitted.

2. Specific Deficiencies

The stubble height floor is too low. The science our scoping comments supplied shows that 4 inches of residual riparian stubble height is not sufficiently protective, that about 6 inches is necessary, and that the difference between 4 and 6 inches is ecologically meaningful (Clary and Webster, Kinney and Clary 1994,). A 4–6 inch range that can be set at the low end, and that is only a guideline, does not reflect the best available scientific information.

No streambank alteration or woody browse limits. These indicators appear only in an optional management approach "as appropriate." The Multiple Indicator Monitoring (MIM) protocol that measures them is already defined in the plan glossary (DEIS at 241, "Greenline"). It is already used on these forests: the Designated Areas Assessment reports MIM-based monitoring of stubble height, bank alteration, and utilization in the Murderers Creek area. Nothing prevents adopting numeric limits: streambank alteration not to exceed 10 percent; woody browse not to exceed 30 percent of current-year leaders.

The redd standard is narrow. We acknowledge the improvement from the scoped "avoid" language to a mandatory design requirement in STD-04. But protecting redds from trampling does nothing for: rearing habitat; bank-dependent cover; stream temperature; designated critical habitat outside spawning periods.

No seasonal protections exist. The plans contain no timing restriction for riparian pastures, such as deferring use until after July 15. They contain no exclusion of livestock from designated critical habitat for bull trout, steelhead, or Chinook salmon reaches that are not meeting objectives.

Alternative 3's inner zone ignores grazing. Alternative 3's added riparian protections apply only to vegetation management, tree felling, and ground-based equipment (MA3A-RMA-STD-05, -06; GDL-21 to -24, DEIS at 222–223). The alternative offered as the more protective option contains no additional grazing protection within the inner zone.

Existing facilities are not addressed. GDL-13 addresses only new livestock facilities. The Wildlife Assessment notes that "many springs have been piped and routed to livestock water troughs or dammed to provide pond watering" (Wildlife Assessment, Unique Habitats). The plans contain no direction to evaluate or relocate existing facilities that impair springs, seeps, and other groundwater-dependent ecosystems. This is despite FW-WTR-DC-07 on groundwater-dependent ecosystem hydrology.

Meadows get objectives but no grazing constraints. The Aquatic Assessment, citing Kauffman et al. (2004), notes that "many meadows have long-lasting impacts from livestock use." It also

notes that grazing has favored drought-tolerant and invasive species in herbaceous riparian areas. The plans set meadow restoration objectives (FW-VEGNF-OBJ-03; FW-TRI-OBJ-01 for camas meadows) but no grazing constraints to protect restored meadows.

3. The Removal of PACFISH/INFISH Grazing Direction Is Not Analyzed

Alternative 1 retains PACFISH and INFISH, including riparian management objectives and the associated grazing guidelines (DEIS at 93–95). The rangeland report credits riparian improvement in large part to intensive grazing management under the PACFISH/INFISH biological opinion framework. It reports that riparian and aquatic conditions are trending upward under that management while physical channel recovery lags.

The action alternatives replace that framework with the components described above. The DEIS never analyzes whether the replacement will sustain, slow, or reverse the improvement the agency attributes to the existing framework.

Issue 3's indicators address only: sediment from timber haul and fuels treatments; management within riparian management areas; stream miles restored (DEIS at 7, 48–49).

None addresses livestock grazing. The effects analysis mentions grazing only in passing (DEIS at 43, 48).

4. The DEIS's Reliance on BMPs is Contradicted by the Agency's Own BMP Data

The DEIS repeatedly assumes that best management practices (FW-WTR-STD-01) and "existing law, regulation, and policy" will keep projects from exceeding regulatory thresholds for water quality (DEIS at 47–48). As shown in Section III.B, the agency's most recent BMP effectiveness evaluations rated grazing management "not effective" on both the Malheur and the Wallowa-Whitman. Livestock are an identified source of nutrient and bacteria impairments.

An effects conclusion that relies on BMPs the agency's own monitoring shows are failing for this activity lacks a rational basis. It also leaves unaddressed the Clean Water Act obligation to comply with state water quality requirements (33 U.S.C. 1323(a)) and the planning rule's requirement to ensure BMP implementation (36 CFR 219.8(a)(4)).

Requests:

Adopt the following riparian standards for allotments with riparian management areas: end-of-season stubble height of at least 6 inches on key hydric species along the greenline, measured by MIM; streambank alteration not to exceed 10 percent; woody browse not to exceed 30 percent of current-year leaders; mandatory livestock removal when in-season thresholds are reached.

Adopt a standard excluding or strictly limiting livestock in designated critical habitat and occupied spawning and rearing reaches for listed fish where riparian objectives are not being met. Adopt seasonal deferment of riparian pastures (for example, no use before July 15) where needed to protect riparian vegetation regrowth and fish.

Adopt a standard prohibiting grazing practices that cause measurable increases in sediment, temperature, nutrients, or bacteria beyond state water quality standards. Also adopt a standard requiring that allotments contributing to 303(d) listings implement corrective measures within a defined period.

Extend Alternative 3's inner-zone protections to livestock grazing, including restrictions on livestock concentration, trailing, and handling facilities.

Adopt a plan component requiring evaluation and, where needed, modification or relocation of existing livestock water developments affecting springs, seeps, fens, and wet meadows.

Analyze, in Issue 3 or a new rangeland issue, the effects of replacing PACFISH/INFISH grazing direction. Use PIBO data comparing grazed and reference sites and the agency's BMP effectiveness data for range.

Revise the effects conclusions that rely on BMPs to account for the documented ineffectiveness of grazing BMPs.

G. Upland Rangelands, Soils, Biological Soil Crusts, and Invasive Annual Grasses

1. The Desired Conditions Lack Any Mechanism for Achievement

The rangeland desired conditions are appropriate aspirations:

Native plant communities dominate; non-native grasses do not destabilize ecological process; cool-season bunchgrasses "increase or maintain their abundance"; ground cover by functional group is within NRCS ecological site description reference ranges (FW-RNG-DC-01 to -03, DEIS at 175–176).

Invasive annual grasses are to be absent or present only in trace amounts (FW-INV-DC-02, DEIS at 123). Against the agency's own data showing most rangeland in Phase C or D with stalled recovery, nothing in the plan's standards, guidelines, or objectives is designed to move grazed rangelands toward these conditions. FW-RNG-OBJ-03 (20,000, 16,000, and 20,000 acres annually) counts acres of "restoration or maintenance" actions, but the plan never defines what those actions are or how outcomes will be measured.

2. Soils

FW-SOIL-STD-02 requires management activities to leave at least 80 percent of an "activity area" in acceptable soil condition (DEIS at 119). The monitoring question for this standard

(MON-SOIL-01) measures compliance "post treatments" within "management activity areas" (DEIS at 228). The plan does not state whether a grazing allotment or pasture is an "activity area," or whether the standard applies to grazing at all.

The Soils Assessment identifies livestock trails, salting and loafing areas, springs and water developments, and holding pastures as concentrations of detrimental soil disturbance. It identifies monitoring of livestock effects on soil quality as an information need (Soils Assessment at 22, 25). Yet the DEIS dismisses soils from detailed analysis on the premise that soil impacts are "small and dispersed" (DEIS at 9). That premise is not established for grazing.

3. Biological Soil Crusts and Invasive Annual Grasses

The agency's own Soils Assessment recognizes that "frequent or continuous disturbance from grazing keeps the biological soil crust communities at an early successional stage" (Soils Assessment at 6).

Intact biocrusts and native bunchgrasses resist cheatgrass establishment (Reisner et al. 2013,; Condon and Pyke 2018,); grazing intensity reduces biocrust cover and richness and increases exotic annual grasses (Root et al.); rest from grazing can produce substantial crust recovery (Kaltenecker et al. 1999); grazing corresponds with increased cheatgrass occurrence and prevalence regardless of climate, topography, or community composition (Williamson et al.).

The plans' only biocrust component is a management approach to "consider methods that minimize surface disturbance" (FW-SPDIV-MAPR-09, DEIS at 151). The monitoring program, however, asks whether bunchgrass and shrub communities are dominated by native species "and biological soil crusts" (MON-VEGNF-02, DEIS at 231). The agency thus recognizes crusts as a key characteristic worth monitoring but provides no plan component to protect them.

The invasive species standards address weed-free materials, feed, and equipment (FW-INV-STD-01 to -03, DEIS at 124). None addresses livestock as a vector: moving livestock from infested to uninfested pastures, turnout timing relative to annual grass seed set, or management of grazing on sites at risk of annual grass conversion. The DEIS acknowledges the concern only in connection with targeted grazing (DEIS at 29).

4. Non-Native Forage Species

FW-RNG-GDL-01 allows beneficial non-native plants such as intermediate wheatgrass as forage "when they have limited or no effects on native species ability to dominate the landscape" (DEIS at 177). This sits in tension with FW-RNG-DC-01 and FW-SPDIV-STD-02, which require native, genetically appropriate replanting. The DEIS does not analyze the effects of seeding non-native forage species on native plant communities, SCC plants, or pollinators.

Requests:

Adopt standards requiring grazing management on Phase C and D rangelands, and on range in unsatisfactory condition, to demonstrate upward trend within a defined period, with reduced use or rest where trend is not upward.

Adopt a residual ground cover standard for upland key areas at the end of the grazing season, and a higher effective ground cover requirement on erosive soils. Our scoping comments proposed at least 70 percent residual ground cover in upland key areas and 85 percent effective ground cover on erosive soils, with livestock-caused trampling and pugging limited to no more than 15 percent of ground surface in key areas.

Clarify that FW-SOIL-STD-02 applies to livestock grazing, define the activity area for grazing, and add a soil monitoring indicator for allotments.

Adopt a standard protecting biological soil crusts in sagebrush steppe, scablands, and dry grasslands, including limits on season and intensity of use where crusts are present.
Adopt standards addressing livestock as a vector for invasive annual grasses. These should include restrictions on moving livestock from infested to uninfested areas, timing of use relative to annual grass seed maturity, and rest or reduced use on sites at high risk of conversion.
Remove or narrow FW-RNG-GDL-01 so non-native forage seeding is not used where native restoration is feasible, and analyze its effects.

Analyze the effects of grazing on biocrusts, bunchgrasses, and invasive annual grass spread, using the best available scientific information.

H. The Targeted Grazing Objective Is Unanalyzed and Lacks Safeguards

Alternative 2 adds an objective to use livestock grazing to reduce invasive species and fine fuels on 5,000 acres per forest per year, or 15,000 acres annually (FW-RNG-OBJ-02, DEIS at 176–177; see also FW-VEGNF-MAPR-03, FW-WF-MAPR-02). The DEIS concedes several risks:

targeted grazing "may be at levels greater than the allowable forage use in the plan components"; there is "a risk that targeted grazing ... could lead to an increase of non-native forage and invasive species if the objectives are not closely monitored"; "disturbance to native plants, potentially including botanical species at risk, may occur" (DEIS at 29).

The DEIS then defers all mitigation to "project-level planning" (id.).

These concessions are significant. Targeted grazing is explicitly authorized to exceed the plan's own utilization limits. Yet the plans contain; no standards defining where it may occur; no post-treatment rest requirement; no exclusion from riparian management areas, biocrust sites, or SCC habitat; no monitoring of outcomes.

The DEIS cites only two papers in support (Bailey et al. 2019; Stephenson et al. 2023, DEIS at 29, 71). It does not address the contrary evidence that grazing is associated with increased, not decreased, cheatgrass (Williamson et al.).

The record also contains internal inconsistencies:

Alternative 2's version of FW-RNG-OBJ-02 allows targeted grazing under temporary grazing permits and applies "in areas with elevated wildfire risk" (DEIS at 176).

The version quoted in the Alternative 3 section says "not under term grazing permits" and omits the wildfire-risk limitation (DEIS at 214).

The monitoring program is described as identical for Alternatives 2 and 3 (DEIS at 224), yet MON-RNG-02 is tied to FW-RNG-OBJ-02, which does not exist in Alternative 3.

MON-RNG-02's indicators (restoration acres, invasive annual grass acres treated, prescribed burn acres, seeding acres) measure outputs, not whether targeted grazing reduced fuels or invasive plants (DEIS at 233).

Requests:

Analyze the effects of the targeted grazing objective, including: likely locations; overlap with SCC and listed plant habitat, including Spalding's catchfly; effects on biocrusts and native bunchgrasses; risk of invasive annual grass expansion; the evidence for and against efficacy.

If targeted grazing is retained, adopt standards that: limit it to sites already dominated by invasive annual grasses; exclude riparian management areas, SCC and listed plant sites, and intact biocrust communities; require post-treatment rest and native revegetation where needed; require outcome-based monitoring of fuel reduction and invasive cover.

Correct the inconsistent text of FW-RNG-OBJ-02 between alternatives and correct MON-RNG-02 so the monitoring program is internally consistent for each alternative.

I. Post-Fire and Post-Disturbance Rest

The draft plan provides only that "unplanned burned areas should be evaluated to determine appropriate use and timing of livestock grazing re-entry" (FW-RNG-GDL-03). It then suggests that the agency "consider deferment or rest for one or more growing seasons following fire" (FW-RNG-MAPR-01, DEIS at 177–178).

The agency's own rangeland report, citing Johnson (1998), describes recovery times by burn severity: lightly burned rangeland recovers in one to two years; moderately burned rangeland takes two to five years; heavily burned areas may require five or more years to recover.

The plan's soil guideline separately recognizes moderate and high soil burn severity areas as sensitive soils (FW-SOIL-GDL-04, DEIS at 119). The DEIS projects expanded prescribed fire and managed wildfire under both action alternatives (DEIS at 45; FW-WF-OBJ-01), which will increase the acreage to which this direction applies. Our scoping comments documented recommendations of two years of rest at minimum, and substantially longer after reseeding (Pyke et al. 2017).

A plan that permits re-entry after a single growing season, with no recovery criteria, is inconsistent with the agency's own science and with 36 CFR 219.8(a)(1) and (a)(2).

Requests:

Adopt a standard requiring a minimum of two full growing seasons of rest after wildfire, prescribed fire affecting grazed rangeland, or reseeding. Longer periods should apply for moderate and high burn severity. Grazing should resume only after objective recovery criteria are met, including:

Establishment and seed production of key perennial bunchgrasses; forb and woody plant recovery; ground cover thresholds; absence of expanding invasive annual grass cover.

Analyze the effects of post-fire grazing direction in light of the increased fire acreage projected under the action alternatives.

J. The DEIS Must Consider a Reduced-Grazing Alternative

1. The Stated Reasons for Dismissal Do Not Withstand Scrutiny

The DEIS dismisses the Limited Grazing Alternative for two reasons (DEIS at 3):

MUSYA and NFMA require the Forest Service to manage for a variety of uses, including grazing; forest plans "do not decide how much livestock can graze or which allotments would be used," so "decisions about allotment grazing levels are outside the scope of the forest plan revision."

Neither reason is sound.

First, MUSYA does not require grazing everywhere or at current levels. A reduced-grazing alternative does not eliminate grazing. It reduces permitted use, shortens seasons, and removes livestock from the most sensitive areas. MUSYA expressly contemplates "that some land will be used for less than all of the resources," and it rejects maximizing unit output (16 U.S.C. 531(a)). The DEIS's own treatment of timber refutes its reasoning. The DEIS dismissed the "Limited Commercial Timber Harvest" alternative on the same MUSYA ground (DEIS at 3), yet it analyzed three alternatives whose projected timber outputs differ by a factor of more than three (DEIS at 19–20). Varying the level of a use is exactly what a range of alternatives is for.

Second, the plans do shape grazing levels. The same DEIS that calls grazing levels "outside the scope" of the plan.

It includes an objective listing AUMs by forest and directing that "additional opportunities for livestock use are pursued" and that vacant allotments may be converted to active use (FW-RNG-OBJ-01, FW-RNG-MAPR-04); sets upland utilization levels (FW-RNG-GDL-06, -07) and riparian use indicators (MA3A-RMA-GDL-20), which directly determine how many animals an allotment can carry; controls where grazing may occur through suitability. By choosing to make no grazing suitability determination, the plan leaves every acre available;
adopts a targeted grazing objective of 15,000 acres per year.

The plan itself states that "at time of reauthorization, all permits ... must be made consistent with the plan" (DEIS at 114; 36 CFR 219.15(d)). Plan components on suitability, utilization, riparian indicators, rest, and season of use will determine grazing levels as permits are renewed. The agency cannot adopt components that raise or hold grazing levels while declaring that components that would lower them are outside the scope.

2. The Range of Alternatives is Inadequate on Grazing

NEPA requires a reasonable range of alternatives (42 U.S.C. 4332(2)(C)(iii)). It independently requires agencies to "study, develop, and describe" alternatives where a proposal "involves unresolved conflicts concerning alternative uses of available resources" (42 U.S.C. 4332(2)(H)). The conflict between livestock use and riparian, fish, soil, and wildlife values on these forests is exactly such an unresolved conflict.

On grazing, Alternatives 2 and 3 are identical except that Alternative 3 omits targeted grazing. Alternative 1 continues current management. There is no alternative that:

identifies any lands as not suitable for grazing; adopts numeric grazing standards; varies permitted use.

Courts have found programmatic EISs inadequate where the alternatives failed to consider a reasonable option that would allocate more land to a protective use (*California v. Block*, 690 F.2d 753 (9th Cir. 1982)). Courts have also found NEPA analyses inadequate where every alternative allowed grazing at essentially the same pre-existing level:

Western Watersheds Project v. Abbey, 719 F.3d 1035, 1050 (9th Cir. 2013);
Western Watersheds Project v. Salazar, No. 4:08-cv-516-BLW, 2011 WL 4526746, at *13–15 (D. Idaho Sept. 28, 2011), requiring reduced- and no-grazing alternatives in a monument management plan EIS; *Western Watersheds Project v. Rosenkrance*, No. 09-cv-00298-EJL, 2011 WL 39651, at *9–11 (D. Idaho Jan. 5, 2011).

A reduced-grazing alternative also supplies the baseline against which the effects of continued grazing can be measured. See *Half Moon Bay Fishermans' Marketing Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988).

3. The Alternative We Ask the Agency to Analyze

We ask the agency to analyze a Reduced Livestock Grazing alternative with the following features. At the plan level, each can be expressed through suitability, standards, guidelines, and objectives.

Permitted use. Reduce total permitted AUMs by about 30 percent relative to current permitted use, within a range of 25 to 40 percent depending on site capability and ecological condition. Implement the reduction at permit renewal, phased over three to five years. Current ecological conditions should determine where reductions or rest are prioritized.

Suitability. Identify as not suitable for grazing:

Riparian management areas, wetlands, fens, and small meadows that cannot meet stubble height, bank stability, and water quality standards; areas necessary to maintain SCC habitat; the designated areas identified in Section XIV.

Season of use. Shorten grazing seasons by two to four weeks to protect early-season bunchgrass growth and late-season riparian recovery.

Habitat protections. Exclude livestock from designated critical habitat for listed fish where objectives are not met, and from key breeding areas for at-risk species during breeding seasons.

Vacant and closed allotments. Retain the current status of vacant and closed allotments, and provide for permanent retirement of allotments whose permits are voluntarily waived (see Section XI).

Range improvements. Shift emphasis from structural developments designed primarily for livestock toward restoration that enhances riparian resilience, soil stability, and wildlife habitat.

Adaptive management. If riparian, stubble height, bank stability, or utilization standards are exceeded for two consecutive years, implement additional stocking reductions.

The Forest Service must analyze an alternative that varies the plan components that control grazing: suitability, numeric standards, rest requirements, and vacant allotment direction. The plan-level scope rationale cannot justify rejecting that alternative.

Requests:

Analyze the Reduced Livestock Grazing alternative described above, or a comparable alternative, in a revised or supplemental draft EIS.

At minimum, add an alternative, or modify Alternative 3, that includes grazing suitability determinations, numeric riparian and upland standards, mandatory post-fire rest, and retirement of vacant and waived allotments.

Revise the discussion of Alternatives Considered but Not Analyzed in Detail to address the inconsistency between the scope rationale and the plan's own grazing objectives and components.

K. Vacant Allotments, Forage Reserves, and Voluntary Permit Relinquishment

Vacant allotments cover about 6 percent of the plan area, including 12 percent of the Wallowa-Whitman. The draft plan's only direction on them points one way: toward livestock use.

FW-RNG-OBJ-01 lists "vacant allotment conversions to active or forage reserve allotments" among expected adjustments (DEIS at 176).

FW-RNG-MAPR-04 directs the agency to "consider analyzing vacant and forage reserve allotments for livestock grazing" (DEIS at 178).

The DEIS never analyzes the ecological role of vacant allotments. They are often the only large ungrazed landscapes available as reference conditions for monitoring (36 CFR 219.12). They provide recovery areas for degraded riparian and upland sites, secure habitat for at-risk species, and opportunities to reduce conflict with bighorn sheep and large carnivores.

The plans also make no provision for permittees who wish to voluntarily waive their permits back to the United States and have their allotments retired from grazing. Forest Service regulations allow lands to be devoted to another public purpose (36 CFR 222.4(a)(1)). MUSYA allows some lands to be used for less than all resources. Nothing in law prevents the plan from establishing that allotments whose permits are voluntarily waived will be evaluated for conversion to conservation, watershed, or wildlife emphasis. Plans elsewhere in the National Forest System have done so.

Requests:

Adopt a plan component providing that, when a term permit is voluntarily waived to the United States, the allotment will be evaluated for permanent closure and dedication to watershed, fish and wildlife, soil, carbon, or recreation purposes, and will not be restocked in the interim.

Replace FW-RNG-MAPR-04 with direction that vacant allotments be evaluated for closure, retirement, or use as monitoring reference areas before any consideration of restocking. Any

restocking should be conditioned on the capability, suitability, and capacity analysis requested in Section IV.

Analyze the ecological role of vacant allotments and the effects of the plans' direction to return them to use.

L. Bighorn Sheep

1. Bighorn Sheep Are a Species of Conservation Concern, and the Plans Regress From Current Protections

We support the designation of bighorn sheep as a species of conservation concern on all three forests (DEIS Appendix C at 297, 300, 304), and we ask that it be carried into the final plans. The Nez Perce Tribe and the Confederated Tribes of the Umatilla Indian Reservation have identified bighorn sheep as a priority wildlife resource. Both have raised concerns about disease transmission from domestic sheep and goats (Summary Assessment at 57–58).

The draft plans' bighorn sheep direction is weaker than both the scoped draft and current direction in three respects:

The disease language is gone. The scoped desired condition (then FW-SPRSK-DC-07) called for bighorn populations to be sustained or increased "with minimal disease transfer from permitted domestic sheep and goats." The DEIS version (FW-SPRSK-DC-08, DEIS at 152) addresses forage and escape terrain only and no longer mentions disease transmission. Disease transmission is the threat the agency itself identifies as the most significant one it can manage (Wildlife Assessment, Bighorn Sheep).

The Malheur prohibition is gone. The Malheur's current standard states: "Do not stock livestock allotments in bighorn sheep range with domestic sheep" (DEIS at 101). The action alternatives replace this mandatory standard with a guideline to "design activities to minimize risk of contact" (FW-SPRSK-GDL-06, DEIS at 154).

Separation depends on an optional management approach. Separation measures within 21.75 miles (35 km) of bighorn herds appear only as a management approach (FW-SPRSK-MAPR-08, DEIS at 155). Management approaches impose no constraint and may be changed administratively.

2. The DEIS Ignores the Agency's Own Risk of Contact Analysis

The Wildlife Assessment states that the Risk of Contact tool "is considered the best science to inform potential rates of contact, for all areas and situations." It reports that updated model runs "now indicate an increased potential contact rate with the two closest Forest Service sheep grazing allotments since the last analysis in 2016." It adds that private flocks are "exacerbating the potential for contact" (Wildlife Assessment at 21).

The assessment also documents several further points:

Bighorn sheep have traveled into grazing allotments on the Umatilla.

Current plans "do not identify areas unsuitable for domestic sheep grazing, and there are no restrictions for establishing new sheep grazing allotments or changing from cattle to sheep" (Wildlife Assessment, Bighorn Sheep; Summary Assessment at 48).

Keeping pack goats from contact with bighorn sheep is "a prudent management approach" (Wildlife Assessment at 22).

The DEIS discloses none of this. Its entire bighorn effects analysis is a conclusory statement that "all three alternatives provide direction on reducing the biggest threat factor of disease transmission from domestic livestock" (DEIS at 36). That statement is inaccurate as to Alternatives 2 and 3, which remove the Malheur prohibition.

The agency is well aware that plan-level suitability determinations for domestic sheep, based on risk of contact modeling, are an established and legally sustainable approach. The Payette National Forest identified suitable rangeland for domestic sheep and goats through a forest plan amendment (USDA 2010, cited in the Wildlife Assessment). The Ninth Circuit upheld that decision (*Idaho Wool Growers Ass'n v. Vilsack*, 816 F.3d 1095 (9th Cir. 2016)). The Western Association of Fish and Wildlife Agencies' Wild Sheep Working Group recommends effective separation and closure or conversion of allotments within foray distance.

Under 36 CFR 219.9(b), the responsible official must determine whether ecosystem-level components provide the ecological conditions to maintain a viable population of each SCC, and add species-specific components if not. No such determination for bighorn sheep appears in the DEIS.

Requests:

Disclose in the DEIS the current Risk of Contact analysis for every domestic sheep and goat allotment, including the updated 2022 habitat and telemetry model runs, and compare results to the Wild Sheep Working Group's contact-rate benchmark cited in the Wildlife Assessment. Identify, in each plan, lands not suitable for domestic sheep and goat grazing. These should include all allotments within bighorn core herd home ranges and all allotments whose modeled contact rate exceeds the benchmark or lies within foray distance, consistent with WAFWA recommendations.

Restore and strengthen the desired condition language on disease transmission. Adopt standards prohibiting: new domestic sheep or goat allotments, and conversions from cattle to sheep or goats, within the foray-risk area; authorization of domestic goats, including pack goats and goats for vegetation management, in or near bighorn habitat without effective separation measures.

Convert the separation measures in FW-SPRSK-MAPR-08 into standards for any sheep or goat allotment that remains suitable, including herding, counting, marking, and prompt reporting and retrieval of strays.

Make and disclose the 36 CFR 219.9(b) determination for bighorn sheep.

Correct the DEIS statement that all alternatives provide equivalent protection against disease transmission.

M. Other At-Risk Species

1. Endangered Species Act Consultation and Disclosure

For nearly every listed species, the DEIS reports effects determinations as "TBD" and defers all analysis to a future biological assessment (DEIS at 64–65, Table 18). This includes bull trout, steelhead, Chinook salmon, Spalding's catchfly, whitebark pine, and yellow-billed cuckoo.

NEPA requires the effects of the alternatives on listed species to be disclosed to the public in the EIS, not reserved to a separate consultation document the public will not see before the decision. Livestock grazing is a principal pathway of effect for several of these species.

Table 18 also appears internally inconsistent. It lists a "no effect" determination for Middle Columbia River steelhead on the Malheur National Forest. Yet the Malheur's existing management indicator species include steelhead (DEIS at 96–97, Table 26), and the DEIS describes the John Day River as supporting four species of naturally reproducing native salmonids (DEIS at 113).

2. Spalding’s Catchfly

The Summary Assessment reports that "all populations in the Blue Mountains National Forests are within active grazing allotments." It notes that pastures on the Umatilla "have been rested until we consult with the U.S. Fish and Wildlife Service." It identifies "grazing and trampling" among the main threats and notes two key conservation areas on the Wallowa-Whitman (Summary Assessment at 35).

The plans contain no Spalding's catchfly-specific grazing component. The targeted grazing objective could place livestock in the canyon grasslands where the species occurs.

3. Greater Sage-Grouse and Sagebrush Obligates

The Summary Assessment identifies sage grouse as "a species of conservation concern found primarily in the Malheur National Forest" (Summary Assessment at 34). The DEIS's Malheur SCC list does not include greater sage grouse (Appendix C at 296–299), and the DEIS never mentions the species. The agency must explain this discrepancy.

If sage grouse occur on the Malheur, the plans must include grazing components for nesting and brood-rearing habitat, such as residual grass height of at least 7 inches in nesting habitat during

April through June. The same analysis applies to pygmy rabbit, which is listed as an SCC on the Malheur and Umatilla (Appendix C at 297, 300) and depends on sagebrush habitat with intact understory.

4. Riparian-Dependent and Pollinator Species

Several SCC are directly affected by riparian and meadow grazing, yet the plans contain no species-specific grazing components for them. These include:

Columbia spotted frog and Rocky Mountain tailed frog; willow flycatcher, which depends on riparian willow; redband and westslope cutthroat trout; western ridged mussel; Western bumble bee and other pollinators (FW-SPRSK-DC-05; the Summary Assessment notes grazing timing affects monarch host and nectar plants).

FW-SPDIV-DC-07 calls for amphibian breeding habitat "of sufficient quality and distribution to support all life stages," but no component restricts grazing in breeding wetlands during egg and larval periods.

5. Wolves and Large Carnivores

The wolf guideline (FW-SPRSK-GDL-05) is framed around reducing "the potential for livestock conflict" near active dens and rendezvous sites. The associated conflict-reduction practices are an optional management approach (FW-SPRSK-MAPR-07, DEIS at 154–155). The Wildlife Assessment reports that human causes, including conflict with livestock that can result in lethal take, are the primary threats to wolves (Summary Assessment at 47).

The plans contain no component committing to non-lethal coexistence measures. They also contain no direction to adjust turnout timing or location near documented den and rendezvous sites, or to consider voluntary allotment retirement where conflict is chronic. The DEIS lists wolf effects determinations as "TBD" (DEIS at 65) and does not analyze effects to wolves from the plans' grazing direction.

Requests:

Disclose in the DEIS, for each alternative, the anticipated effects of grazing direction on each listed species, rather than deferring to the biological assessment. Complete consultation before the FEIS and ROD, and carry resulting terms into plan components.

Explain and correct the Middle Columbia steelhead "no effect" determination for the Malheur, or explain the basis for it.

Adopt Spalding's catchfly components: identify key conservation areas as not suitable for grazing, and adopt seasonal and utilization limits for other occupied habitat.

Explain the omission of greater sage-grouse from the Malheur SCC list. If the species occurs in the plan area, adopt nesting-season residual height standards. Adopt sagebrush understory components for pygmy rabbit.

Adopt standards restricting grazing in amphibian breeding wetlands during breeding and larval periods (for example, March through mid-July), and limiting willow browse in occupied willow flycatcher habitat.

Adopt components committing to non-lethal coexistence measures with large carnivores. These should include mandatory carcass removal, turnout timing and location adjustments near documented den and rendezvous sites, and consideration of voluntary allotment retirement in chronic conflict areas.

Make and disclose the 36 CFR 219.9(b) determination for each SCC whose habitat is affected by grazing.

N. Designated Areas and Special Places

Research Natural Areas and Botanical Areas. The Designated Areas Assessment states that Research Natural Areas and botanical areas are "generally unsuitable for livestock grazing." The Summary Assessment notes that grazing is "limited or prohibited" in RNAs (Summary Assessment at 84–85). Because the suitability matrix is silent on grazing, the draft plans treat these areas as suitable by default. The same concern applies to the Mount Howard–East Peak National Natural Landmark, designated for "outstanding examples of montane grassland habitats and exceptional botanical diversity which support endemic and rare plant species" (DEIS at 199).

Recommended wilderness. The DEIS states that species would benefit in recommended wilderness from "protections that limit ... livestock grazing" (DEIS at 50). The plan components for Management Area 1B contain no grazing limitation. Pre-existing authorized uses "may continue" (MA1B-RWA-STD-01, DEIS at 219), and the Wilderness Act allows established grazing to continue in designated wilderness (16 U.S.C. 1133(d)(4)(2)). The DEIS's stated benefit is unsupported by the components.

Wild and scenic rivers. The DEIS acknowledges that eligible and suitable river segments carry grazing constraints (DEIS at 16). Several segments have fish and botanical outstandingly remarkable values (DEIS at 188–189). The plans should include specific direction ensuring grazing protects those values.

Starkey Experimental Forest and Range. The Summary Assessment states that the more than 300 publications from Starkey since 1990 need to be considered "in future management guidelines" (Summary Assessment at 85). That research includes decades of work on elk, deer, and cattle interactions and riparian grazing compatibility. The DEIS does not cite or apply this research in its grazing components.

Murderers Creek Wild Horse Territory. The territory overlaps five Forest Service allotments. The Designated Areas Assessment documents non-attainment of riparian objectives. Cumulative livestock and wild horse effects, and forage allocation among horses, wildlife, and livestock, must be analyzed.

Requests:

Identify RNAs, botanical areas, and the Mount Howard–East Peak National Natural Landmark as not suitable for permitted livestock grazing.

Correct the DEIS's statement about grazing limits in recommended wilderness, or adopt components that support it.

Adopt components ensuring grazing protects fish and botanical outstandingly remarkable values in eligible and suitable wild and scenic river corridors.

Incorporate and document Starkey research as best available scientific information for grazing components (36 CFR 219.3).

Analyze cumulative livestock and wild horse effects in the Murderers Creek area and identify forage allocation.

O. Climate Change, Drought, and Carbon

The Climate Assessment projects:

Changes in rangeland composition and productivity, including earlier on- and off-dates and "reduced overall AUMs where forage production declines"; reduced summer low flows affecting livestock grazing; an increased risk that sensitive native species will be displaced by invasives (Climate Assessment at 32–34, 42).

The planning rule requires consideration of system drivers and stressors, including climate change (36 CFR 219.8(a)(1)(iv)). The draft plans contain no drought component. They provide no trigger to reduce or defer use in drought years and no analysis of whether the AUM levels in FW-RNG-OBJ-01 remain sustainable under projected conditions.

The carbon analysis addresses only forest stand carbon (DEIS at 39–43). It says only that grassland and shrubland systems are "important ... for storing underground carbon" (DEIS at 39). Grazing effects on rangeland and riparian soil carbon are not analyzed. The Summary Assessment itself says the influence of grazing history on rangeland carbon "is not well understood" (Summary Assessment at 40). The Aquatic Assessment's reliance on Kauffman et al. (2004), a study of belowground responses to livestock exclusion in eastern Oregon riparian meadows, shows the agency has relevant science available.

Requests:

Adopt a drought standard requiring reduced stocking, delayed turnout, or rest when drought conditions reduce forage production or water availability, with objective triggers.
Analyze the sustainability of permitted grazing levels under projected climate conditions.
Analyze the effects of grazing on rangeland and riparian soil carbon, and adopt a desired condition and components to retain and increase above- and below-ground carbon in rangelands and riparian areas.

P. The Monitoring Program Cannot Detect Whether Grazing Direction Works

The planning rule requires a monitoring program designed to test assumptions, track change, and evaluate management effectiveness. It must include questions on the effects of each management system on the productivity of the land (36 CFR 219.12(a)(5)(viii); 16 U.S.C. 1604(g)(3)(C)).

The draft monitoring program contains only two rangeland questions:

MON-RNG-01 asks how many AUMs are authorized that "contribute socially, culturally, and economically to local ranching operations."

MON-RNG-02 counts acres of restoration actions (DEIS at 233).

Both measure outputs. Neither measures rangeland condition, compliance with utilization or riparian indicators, or effects on soils, water, or at-risk species. The DEIS text refers to "MON-RNG-01: rangeland conditions" (DEIS at 227), but the question as written does not monitor rangeland condition at all.

The riparian questions rely on residual pool depth, riparian cross-section plant data, and bat and salmonid presence (MON-RMA-01 to -03, DEIS at 229). None tracks:

Stubble height; bank alteration; woody browse; whether MA3A-RMA-GDL-20 is being met.

MON-VEGNF-01 notes that "other monitoring questions [are] in development" (DEIS at 230), so the program is incomplete at the DEIS stage. The program also has only 13 questions covering 20 plan components across three national forests (DEIS at 226).

Requests:

Add monitoring questions and indicators for:

Rangeland condition and trend by phase, using the state-and-transition framework, the agency's existing condition and trend network, and Interpreting Indicators of Rangeland Health; compliance with upland utilization standards in key areas; MIM indicators (stubble height, streambank alteration, woody browse) at designated monitoring areas, with compliance rates

reported by allotment; BMP effectiveness for range activities; invasive annual grass cover and biological soil crust condition within grazed allotments; soil condition on grazed lands (FW-SOIL-STD-02); habitat condition for grazing-affected SCC and listed species;
bighorn sheep contact incidents and domestic sheep strays; compliance with post-fire rest requirements; grazing-related depredation events and non-lethal measures used.

Establish ungrazed reference areas for comparison, including vacant allotments, exclosures, and Starkey's long-term exclosure network.

Correct the MON-RNG-02 linkage to FW-RNG-OBJ-02 for Alternative 3. Complete all monitoring questions "in development" before the FEIS so the public can comment on them.

Q. The Best Available Scientific Information

The planning rule requires the agency to document what information it determined to be the best available scientific information, explain the basis for that determination, and explain how the information was applied (36 CFR 219.3). NEPA requires scientific integrity and use of reliable existing data (42 U.S.C. 4332(2)(D), (E)).

The DEIS reference list contains no rangeland science on the effects of livestock grazing on riparian areas, soils, biocrusts, invasive species, or at-risk species. The only grazing science cited supports targeted grazing (DEIS at 69–72). Key agency sources underlying the rangeland findings exist only as unpublished internal papers (the Countryman 2011 and 2012 analyses).

The DEIS does not engage with the scientific literature supplied in scoping. It also does not engage with the agency's own cited literature, including:

Kauffman et al. (2004);
Platts (1991);
Johnson (1998);
Johnson and Swanson (2005);
PIBO monitoring reports;
the Wild Sheep Working Group (2012);
O'Brien et al. (2021) on risk of contact.

Notably, the DEIS relies on PIBO-affiliated research elsewhere (Armstrong et al. 2026, DEIS at 69), yet ignores PIBO-affiliated research on livestock disturbance thresholds (Goss and Roper).

Requests:

Prepare and disclose the § 219.3 documentation for all grazing-related plan components, including an explanation of why the utilization range, the 4–6 inch stubble height range, and the absence of bank alteration and browse standards reflect the best available scientific information in light of the contrary science in the record.

Publish the unpublished agency analyses relied on for rangeland condition, capability, suitability, and forage supply.

Respond specifically to each scientific paper submitted in scoping.

R. Procedural Requests

Given the scope of the deficiencies identified here, prepare and circulate a revised or supplemental draft EIS. The missing items include: an effects analysis for a use covering most of the plan area; a suitability determination required by NFMA; a reasonable range of alternatives; disclosure of the agency's own assessment findings; listed species effects.

The public should be able to comment on these analyses before an FEIS and draft Records of Decision are issued. Introducing them for the first time in the FEIS would leave the public no opportunity to comment before the objection stage.

Provide a written response to each numbered request in these comments.

Make the complete project record for rangeland analysis available on the project website. This includes the final Rangeland Resource Report, supplemental information, GIS data, and monitoring data.

S. Consolidated Proposed Plan Component Language

We offer the following proposed components.

Rangelands (FW-RNG)

FW-RNG-STD-01 (revised): Livestock grazing must be authorized only on lands identified in this plan as capable and suitable for livestock grazing. Stocking must not exceed the sustainable forage capacity determined by a carrying capacity analysis that allocates forage for wildlife and watershed protection before livestock use.

FW-RNG-STD-02 (new): Utilization of current-year growth of key upland forage species in key areas must not exceed 30 percent. On rangelands in Phase C or D or in unsatisfactory condition, use must be further reduced or the area rested until monitoring demonstrates upward trend.

FW-RNG-STD-03 (new): When an in-season utilization or riparian use threshold is reached in a pasture, livestock must be removed from that pasture within five days. When a threshold is exceeded in the same pasture in two consecutive years, permitted use must be reduced in the following season until standards are met.

FW-RNG-STD-04 (new): Following wildfire, prescribed fire affecting grazed rangeland, or seeding, livestock must be excluded for at least two full growing seasons. Grazing may resume

only when monitoring documents: establishment and seed production of key perennial bunchgrasses; recovery of forbs and woody species appropriate to the site; effective ground cover at or above site-specific thresholds; no expansion of invasive annual grass cover.

FW-RNG-STD-05 (new): Residual ground cover must average at least 70 percent in upland key areas at the end of the grazing season. Effective ground cover must be at least 85 percent on erosive soils. Livestock-caused trampling and pugging must not exceed 15 percent of ground surface in key areas.

FW-RNG-STD-06 (new): When forage production or water availability is reduced by drought, as determined by objective drought and forage indicators identified in the monitoring program, turnout must be delayed or stocking reduced to maintain compliance with utilization and riparian standards.

FW-RNG-STD-07 (new): When a term grazing permit is voluntarily waived to the United States, the allotment must not be restocked pending evaluation for permanent closure and dedication to watershed, fish and wildlife, soil, carbon, or recreation purposes.

FW-RNG-GDL-01 (revised): Seeding of non-native forage species should not occur anywhere.

Invasive Species (FW-INV)

FW-INV-STD-04 (new): Livestock must not be moved from pastures infested with invasive annual grasses or noxious weeds into uninfested pastures during seed maturity without measures to prevent seed transport. Grazing on sites at high risk of conversion to invasive annual grasses must be managed to maintain perennial bunchgrass vigor and biological soil crust cover.

Species Diversity and Species at Risk (FW-SPDIV, FW-SPRSK)

FW-SPDIV-STD-03 (new): In areas where biological soil crusts are a key component of the plant community, livestock grazing must be limited in season and intensity to maintain crust cover, as determined through monitoring.

FW-SPRSK-DC-08 (revised): Bighorn sheep populations are sustained or increased, and are effectively separated from domestic sheep and goats so that disease transmission from permitted domestic animals does not occur.

FW-SPRSK-STD-02 (new): Domestic sheep and goat grazing, including goats used for vegetation management and pack goats, must not be authorized on lands identified as not suitable for domestic sheep and goat grazing. These lands include all lands within bighorn sheep core herd home ranges and areas where risk of contact modeling indicates contact rates above the Wild Sheep Working Group benchmark. New sheep or goat allotments and conversions from cattle to sheep or goats must not be authorized within those areas.

FW-SPRSK-STD-03 (new): Livestock must be excluded from Spalding's catchfly key conservation areas. Grazing in other occupied habitat must be timed and limited to avoid adverse effects to flowering and seed set.

FW-SPRSK-STD-04 (new): Livestock use must be excluded from amphibian breeding wetlands from March 1 through July 15, or as adjusted for local breeding phenology.

FW-SPRSK-STD-05 (new): Grazing authorizations within one mile of known active wolf den or rendezvous sites must include non-lethal conflict prevention measures. Livestock carcasses must be removed or rendered unavailable to carnivores within a specified period.

Riparian Management Areas (MA3A-RMA)

MA3A-RMA-STD-05 (new, both action alternatives): Livestock grazing must meet the following end-of-season or in-season limits at designated monitoring areas: stubble height of at least 6 inches on key hydric greenline species; streambank alteration of no more than 10 percent; woody browse of no more than 30 percent of current-year leaders. These limits apply unless site-specific monitoring demonstrates that more protective values are needed.

MA3A-RMA-STD-06 (new): In designated critical habitat and occupied spawning and rearing habitat for listed fish where riparian desired conditions are not being met, livestock must be excluded or use deferred until after July 15, and must not occur during spawning and incubation periods.

MA3A-RMA-STD-07 (new): Grazing practices must not cause measurable increases in sediment, water temperature, nutrients, or bacteria that contribute to exceedance of state water quality standards. Allotments contributing to 303(d)-listed impairments must implement corrective measures within [two] grazing seasons.

MA3A-RMA-STD-08 (new): Existing livestock water developments and handling facilities in riparian management areas, springs, seeps, fens, and wet meadows must be evaluated at permit renewal and modified or relocated where they prevent attainment of aquatic and riparian desired conditions.

Suitability of Lands (Table 59)

Add rows for "Livestock grazing (cattle)" and "Domestic sheep and goat grazing." Identify as not suitable, at a minimum:

MA 2B Research Natural Areas;
MA 2C Botanical Areas;
MA 2J National Natural Landmark;

lands identified through the capability, suitability, and risk of contact analyses requested above.

VIII. Fire comments (contributed by Chad Hanson of John Muir Project)

At the request of Blue Mountains Biodiversity Project, I am submitting these comments on the Draft Environmental Impact Statement (DEIS) for your proposal to revise the forest plans for the national forests in the Blue Mountains.

A. Inadequate Range of Alternatives

I previously submitted expert comments to you during the scoping phase of this proposal, dated October 6, 2025. It is clear from my read of the DEIS that the Forest Service completely ignored my comments, including my request for full consideration of an action alternative, which is not included in the DEIS. In my October 6, 2025 scoping comments, based on the extensive scientific information that I submitted, I requested that the Forest Service should "fully analyze an action alternative that would prioritize managed wildfire, prescribed fire, and Indigenous cultural burning without prior thinning, and would prohibit post-fire logging." On pages 2 through 4, the DEIS discusses alternatives that were dismissed from inclusion and full consideration. However, the alternative that I requested is not listed among the alternatives that were dismissed from meaningful consideration in the DEIS; rather, it was ignored completely. On page 3 the DEIS briefly discusses a "Minimal Level of Management Alternative", under which "No acres would be classified as suitable for timber production or grazing, no trees would be harvested, and no timber would be produced", and a "Limited Commercial Timber Harvest Alternative", that could include "vegetation treatments for wildlife habitat" but "could not include timber sales, harvest of old trees, large snag removal, or salvage harvest". Neither of these reflect or describe the action alternative that I requested, which would "*prioritize*" (emphasis added) managed wildfire, prescribed fire, and Indigenous cultural burning without prior thinning, and would prohibit post-fire logging. My requested alternative would not prohibit all timber harvest or preclude all timber sales; it would simply prioritize fire management, without thinning or other logging, and deprioritize timber harvest/sales. The alternative that I requested would not prohibit all timber sales or harvesting of trees. The DEIS, on page 3, claims that neither the Minimal Level of Management Alternative nor the Limited Commercial Timber Harvest Alternative can be considered as action alternatives ostensibly because they would "not meet the legal requirements of the Multiple Use Sustained Yield Act and National Forest Management Act to provide for multiple uses and benefits of the national forests." This is a specious argument, given that federal courts for many decades have interpreted both of these statutes as giving the Forest Service extremely broad and near-complete latitude to manage forests at either extreme of the multiple use spectrum with regard to timber production. Below, I re-state the scientific and evidentiary basis backing up my requested alternative—the same information that I submitted during scoping but which was ignored in the DEIS. I request that you withdraw the DEIS and prepare a supplemental DEIS to fully analyze my requested alternative so that it can be properly assessed and vetted through the public comment process.

B. Were the Forests of the Blue Mountains Consistently Comprised of Open, Low-Density Stands, With Only Lower-Severity Fire, Historically?

No. When John C. Fremont and his team, including Kit Carson, explored the Blue Mountains in 1845, Fremont's journals frequently described forest conditions. Below, in order, are quotes pertaining to all of his descriptions of forest density and structure (generally, tree size) in the Blue Mountains (journal excerpts attached to these comments):

Page 540: "…the country is covered with nutritious grasses and dense forestland…"

Page 540: "…the timber exhibits a luxuriance of growth unknown to the eastern part of the continent…"

Page 542: "From the summit here, the whole horizon shows high mountains…and on the left, from south around by the west to north, the mountains are black with pines; while, through the remaining space to the eastward, they are bald with the exception of some scattered trees…"

Page 542: "You will remark that we are now entering a region where all the elevated parts are covered with dense and heavy forests."

Page 543: "It is probable that they have received their name of the Blue mountains [sic] from the dark-blue appearance given to them by the pines."

Page 544: "On either side, the mountains here are densely covered with tall and handsome trees; and, mingled with the green of a variety of pines…"

Page 546: "There are some pines here on the low hills at the creek; and in the northwest corner of the Rond is a very heavy body of timber, which descends into the plain."

Page 546: "Passing through a point of pines…in which the trees were sometimes apparently 200 feet high and 3 to 7 feet in diameter…"

Page 546: "Resuming our journey, we commenced the ascent of the mountain through an open pine forest of large and stately trees…"

Page 547: "…continuing our route among the pines, which were more dense than yesterday, and still retained their magnificent size."

Page 547: "After a few miles we ceased to see any pines…These trees appeared from 60 to nearly 200 feet in height; the usual circumference being 10 to 12 feet, and in the pines sometimes 21 feet."

Page 547-548: "After travelling occasionally through open places in the forest, we were obliged to cut a way through a dense body of timber, from which we emerged on an open mountain side…"

Page 548: "We continued to travel through the forest, in which the road was rendered difficult by fallen trunks, and obstructed by many small trees, which it was necessary to cut down…A laborious day, which had advanced us only six miles…"

Page 548: [the following day] "The trail passed sometimes through very thick young timber, in which there was much cutting to be done; but, after travelling a few miles, the mountains became more bald…"

Page 548: "On our right was a mountain plateau, covered with a dense forest; and to the westward, immediately below us, was the great Nez Perce (pierced nose) prairie, in which dark lines of timber indicated the course of many affluents…"

Page 549: "…descending a bad ravine, into which we drove our animals, and had much trouble with them, in a very close growth of small pines."

Page 549: "After cutting through two thick bodies of timber…the forest became more open…The pines here were 11 or 12 feet in circumference…"

The Fremont journal text can be accessed at:

http://www.archive.org/stream/expeditionsofjoh01fr/expeditionsofjoh01fr_djvu.txt

From these journal notes, of approximately 18 references to forest density, 12 of them (67%) describe dense/heavy/dark/thick/close forests versus 6 pertaining to open/bald conditions. In approximately half of the locations in which dominant tree size is discussed, the trees were small, while large overstory trees dominated in other locations. These notes indicate highly variable historical forest conditions, contrary to the relatively homogeneous conditions that the Scoping Notice assumes to have occurred. Moreover, Fremont's descriptions are generally consistent with the findings of Williams and Baker (2012), based on late 19th century General Land Office field data, of highly variable forests—with many medium to high density areas—dominated by mixed-severity fire effects, not by low-severity fire (40% of forests were characterized by low-severity fire effects, while 60% were characterized by mixed/high-severity fire).

The historical forest density and fire regime reconstructions of Williams and Baker, based on 19th century General Land Office field data, are based on the most extensive accuracy-checking and cross-validation in the history of fire ecology, including: 20 modern validations with plot data; 47 specific historical cross-validations in small areas; six large areas with general cross-validations; 99 corroborating observations from scientific studies; and general corroboration from seven paleo-reconstructions (Baker et al. 2018).

C. Are Managed Forests More Likely to Burn than Forests in Roaded, Managed Forests?

No. In fact, a three-decade analysis of wildfires found that fires are 2 to 4 times more likely to occur in roaded areas (generally, the managed forest landscape) than in Roadless Areas (Aplet et al. 2025, in review: https://www.wilderness.org/sites/default/files/media/file/Summary%20NFS%20roads%20fire%20paper%20-%202025.pdf).

Other research has found that 90% of all wildfires occur within half a mile of a road, and there is a highly significant correlation between proximity to roads and increased wildfire occurrence (Morrison 2007: https://www.pacificbio.org/publications/wildfire_studies/Roads_And_Wildfires_2007.pdf).

There are currently about 360,000 miles of roads on U.S. national forests—mainly old logging roads—according to the U.S. Forest Service itself (USFS 2025, p. 87: https://www.fs.usda.gov/sites/default/files/fs-fy26-congressional-budget-justification.pdf). This is enough to circle the Earth more than 14 times. The notion that national forests need more roads is absurd.

D. Do Managed Forests Burn More Intensely than Forests in Roaded, Managed Forests?

No. One large study, analyzing three decades of wildfire data in Roadless Areas and roaded forests, found that "there was no significant difference in fire severity between roadless areas and roaded areas after accounting for biophysical differences" (Johnston et al. 2021: https://iopscience.iop.org/article/10.1088/1748-9326/ac13ee). Johnston et al. (2021) concluded that "management regime had no influence on fire severity in any of the statistical models". In other words, the road building and logging in the managed forest landscape did not reduce wildfire severity. Johnston et al. (2021) further found that a larger proportion of Roadless Areas experienced wildfire over the three decade study period in significant part because "large remote landscapes allow managers flexibility to allow fires to burn when these fires are compatible with resource management objectives", and because fire suppression forces naturally focus efforts near homes, which tend to be surrounded by or adjacent to managed, roaded forests. The authors concluded that land managers' practice of allowing more fires to occur in Roadless Areas without trying to suppress them "may confer resilience to these landscapes in the face of climate change." An even larger study across the entire western U.S., which also analyzed three decades of wildfire data, specifically compared Roadless Areas and other protected forests to roaded, managed forests in the very same forest types, for a close comparison, and found that managed, roaded forests had higher wildfire severity (Bradley et al. 2016: https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.1492).

E. Does Thinning, Post-Fire Logging, or Other Logging in Forest Wildlands Protect Communities from Wildfires?

No. In fact, such management likely increases the threats of wildfire to communities for three main reasons. First, thinning and other tree removal activities reduces the windbreak effect that denser forests have, and causes winds to move much faster through forests, which increases the speed of wildfires, giving communities less time to safely evacuate and first responders less time to arrive and help. A comprehensive recent study by Balch et al. (2024: https://www.science.org/doi/10.1126/science.adk5737) found that higher speed is the main factor associated with large losses of homes and lives in wildfires. Balch et al. (2024) noted that wildfires spread much faster through less dense vegetation with "low wind friction". Second,

when land managers conduct thinning, post-fire logging, and other logging projects out in Roadless forests, distant from homes, and tell communities that such logging will stop wildfires from reaching homes, this can give communities a dangerous false sense of security, which can reduce motivation to conduct proven, highly effective community fire safety activities, such as home hardening, defensible space pruning, and evacuation planning. By focusing on forest wildlands, instead of on the communities themselves, land managers put communities at greater risk, as the Forest Service's own scientists recently concluded in Calkin et al. (2023: https://www.pnas.org/doi/10.1073/pnas.2315797120). Third, this proposal to rescind the Roadless Rule and allow rampant logging, including mechanical thinning and post-fire logging, ostensibly to curb wildfires and protect communities, ignores the fact that a large body of science from the U.S. Forest Service's own scientists finds that mechanical thinning and post-fire logging actually increase wildfire severity. Below are citations to a number of ***sources from the Forest Service itself*** finding that mechanical thinning or post-fire logging increases fire severity, denser forests burn less intensely, and that the only zone relevant to protecting communities from fire is the defensible space zone within about 100 feet or less around each home or other human structure:

Lesmeister, D.B., et al. 2019. Mixed-severity wildfire and habitat of an old-forest obligate. Ecosphere10: Article e02696.

> "Thinned forests have more open conditions, which are associated with higher temperatures, lower relative humidity, higher wind speeds, and increasing fire intensity. Furthermore, live and dead fuels in young forest or thinned stands with dense saplings or shrub understory will be drier, making ignition and high heat more likely, and the rate of spread higher because of the relative lack of wind breaks provided by closed canopies with large trees."

Lesmeister, D.B., et al. 2021. Northern spotted owl nesting forests as fire refugia: a 30-year synthesis of large wildfires. Fire Ecology 17: Article 32.

> Lower-density forests had higher fire severity, because such forests have "hotter, drier, and windier microclimates, and those conditions decrease dramatically over relatively short distances into the interior of older forests with multi-layer canopies and high tree density…"
>
> **Notably, this finding applied to both mesic and dry, frequent-fire forests and, in fact, the effect (denser forests burning less intensely) was strongest in these dry, frequent-fire forests (Figure 4B of the study).**

Lydersen, J. M., M. P. North, and B. M. Collins. 2014. Severity of an uncharacteristically large wildfire, the Rim Fire, in forests with relatively restored frequent fire regimes. Forest Ecology and Management 328:326–334.

> Forests with "a greater small tree density tend[ed] to burn with lower severity."

Meigs, G.W., et al. 2020. Influence of topography and fuels on fire refugia probability under varying fire weather in forests of the US Pacific Northwest. Canadian Journal of Forest Research 50: 636-647.

Forests with higher pre-fire biomass are more likely to experience low-severity fire.

Thompson, J.R., Spies, T.A., Ganio, L.M. 2007. Reburn severity in managed and unmanaged vegetation in a large wildfire. Proceedings of the National Academy of Sciences of the United States of America 104: 10743–10748.

"Areas that were salvage-logged and planted after the initial fire burned more severely than comparable unmanaged areas."

Thompson, J., and T.A. Spies. 2010. Exploring Patterns of Burn Severity in the Biscuit Fire in Southwestern Oregon. Fire Science Brief 88: 1-6.

"Areas that burned with high severity…in a previous wildfire (in 1987, 15 years prior) were more likely to burn with high severity again in the 2002 Biscuit Fire. Areas that were salvage-logged and planted following the 1987 fire burned with somewhat higher fire severity than equivalent areas that had not been logged and planted."

Thompson, J.R., Spies, T.A. 2009. Vegetation and weather explain variation in crown damage within a large mixed-severity wildfire. Forest Ecology and Management 258: 1684-1694.

Mature forests with higher canopy cover had lower fire severity.

Hardage, K., et al. 2022. Soil moisture and micrometeorological differences across reference and thinned stands during extremes of precipitation, southern Cascade Range. Frontiers in Forests and Global Change 5: Article 898998.

Windspeeds were 15 to 20 times higher in thinned forests relative to unthinned forests.

Graham, R., et al. 2012. Fourmile Canyon Fire Findings. Gen. Tech. Rep. RMRS-GTR-289. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 110 p.

Thinned forests "were burned more severely than neighboring areas where the fuels were not treated", and 162 homes were destroyed by the Fourmile Canyon Fire (see Figs. 45 and 46).

Countryman, C.M. 1956. Old-growth conversion also converts fire climate. Fire Control Notes 17: 15-19.

Fire will spread 4.5 times faster in an open forest area compared to a dense forest area,

and fire in an open forest will require 20 times the fire suppression effort as fire in a dense forest.

Reilly, M.J., et al. 2022. Cascadia Burning: The historic, but not historically unprecedented, 2020 wildfires in the Pacific Northwest, USA. Ecosphere 13: e4070.

Weather conditions primarily determined fire severity, and forest density was not a factor.

"We found minimal difference in burn severity among stand structural types related to previous management in the 2020 fires. Adaptation strategies for similar fires in the future could benefit by focusing on ignition prevention, fire suppression, and community preparedness, as opposed to fuel treatments that are unlikely to mitigate fire severity during extreme weather."

Morris, W.G. 1940. Fire weather on clearcut, partly cut, and virgin timber areas at Westfir, Oregon. Timberman 42: 20-28.

More severe fire weather microclimate in thinned forests.

SNEP. 1996. Sierra Nevada Ecosystem Project, Final Report to Congress: Status of the Sierra Nevada. Vol. I: Assessment summaries and management strategies. Davis, CA: University of California, Davis, Center for Water and Wildland Resources.

"Timber harvest, through its effects on forest structure, local microclimate, and fuel accumulation, has increased fire severity more than any other recent human activity."

Chen, J., et al. 1999. Microclimate in forest ecosystem and landscape ecology: Variations in local climate can be used to monitor and compare the effects of different management regimes. BioScience 49: 288–297.

A more severe fire weather microclimate is created in open forests compared to denser forests.

Dombeck, M. (**U.S. Forest Service Chief**). 2001. How Can We Reduce the Fire Danger in the Interior West. Fire Management Today 61: 5-13.

"Some argue that more commercial timber harvest is needed to remove small-diameter trees and brush that are fueling our worst wildlands fires in the interior West. However, small-diameter trees and brush typically have little or no commercial value. To offset losses from their removal, a commercial operator would have to remove large, merchantable trees in the overstory. Overstory removal lets more light reach the forest floor, promoting vigorous forest regeneration. Where the overstory has been entirely removed, regeneration produces thickets of 2,000 to 10,000 small trees per acre, precisely the small-diameter materials that are causing our worst fire problems. In fact, many large fires in 2000 burned in previously logged areas laced with roads. It seems unlikely that commercial timber harvest can solve our forest health problems."

USFS (U.S. Forest Service). 2022. Gallinas-Las Dispensas Prescribed Fire Declared Wildfire Review. U.S. Forest Service, Office of the Chief, Washington, D.C.

> Thinning plus prescribed burning resulted in the largest fire in New Mexico's recorded history and burned down multiple towns.
>
> Thinning reduced canopy cover, increasing growth of combustible grasses; associated pile burning caused a huge wildfire, spreading rapidly through thinned areas, burning many homes.

Calkin, D.E., Barrett, K., Cohen, J.D., Finney, M.A., Pyne, S.J., and Quarles, S.L. 2023. Wildland-urban fire disasters aren't actually a wildfire problem. Proceedings of the National Academy of Sciences of the United States of America. 120: e2315797120.

> Thinning, and other logging and vegetation removal under the rubric of fuel reduction, in wildlands ostensibly to protect communities from wildfire—the current approach of the Forest Service—is ineffective and counterproductive; instead, the Forest Service should focus directly on helping communities to become fire-safe through proven community-focused methods that are deployed in and immediately adjacent to towns.

Cohen, J.D. 2000. Preventing disaster: home ignitability in the wildland-urban interface. Journal of Forestry 98: 15-21.

> The only relevant zone to protect homes from wildland fire is within approximately 100 feet or less from each home—not out in wildland forests.

In addition, hundreds of scientists from universities and non-governmental organizations also find that, while fire alone can and will modify and reduce subsequent fire behavior, thinning is either ineffective or counter-productive—exacerbating wildfire intensity and effects, killing more trees that it prevents from being killed, and causing a large net increase in carbon emissions relative to wildfire alone—while the only effective way to protect homes and lives from wildfires is to focus on the communities themselves:

Moomaw et al. (2020) (letter from over 200 scientists: https://johnmuirproject.org/2020/05/breaking-news-over-200-top-u-s-climate-and-forest-scientists-urge-congress-protect-forests-to-mitigate-climate-crisis/):

> "Troublingly, to make thinning operations economically attractive to logging companies, commercial logging of larger, more fire-resistant trees often occurs across large areas. Importantly, mechanical thinning results in a substantial net loss of forest carbon storage, and a net increase in carbon emissions that can substantially exceed those of wildfire emissions (Hudiburg et al. 2013, Campbell et al. 2012). Reduced forest protections and increased logging tend to make wildland fires burn *more* intensely (Bradley et al. 2016). This can also occur with commercial thinning, where mature trees are removed (Cruz et al. 2008, Cruz et al. 2014). As an example, logging in U.S. forests emits 10 times more

carbon than fire and native insects combined (Harris et al. 2016). And, unlike logging, fire cycles nutrients and helps increase new forest growth."

Moomaw et al. (2021) (letter from over 200 scientists: https://bit.ly/3BFtIAg):

> "[C]ommercial logging conducted under the guise of "thinning" and "fuel reduction" typically removes mature, fire-resistant trees that are needed for forest resilience. We have watched as one large wildfire after another has swept through tens of thousands of acres where commercial thinning had previously occurred due to extreme fire weather driven by climate change. Removing trees can alter a forest's microclimate, and can often increase fire intensity. In contrast, forests protected from logging, and those with high carbon biomass and carbon storage, more often burn at equal or lower intensities when fires do occur.

Kelp, M., et al. 2025. Effect of recent prescribed burning and land management on wildfire burn severity and smoke emissions in the western United States. AGU Advances 6: Article e2025AV001682.

> There was no significant effect of thinning on wildfire severity, including thinning in combination with other actions like pile burning and post-thinning prescribed fire, while previous burning (prescribed fire) significantly reduced wildfire severity.

Gibbons P, van Bommel L, Gill MA, Cary GJ, Driscoll DA, Bradstock RA, Knight E, Moritz MA, Stephens SL, Lindenmayer DB. 2012. Land management practices associated with house loss in wildfires. PLoS ONE **7**: Article e29212.

> Defensible space pruning within less than approximately 100 feet from homes was effective at protecting homes from wildfires, while vegetation management in remote wildlands was not.

Syphard, A.D., T.J. Brennan, and J.E. Keeley. 2014. The role of defensible space for residential structure protection during wildfires. Intl. J. Wildland Fire 23: 1165-1175.

> Vegetation management and removal beyond approximately 100 feet from homes provides no additional benefit in terms of protecting homes from wildfires.

Balch, J.K., et al. 2024. The fastest-growing and most destructive fires in the U.S. (2001-2020). Science 386: 425-431.

> The authors concluded that fast-moving wildfires comprise less than 3% of all U.S. fire events but account for 89% of all structures damaged or destroyed, and that fires move fastest in ecosystems that have "low wind friction" due to sparse or absent tree cover which is associated with a dominance of grasses. Firefighters quickly become "overwhelmed" by fast-moving fires.

Hakkenberg, C.R., et al. 2024. Ladder fuels rather than canopy volumes consistently predict wildfire severity even in extreme topographic-weather conditions. Communications Earth & Environment 5: Article 721.

> In a huge analysis of 42 recent (2019-2021) wildfires in California's forests, dense, mature/old forests with higher canopy cover, higher biomass, and higher densities of "ladder fuels" (defined as seedlings and saplings beneath the forest canopy, less than 33 feet tall), had significantly ***lower*** wildfire severity (Figure 3 of the study). Younger forests with lower canopy cover, lower biomass, and intermediate densities of seedlings and saplings had the highest wildfire severity.

Hanson, C.T. 2021. Is "Fuel Reduction" Justified as Fire Management in Spotted Owl Habitat? Birds 2: 395-403.

> **Thinning followed by burning and post-fire logged areas had higher overall fire severity.**
>
> "Within the forest types inhabited by California Spotted Owls, high-severity fire occurrence was not higher overall in unmanaged forests and was not associated with the density of pre-fire snags from recent drought in the Creek Fire, contrary to expectations under the fuel reduction hypothesis. Moreover, fuel-reduction logging in California Spotted Owl habitats was associated with higher fire severity in most cases. The highest levels of high-severity fire were in the categories with commercial logging (post-fire logging, private commercial timberlands, and commercial thinning), while the three categories with lower levels of high-severity fire were in forests with no recent forest management or wildfire, less intensive noncommercial management, and unmanaged forests with re-burning of mixed-severity wildfire, respectively."

Baker, B.C., and C.T. Hanson. 2022. Cumulative tree mortality from commercial thinning and a large wildfire in the Sierra Nevada, California. Land 11: Article 995.

> **Thinning followed by burning increases overall fire severity.**
>
> "Similar to the findings of Hanson (2022) in the Antelope Fire of 2021 in northern California, in our investigation of the Caldor Fire of 2021 we found significantly higher cumulative severity in forests with commercial thinning than in unthinned forests, indicating that commercial thinning killed significantly more trees than it prevented from being killed in the Caldor Fire…Despite controversy regarding thinning, there is a body of scientific literature that suggests commercial thinning should be scaled up across western US forest landscapes as a wildfire management strategy. This raises an important question: what accounts for the discrepancy on this issue in the scientific literature? We believe several factors are likely to largely explain this discrepancy. First and foremost, because most previous research has not accounted for tree mortality from thinning itself, prior to the wildfire-related mortality, such research has underreported tree mortality in commercial thinning areas relative to unthinned forests. Second, some prior studies have not controlled for vegetation type, which can lead to a mismatch when comparing

severity in thinned areas to the rest of the fire area given that thinning necessarily occurs in conifer forests but unthinned areas can include large expanses of non-conifer vegetation types that burn almost exclusively at high severity, such as grasslands and chaparral. Third, some research reporting effectiveness of commercial thinning in terms of reducing fire severity has been based on the subjective location of comparison sample points between thinned and adjacent unthinned forests. Fourth, reported results have often been based on theoretical models, which subsequent research has found to overestimate the effectiveness of thinning. Last, several case studies draw conclusions about the effectiveness of thinning as a wildfire management strategy when the results of those studies do not support such a conclusion, as reviewed in DellaSala et al. (2022)." (internal citations omitted)

DellaSala, D.A., B.C. Baker, C.T. Hanson, L. Ruediger, and W.L. Baker. 2022. Have western USA fire suppression and megafire active management approaches become a contemporary Sisyphus? Biological Conservation 268: Article 109499.

Thinning followed by burning increases overall fire severity.

With regard to a previous U.S. Forest Service study claiming that commercial thinning effectively reduced fire severity in the large Wallow fire of 2011 in Arizona, DellaSala et al. (2022, Section 5.1) conducted a detailed accuracy check and found that the previous analysis had dramatically underreported high-severity fire in commercial thinning units, and forests with commercial thinning in fact had higher fire severity, overall.

DellaSala et al. (2022, Section 5.2) also reviewed several U.S. Forest Service studies relied upon by Prichard et al. (2021) for the claim that commercial thinning is an effective fire management approach and found that the actual results of these cited studies did not support that conclusion.

Beschta, R.L.; Frissell, C.A.; Gresswell, R.; Hauer, R.; Karr, J.R.; Minshall, G.W.; Perry, D.A.; Rhodes, J.J. 1995. Wildfire and salvage logging. Eugene, OR: Pacific Rivers Council.

"We also need to accept that in many drier forest types throughout the region, forest management may have set the stage for fires larger and more intense than have occurred in at least the last few hundred years."

"With respect to the need for management treatments after fires, there is generally no need for urgency, nor is there a universal, ecologically-based need to act at all. By acting quickly, we run the risk of creating new problems before we solve the old ones."

"[S]ome argue that salvage logging is needed because of the perceived increased likelihood that an area may reburn. It is the fine fuels that carry fire, not the large dead woody material. We are aware of no evidence supporting the contention that leaving large dead woody material significantly increases the probability of reburn."

Morrison, P.H. and K.J. Harma. 2002. Analysis of Land Ownership and Prior Land Management Activities Within the Rodeo & Chediski Fires, Arizona. Pacific Biodiversity Institute, Winthrop, WA. 13 pp.

Previous logging was associated with higher fire severity.

Donato DC, Fontaine JB, Campbell JL, Robinson WD, Kauffman JB, Law BE. 2006. *Science* 311: 352.

"In terms of short-term fire risk, a reburn in [postfire] logged stands would likely exhibit elevated rates of fire spread, fireline intensity, and soil heating impacts…Postfire logging alone was notably incongruent with fuel reduction goals."

Hanson, C.T., Odion, D.C. 2006. Fire Severity in mechanically thinned versus unthinned forests of the Sierra Nevada, California. In: Proceedings of the 3rd International Fire Ecology and Management Congress, November 13-17, 2006, San Diego, CA.

"In all seven sites, combined mortality [thinning and fire] was higher in thinned than in unthinned units. In six of seven sites, fire-induced mortality was higher in thinned than in unthinned units…Mechanical thinning increased fire severity on the sites currently available for study on national forests of the Sierra Nevada."

Platt, R.V., et al. 2006. Are wildfire mitigation and restoration of historic forest structure compatible? A spatial modeling assessment. Annals of the Assoc. Amer. Geographers 96: 455-470.

"Compared with the original conditions, a closed canopy would result in a 10 percent reduction in the area of high or extreme fireline intensity. In contrast, an open canopy [from thinning] has the opposite effect, increasing the area exposed to high or extreme fireline intensity by 36 percent. Though it may appear counterintuitive, when all else is equal open canopies lead to reduced fuel moisture and increased midflame windspeed, which increase potential fireline intensity."

Cruz, M.G, and M.E. Alexander. 2010. Assessing crown fire potential in coniferous forests of western North America: A critique of current approaches and recent simulation studies. Int. J. Wildl. Fire. 19: 377–398.

The fire models used by the U.S. Forest Service falsely predict effective reduction in crown fire potential from thinning:

"Simulation studies that use certain fire modelling systems (i.e. NEXUS, FlamMap, FARSITE, FFE-FVS (Fire and Fuels Extension to the Forest Vegetation Simulator), Fuel Management Analyst (FMAPlus), BehavePlus) based on separate implementations or direct integration of Rothermel's surface and crown rate of fire spread models with Van Wagner's crown fire transition and propagation models are shown to have a significant underprediction bias when used in assessing potential crown fire behaviour in conifer

forests of western North America. The principal sources of this underprediction bias are shown to include: (i) incompatible model linkages; (ii) use of surface and crown fire rate of spread models that have an inherent underprediction bias; and (iii) reduction in crown fire rate of spread based on the use of unsubstantiated crown fraction burned functions. The use of uncalibrated custom fuel models to represent surface fuelbeds is a fourth potential source of bias."

DellaSala et al. (2013) (letter from over 200 scientists):

> "Numerous studies also document the cumulative impacts of post-fire logging on natural ecosystems, including…accumulation of logging slash that can add to future fire risks…"

DellaSala et al. (2015) (letter from over 200 scientists):

> "Post-fire logging has been shown to eliminate habitat for many bird species that depend on snags, compact soils, remove biological legacies (snags and downed logs) that are essential in supporting new forest growth, and spread invasive species that outcompete native vegetation and, in some cases, increase the flammability of the new forest. While it is often claimed that such logging is needed to restore conifer growth and lower fuel hazards after a fire, many studies have shown that logging tractors often kill most conifer seedlings and other important re-establishing vegetation and actually increases flammable logging slash left on site. Increased chronic sedimentation to streams due to the extensive road network and runoff from logging on steep slopes degrades aquatic organisms and water quality."

Bradley, C.M. C.T. Hanson, and D.A. DellaSala. 2016. Does increased forest protection correspond to higher fire severity in frequent-fire forests of the western USA? Ecosphere 7: article e01492.

> In the largest study on this subject ever conducted in western North American, the authors found that the more trees that are removed from forests through logging, the higher the fire severity overall:
>
> "We investigated the relationship between protected status and fire severity using the Random Forests algorithm applied to 1500 fires affecting 9.5 million hectares between 1984 and 2014 in pine (*Pinus ponderosa*, *Pinus jeffreyi*) and mixed-conifer forests of western United States, accounting for key topographic and climate variables. We found forests with higher levels of protection [from logging] had lower severity values even though they are generally identified as having the highest overall levels of biomass and fuel loading."

Dunn, C.J., et al. 2020. How does tree regeneration respond to mixed-severity fire in the western Oregon Cascades, USA? Ecosphere 11: Article e03003.

> Forests that burned at high-severity had lower, not higher, overall pre-fire tree densities.

Bartowitz, K.J., et al. 2022. Forest Carbon Emission Sources Are Not Equal: Putting Fire, Harvest, and Fossil Fuel Emissions in Context. Front. For. Glob. Change 5: Article 867112.

> The authors found that logging conducted as commercial thinning, which involves removal of some mature trees, substantially increases carbon emissions relative to wildfire alone, and commercial thinning "causes a higher rate of tree mortality than wildfire."

Evers, C., et al. 2022. Extreme Winds Alter Influence of Fuels and Topography on Megafire Burn Severity in Seasonal Temperate Rainforests under Record Fuel Aridity. Fire 5: Article 41.

> The authors found that dense, mature/old forests with high biomass and canopy cover tended to have lower fire severity, while more open forests with lower canopy cover and less biomass burned more severely.

F. In Real-World Examples, Has Thinning or Post-Fire Logging in Forest Wildlands, Distant from Towns, Been Effective at Protecting Homes and Lives from Wildfires?

No, this approach is associated with large-scale losses of homes and lives in wildfires. Previous mechanical thinning and post-fire logging was wildly ineffective and counter-productive as a wildfire management and community protection approach when the Dixie fire occurred, for example.

The images below, from the Washington Post, show the devastation of the town of Greenville, after the Dixie fire swept up from the southwest, moving rapidly northeast through vast areas that had been mechanically thinned, before destroying most of the towns of Greenville and Canyondam, along with the smaller town of Indian Falls.





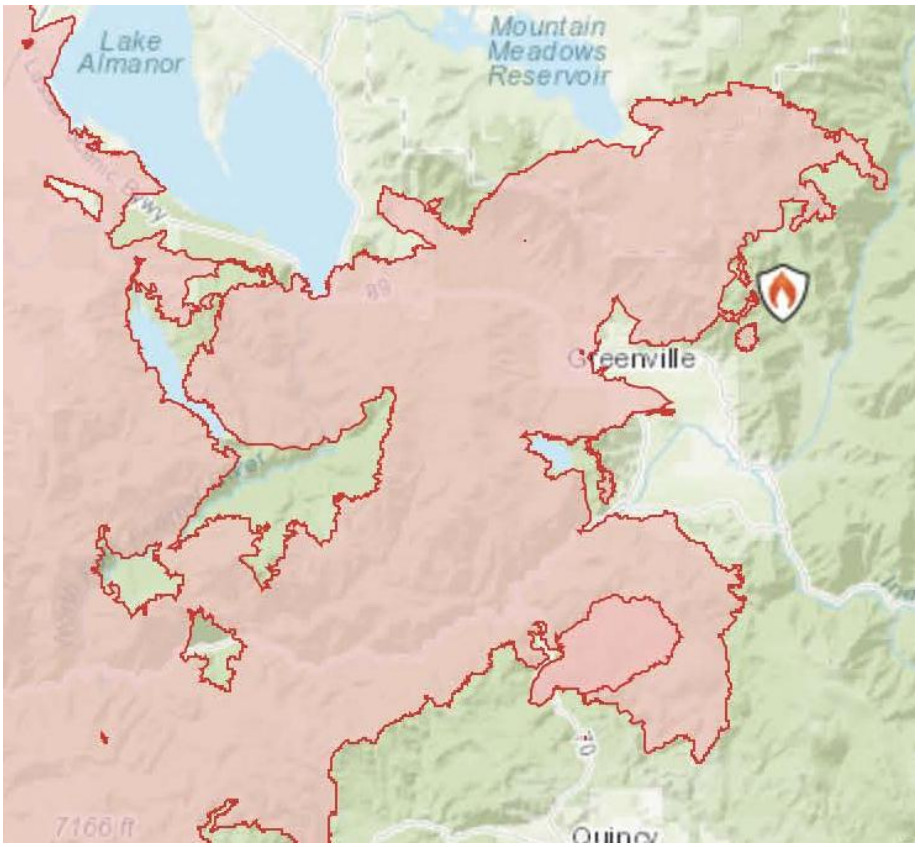




The images below, from Google Earth, show numerous large areas of pre-fire mechanical thinning and earlier post-fire logging (after the 2012 Chips fire around Butt Valley Reservoir) on the Plumas National Forest, southwest, south, and southeast of the Greenville, Canyondam, and

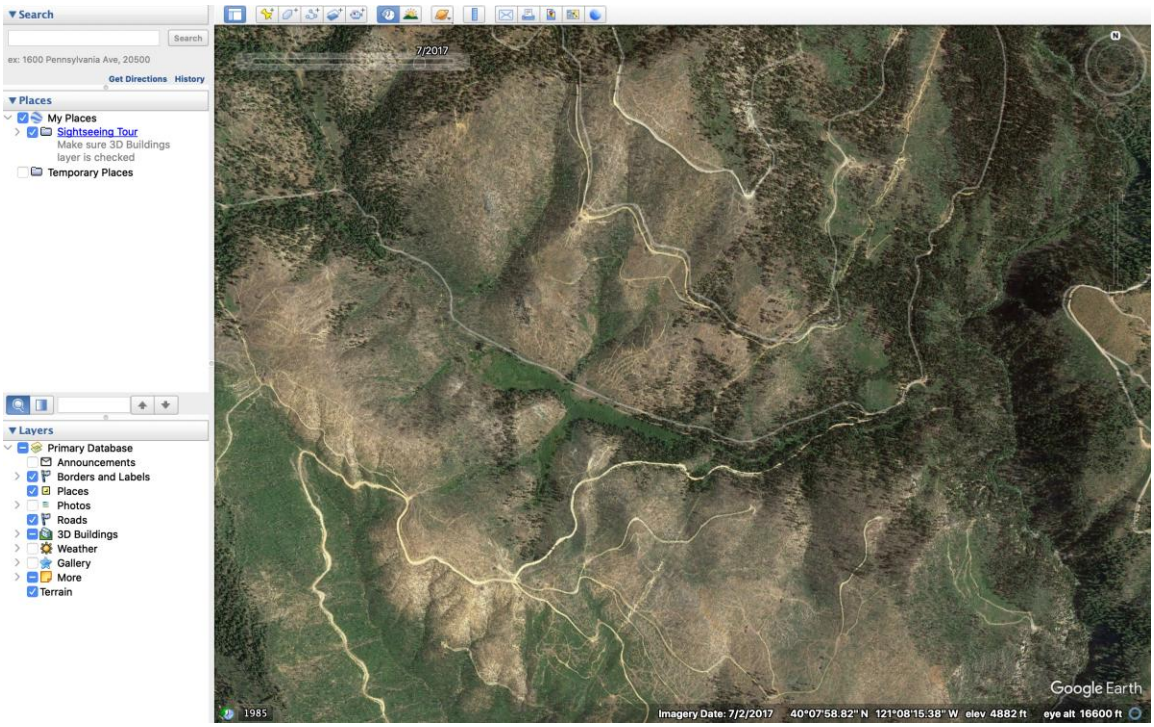
Indian Falls areas, through which the Dixie fire swept before destroying most of the homes and businesses. For each location a pair of images is shown—one after mechanical thinning but before the Dixie fire, and the other after the Dixie fire. GPS coordinates of the imagery locations are shown at the bottom right margin of each. Most of the mechanically thinned and post-fire logged forests burned at high intensity, as the post-fire images show.

The images below represent all areas of mechanical thinning and/or post-fire logging of any significant size that could be identified as occurring within 15 years or so prior to the 2021 Dixie fire, and which were within the path of the fire as it approached Greenville, Canyondam, and Indian Falls. As the images show, the Dixie fire burned mostly or entirely at high intensity through all such areas. For spatial context, each of these images shows an area that is several thousand acres in size.



Dixie fire perimeter map showing the area on August 7, 2021, immediately after the fire, moving from the southwest to the northeast, destroyed Greenville and Canyondam. The map is from the inter-agency wildfire site, Inciweb: https://inciweb.wildfire.gov

Image Pair #1: Extensive previous post-fire logging on the Plumas National Forest, northeast of Butt Valley Reservoir, and a short distance southwest of Canyondam. The first image is from July 2, 2017, after post-fire logging, and the second is from August 7, 2021, just one day after the Dixie fire burned through this area and destroyed Canyondam.



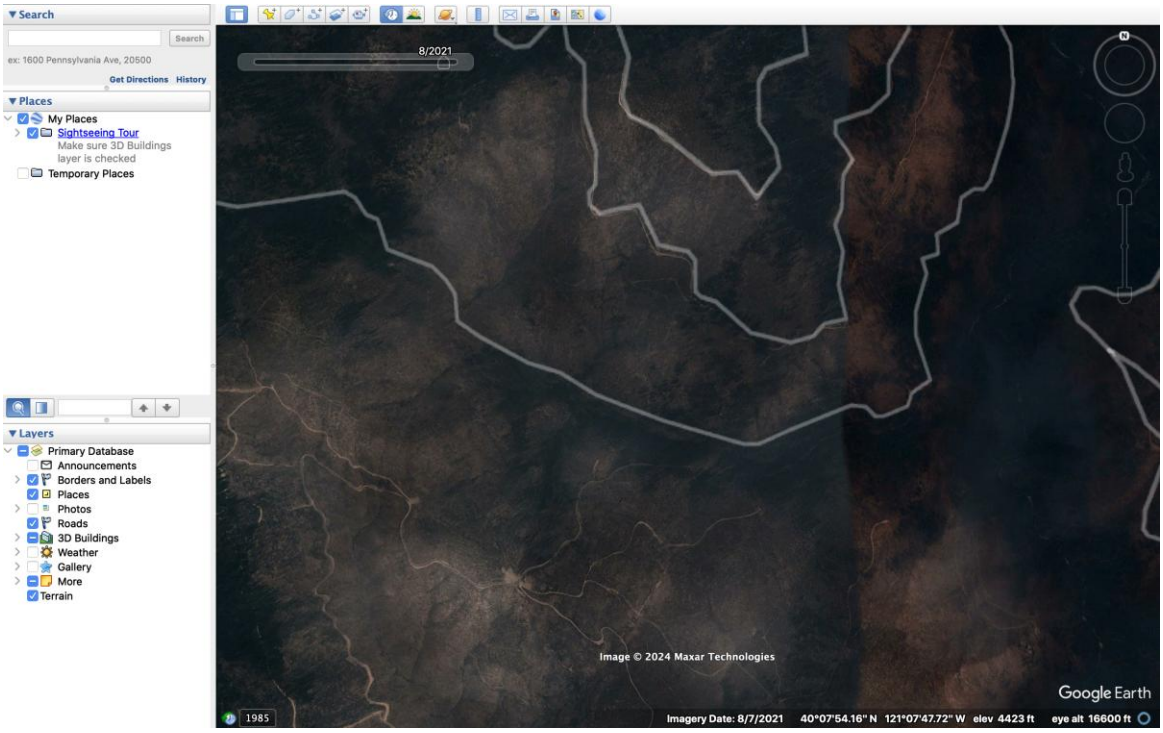
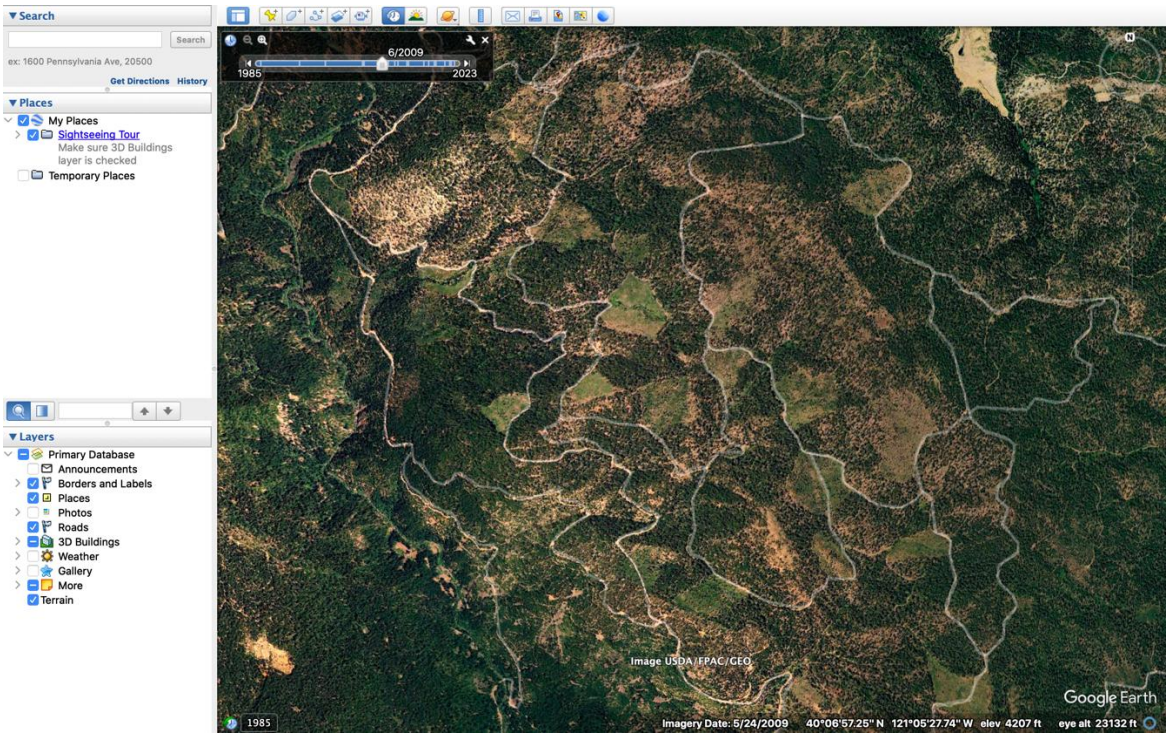


Image Pair #2: A large area that was mechanically thinned south of Canyondam. The first image is from May 24, 2009, after thinning, and the second image is from July 7, 2022 (note the almost total absence of live, green trees remaining in the thinned areas after the Dixie fire).



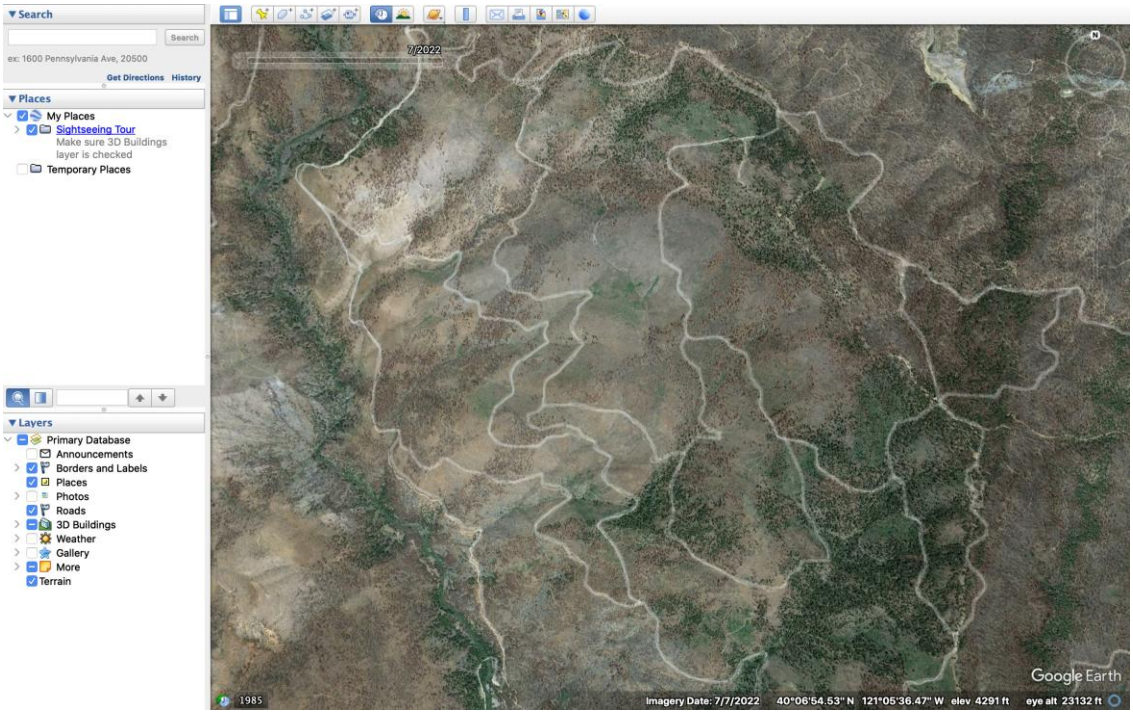
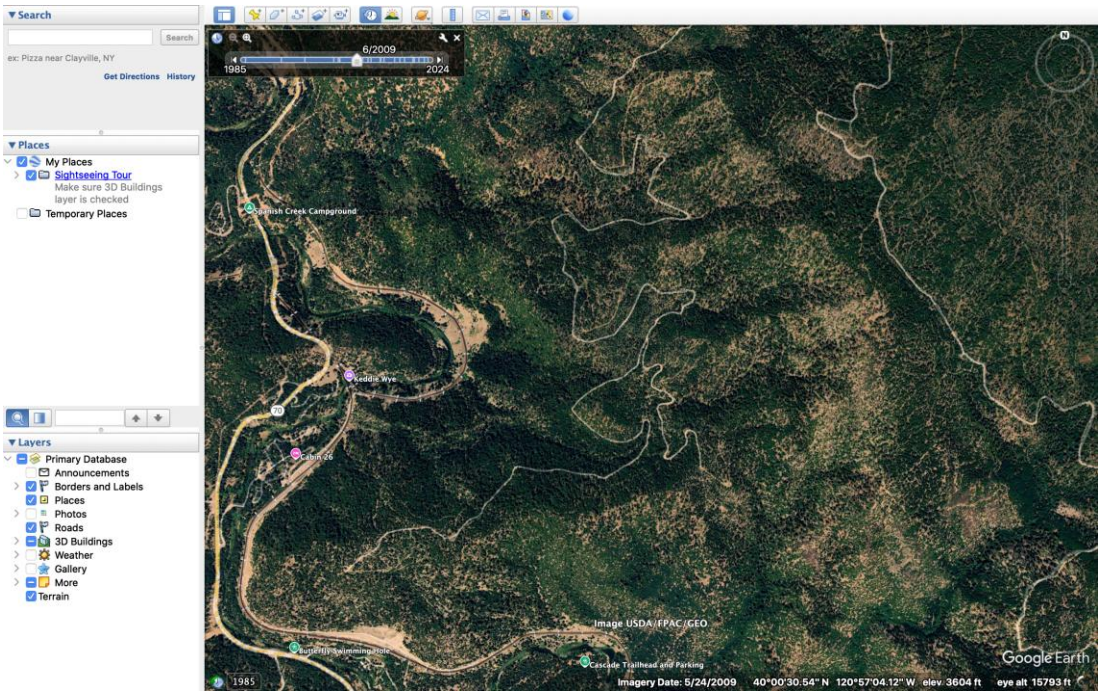


Image Pair #3: Mechanical thinning on the Plumas National Forest, south of Indian Falls. The first image is from May 24, 2009, after thinning, and the second is from July 7, 2022, after the Dixie fire. Note that nearly all of the thinned forest burned at high intensity, with 100% tree mortality in most areas.



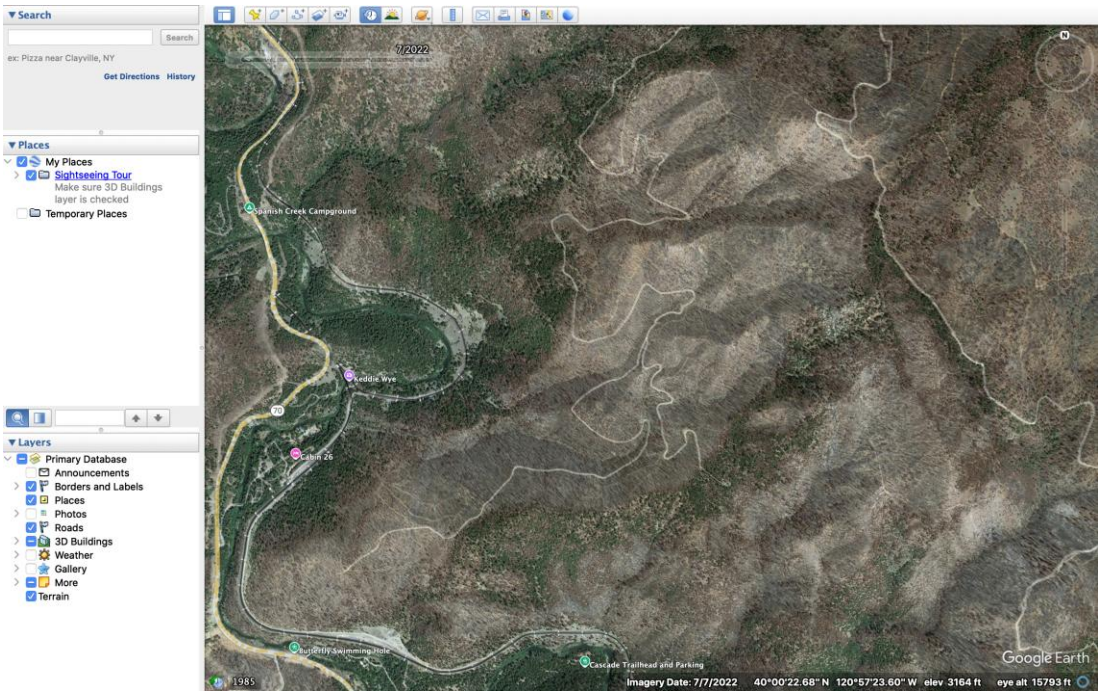
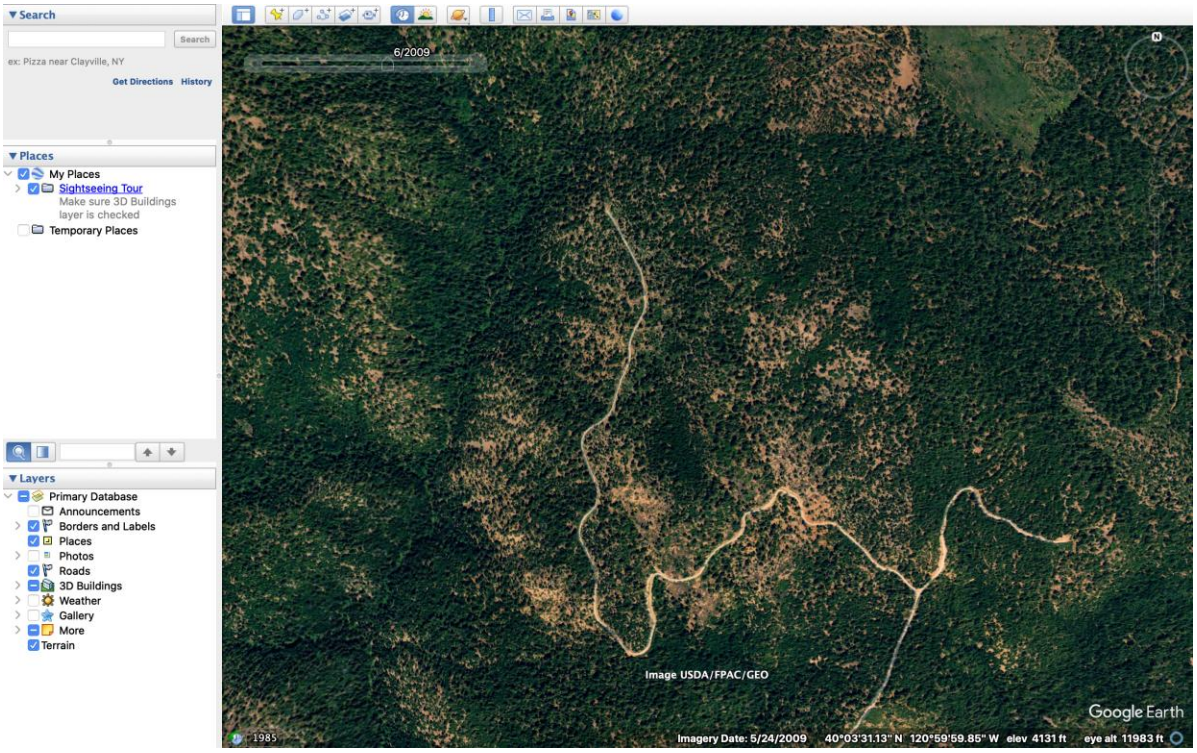


Image Pair #4: Mechanical thinning south of Greenville on the Plumas National Forest. The first image is from May 24, 2009. The second is from July 7, 2022, showing almost complete high-intensity fire effects in the thinned area.



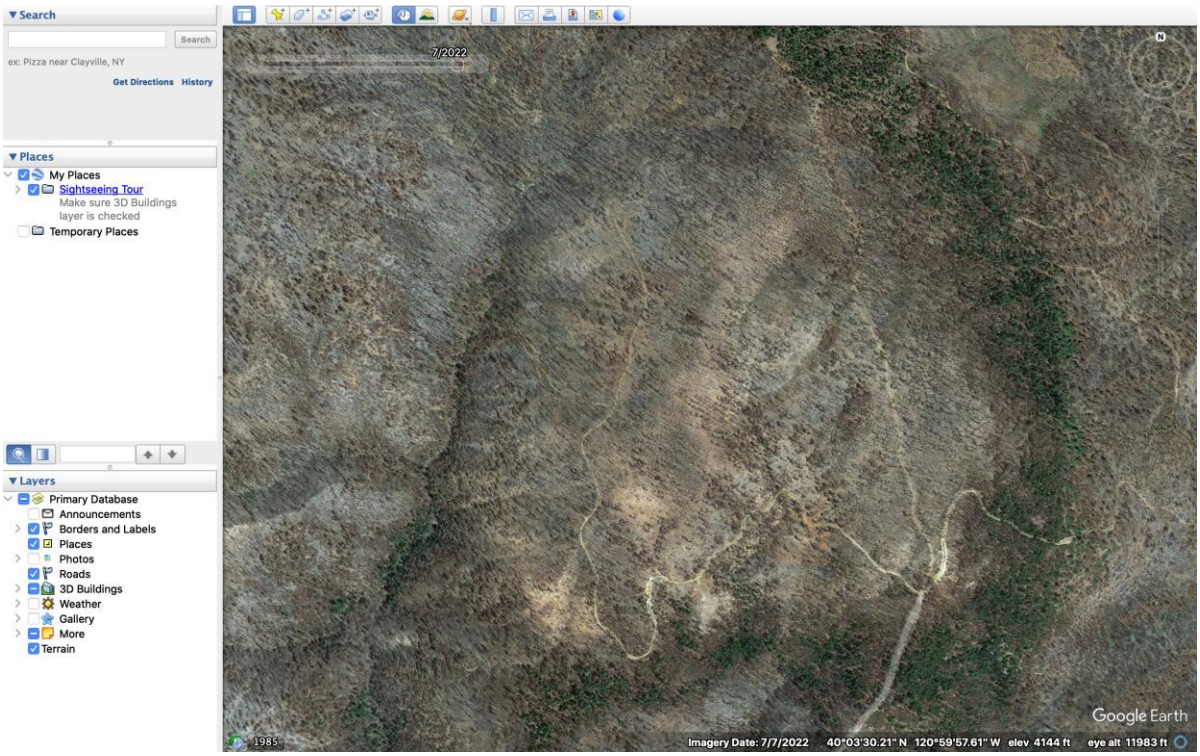
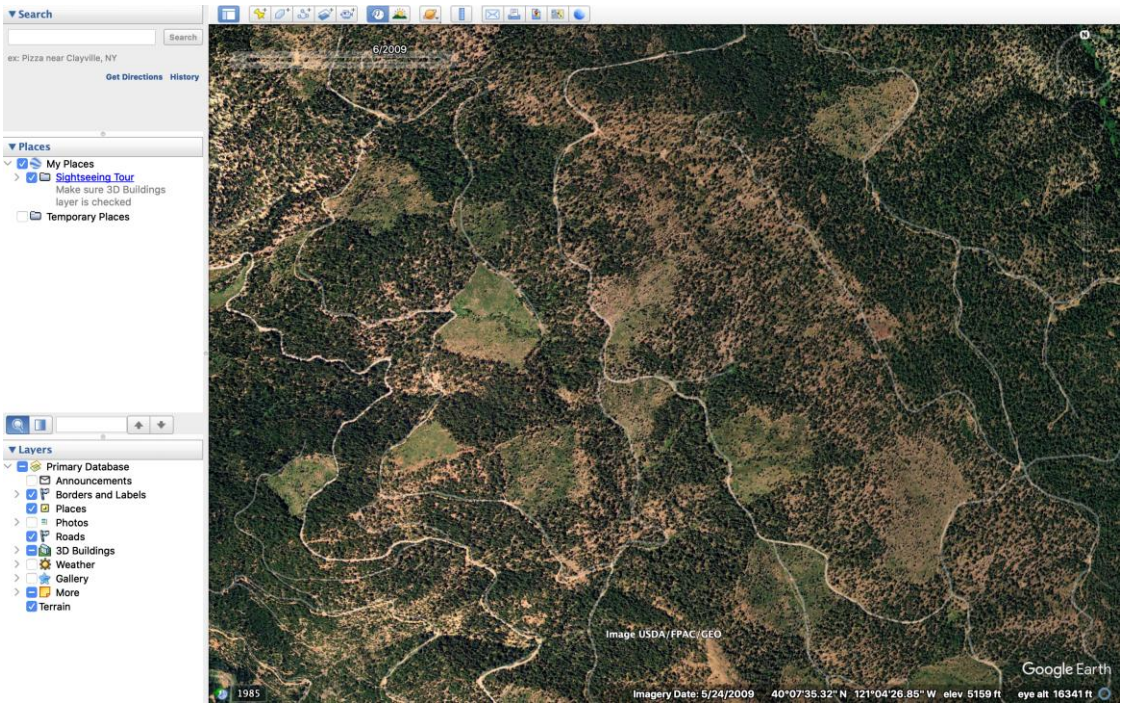


Image Pair #5: Postfire logging and mechanical thinning west of Greenville and south of Canyondam on the Plumas National Forest. The first image is from May 24, 2009, and the second is from July 7, 2022, after the Dixie fire. Once again, note that the thinned area is heavily dominated by high-intensity fire.



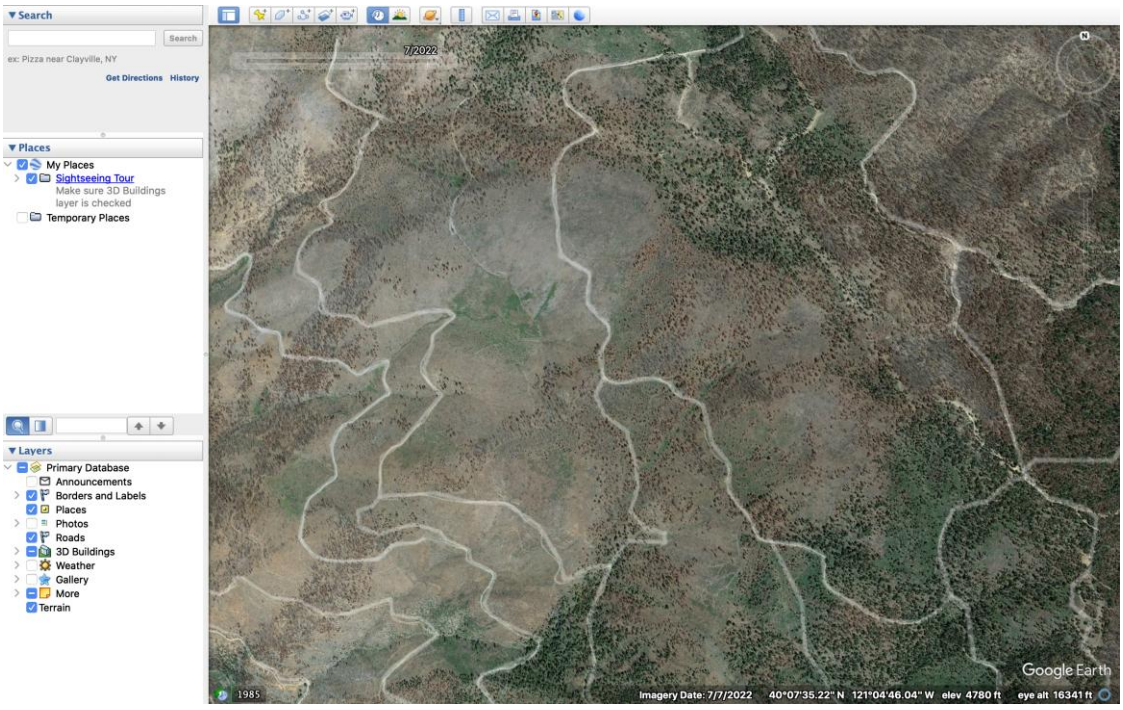
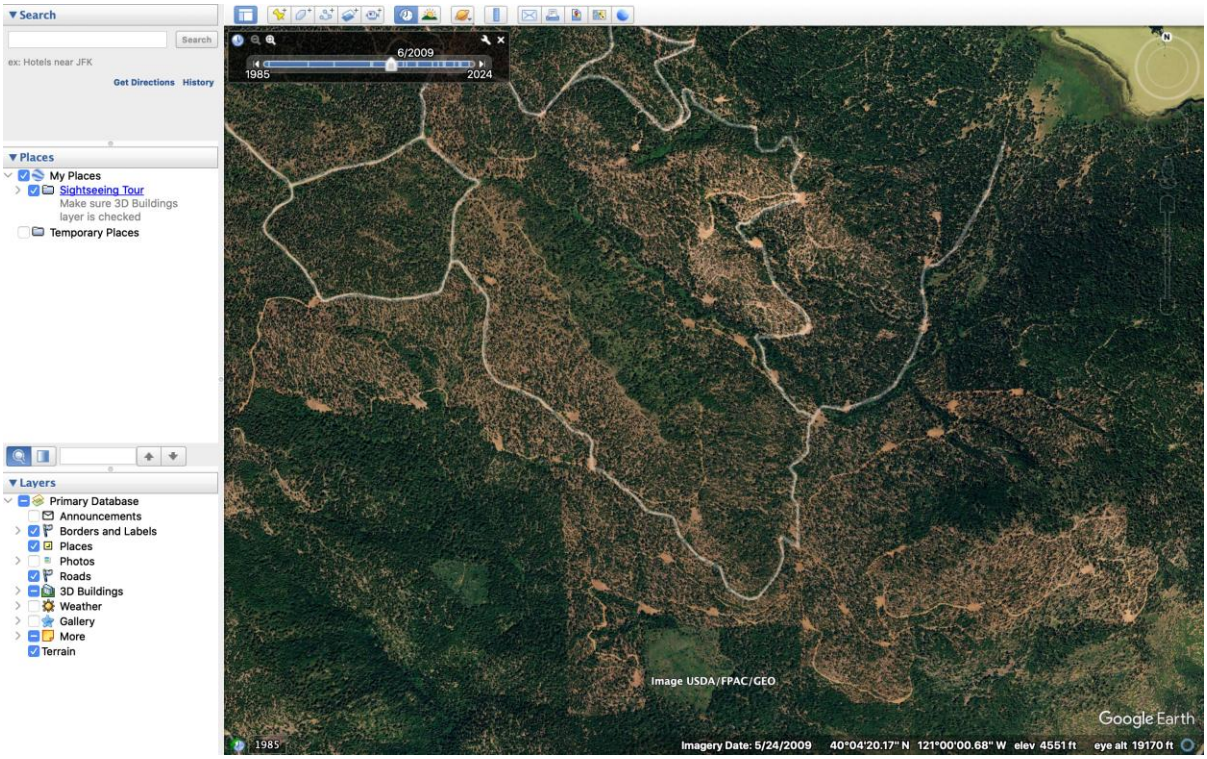
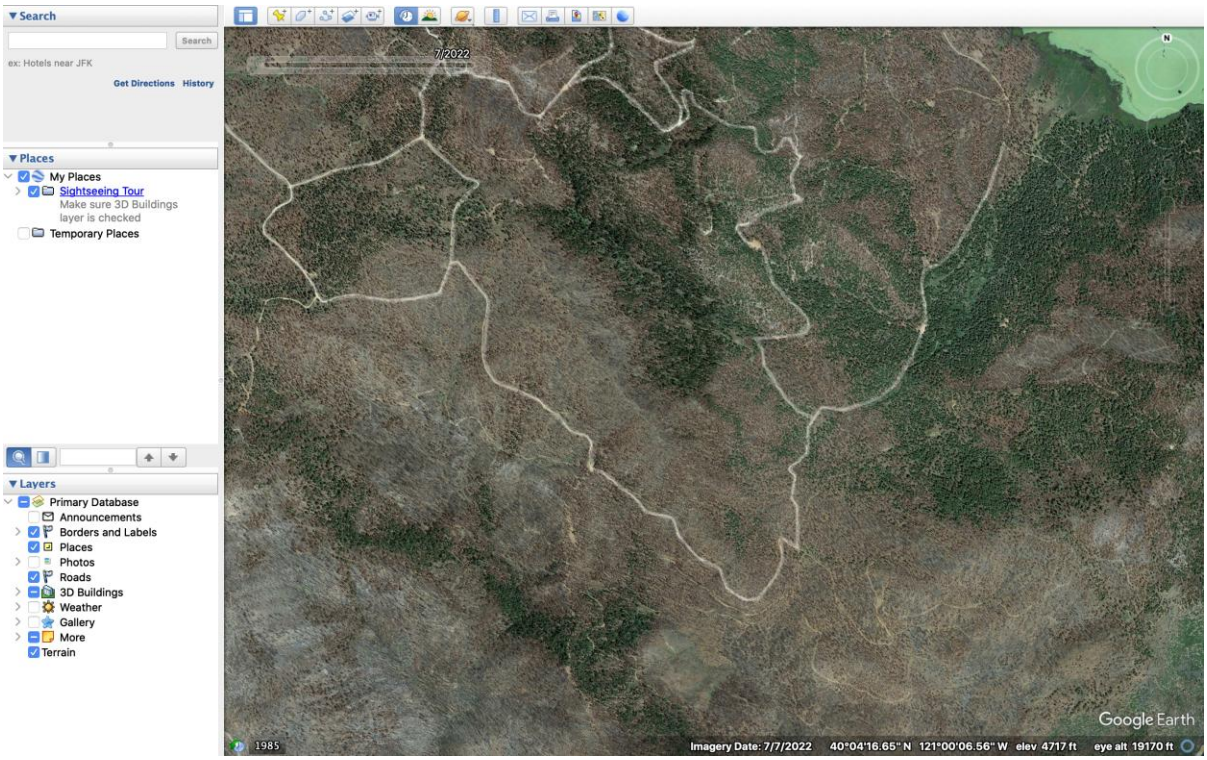
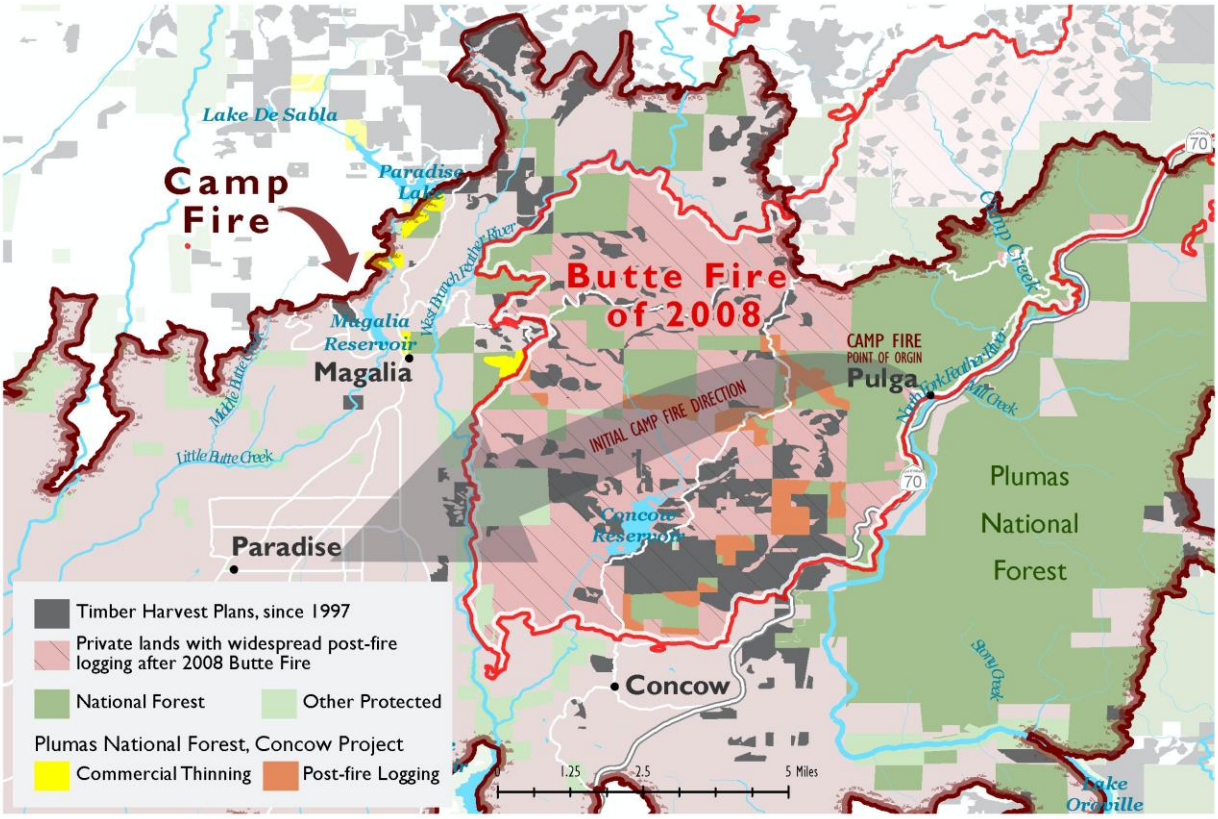


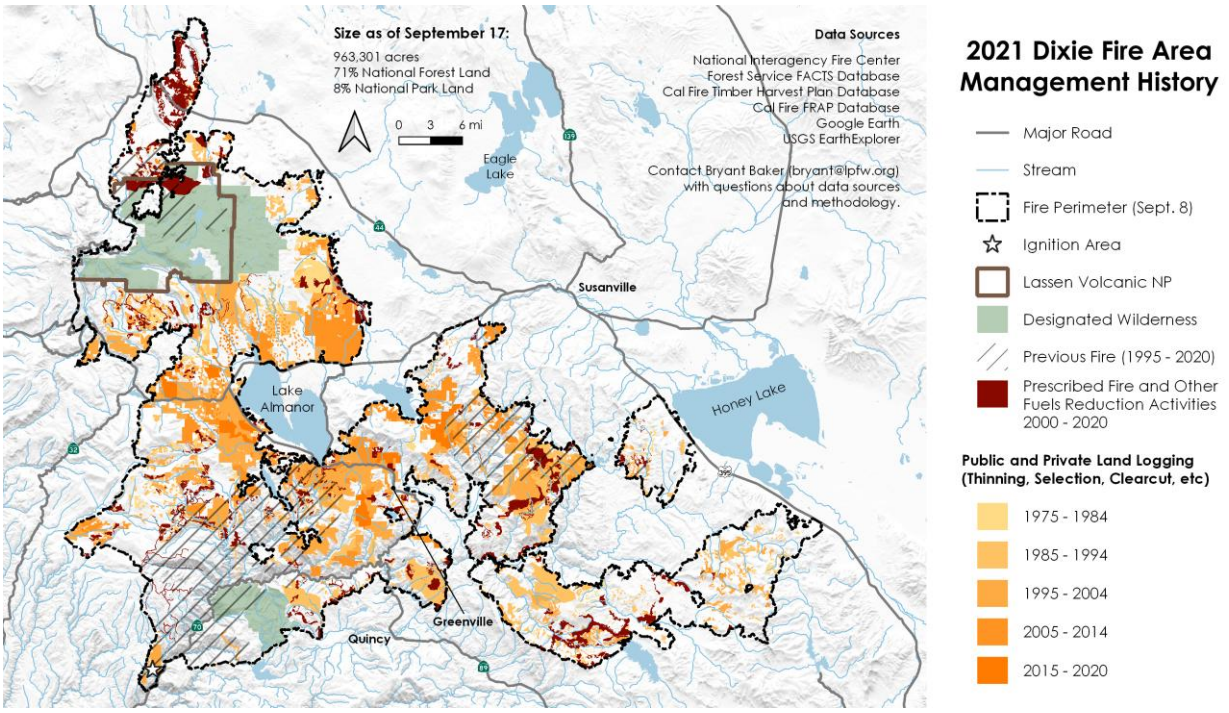
Image Pair #6: Mechanical thinning on private timberlands south of Greenville. The first image is from May 24, 2009, and the second is from July 7, 2022, after the Dixie fire, with the thinned areas heavily dominated by high-intensity fire.

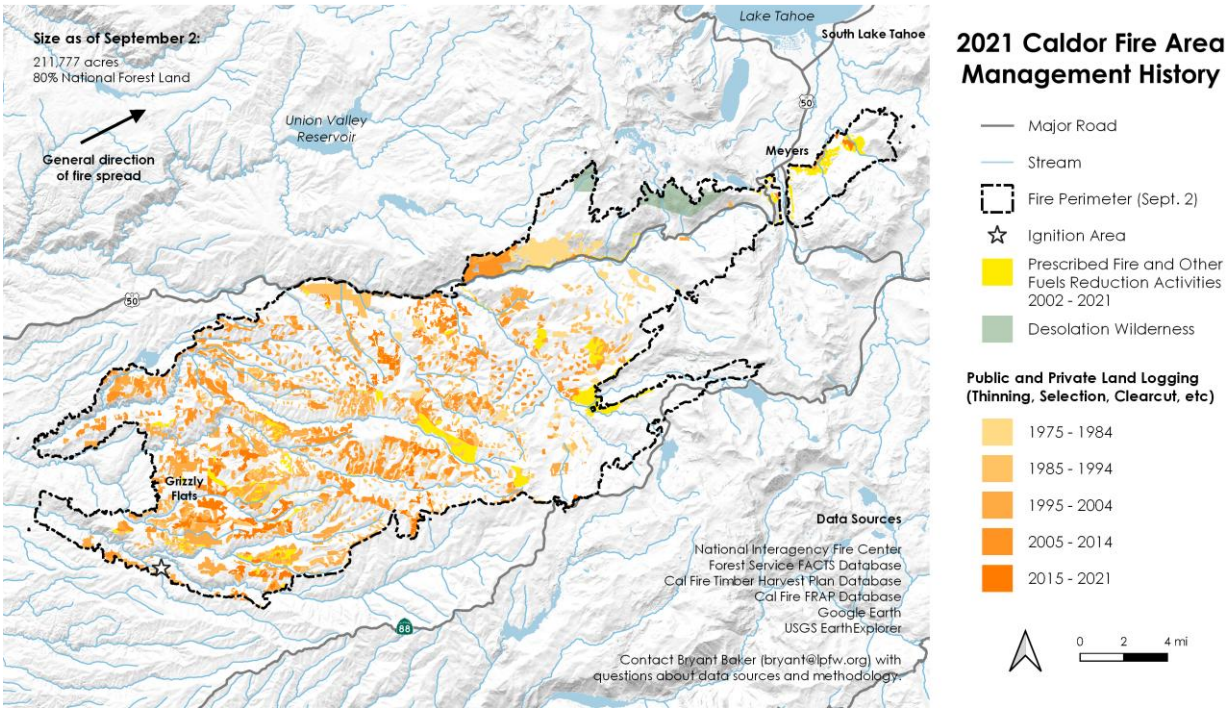


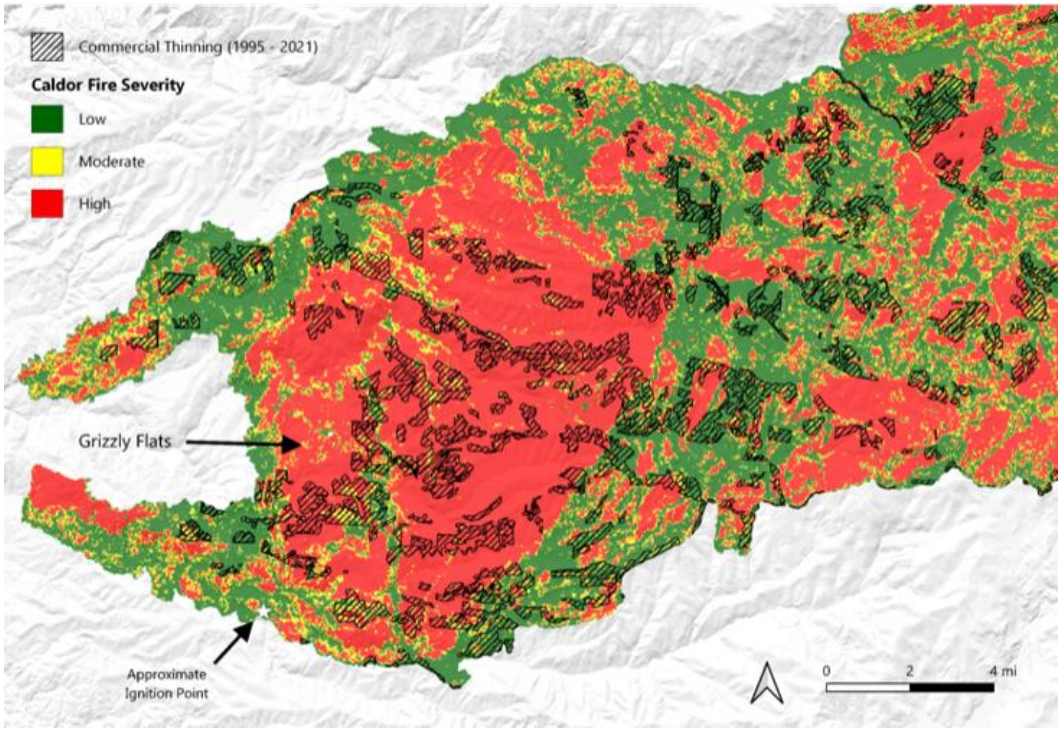


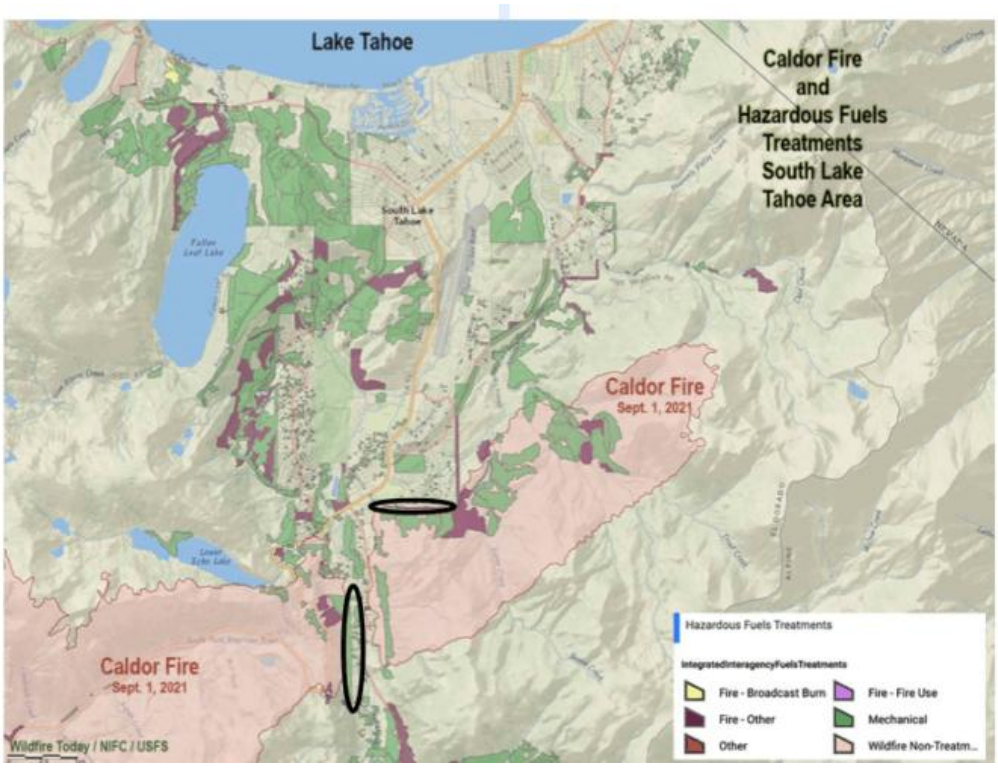
The approach of this proposal is the same approach that the Forest Service has pursued for many years, except this proposal promotes this approach on a much bigger scale. In brief, it involves mechanical thinning and post-fire logging of vast forest areas distant from communities based on the claim that this will either directly stop fires from reaching towns or indirectly stop fires by making fires burn much more slowly and so much less intensely that fire suppression crews can easily halt the fire before it reaches a community. This approach is a proven failure, as we have seen in Paradise (Camp fire of 2018), Greenville (Dixie fire of 2021), Grizzly Flats (Caldor fire of 2021), and Berry Creek and Feather Falls (North Complex fire of 2020), among others. Please see the maps below showing large areas of thinning and other so-called fuel-reduction logging around towns that were largely destroyed by the Camp fire, Dixie fire, and Caldor fire, respectively.




Size as of September 17:
963,301 acres
71% National Forest Land
8% National Park Land
0 3 6 mi
Eagle Lake
Data Sources
National Interagency Fire Center
Forest Service FACTS Database
Cal Fire Timber Harvest Plan Database
Cal Fire FRAP Database
Google Earth
USGS EarthExplorer
Contact Bryant Baker (bryant@lpfw.org) with questions about data sources and methodology.
Susanville
Lake Almanor
Honey Lake
Greenville
Quincy
2021 Dixie Fire Area Management History
Major Road
Stream
Fire Perimeter (Sept. 8)
Ignition Area
Lassen Volcanic NP
Designated Wilderness
Previous Fire (1995 - 2020)
Prescribed Fire and Other Fuels Reduction Activities 2000 - 2020
Public and Private Land Logging (Thinning, Selection, Clearcut, etc)
1975 - 1984
1985 - 1994
1995 - 2004
2005 - 2014
2015 - 2020


Size as of September 2:
211,777 acres
80% National Forest Land
General direction of fire spread
Lake Tahoe
South Lake Tahoe
Union Valley Reservoir
Meyers
Grizzly Flats
Data Sources
National Interagency Fire Center
Forest Service FACTS Database
Cal Fire Timber Harvest Plan Database
Cal Fire FRAP Database
Google Earth
USGS EarthExplorer
Contact Bryant Baker (bryant@lpfw.org) with questions about data sources and methodology.
2021 Caldor Fire Area Management History
Major Road
Stream
Fire Perimeter (Sept. 2)
Ignition Area
Prescribed Fire and Other Fuels Reduction Activities 2002 - 2021
Desolation Wilderness
Public and Private Land Logging (Thinning, Selection, Clearcut, etc)
1975 - 1984
1985 - 1994
1995 - 2004
2005 - 2014
2015 - 2021
0 2 4 mi





Map from Wildfire Today, showing the Caldor fire racing right through “thinning” units in wildlands but stopping at or immediately adjacent to private property boundaries, where defensible space pruning had been conducted on private lands and a short distance on to the National Forest. Map

accessed here. Black ovals have been added to show where the fire stopped in defensible space areas adjacent to homes.

G. Is Thinning or Other Tree Removal Necessary Prior to Burning, Including Managed Wildfire, Prescribed Fire, and Indigenous Cultural Burning?

No. The Forest Service now acknowledges that "it is known that tree removal is not required before prescribed fire can be used" (USFS 2023a. Community Protection Project – Central and Western Slope. Response to Comments. Plumas National Forest, Quincy, CA). The Forest Service also now admits that thinning plus burning costs six times more per acre than burning alone (USFS 2023b Community Protection Project – Central and Western Slope. Environmental Assessment. Plumas National Forest, Quincy, CA). As Forest Service scientists noted in North et al. (2015: https://courses.seas.harvard.edu/climate/eli/Courses/global-change-debates/Sources/Forest-fires/more/North-etal-2015-short-perspective.pdf), "…fire is usually more efficient, cost-effective, and ecologically beneficial than mechanical treatments." Because no thinning is necessary prior to burning, lower-intensity prescribed natural fires (managed wildfires), controlled burns, and Native American cultural burning can be applied in a very cost-effective way within areas where low-intensity surface fire is in deficit (Baker et al. 2023: https://www.mdpi.com/2571-6255/6/11/428).

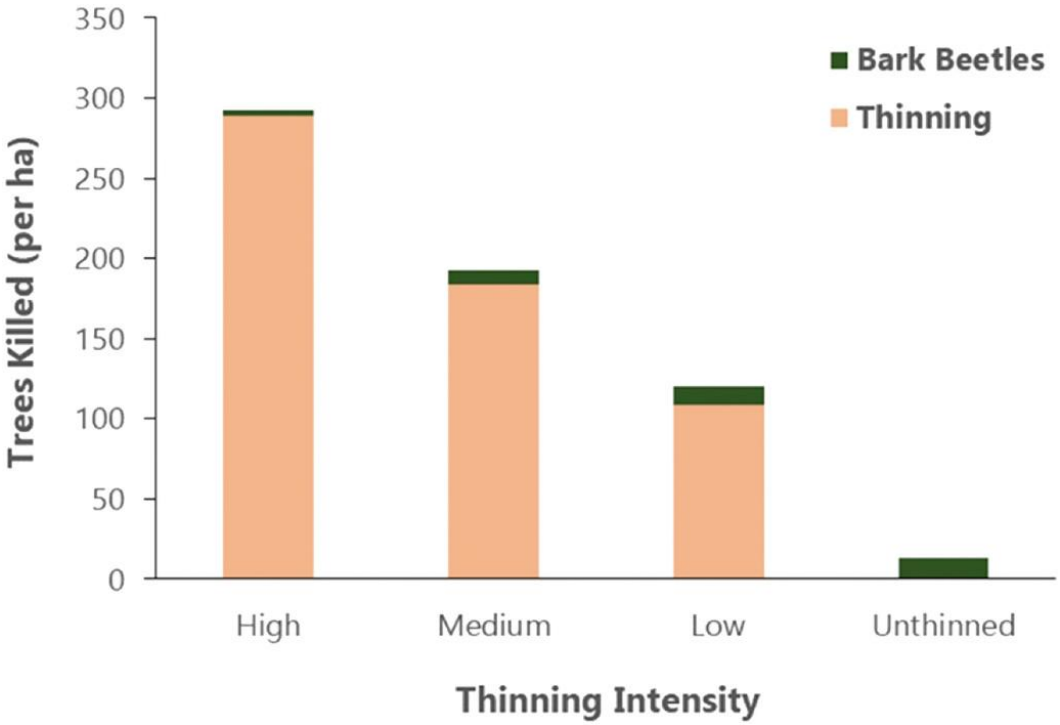
Even thinning of small, subcanopy trees is not necessary prior to introducing or restoring fire, based on half a century of studies, most of which were authored by Forest Service and other government scientists. The table below concisely summarizes some of the many studies indicating that fire alone can be applied, during natural fire season, in Western U.S. conifer forests without prior tree removal, including in the very densest and most long-unburned forests. Land managers simply conduct or allow burning during mild to moderate fire weather.

Study	Type of Fire	Brief Summary of Significance
Keifer (1998)	Controlled burn	Successful lower-intensity prescribed fire in a forest with 498 trees per acre and 64 tons per acre of surface fuel
Stephens and Finney (2002)	Controlled burn	Successful lower-intensity prescribed fire in a forest with 93 tons per acre of surface fuel (downed woody material plus duff and litter) and 286 trees per acre
McClure et al. (2024)	Managed wildfire and controlled burn	Documenting successful use of managed wildfires and controlled burns over 35 years in forests of the Southwestern U.S., with overwhelmingly low-intensity fire effects
Knapp and Keeley (2006)	Controlled burn	Effective lower-intensity prescribed fire, during both early and late fire season, in a dense forest with 301 square feet per acre of basal area that had not burned for 123 years
Knapp et al. (2005)	Controlled burn	Effective lower-intensity prescribed fire, during early and late fire season, in a dense forest with over 80 tons per acre of surface fuel, which had not burned in over 120 years
York et al. (2022)	Controlled burn	Successful lower-intensity spring and fall prescribed fire in 13-14 year-old mixed-conifer plantations with 170 trees per acre

Stephens et al. (2021)	Managed wildfire	Successful mostly lower-intensity managed wildfire over several decades, in unmanaged mixed-conifer forests of Yosemite National Park
Zachmann et al. (2018)	Controlled burn	Successful lower-intensity prescribed fire in a 20-year analysis in dense mixed-conifer forests of the Lake Tahoe Basin, with 204 trees per acre and 257 square feet of basal area per acre
van Mantgem et al. (2013)	Controlled burn	Successful lower-intensity prescribed fire in seven national parks, monuments, and recreation areas in different forest types, including ponderosa pine, across the Western U.S.
van Mantgem et al. (2011)	Controlled burn	Successful lower-intensity prescribed fire in September and October in a dense forest that had not burned since circa 1870, and had 81 tons per acre of surface fuel, and 170 trees per acre
Collins and Stephens (2010)	Managed wildfire	Successful application of mostly lower-intensity managed wildfire, over 30 years in mixed-conifer forests of Yosemite National Park
Webster and Halpern (2010)	Controlled burns and managed wildfires	Successful application of lower-intensity controlled burns and managed wildfires over two decades in unmanaged mixed-conifer forests of Sequoia and Kings Canyon National Parks
Kobziar et al. (2009)	Controlled burn	Effective application of lower-intensity prescribed fire in the last week of June within a 32-year old ponderosa pine and Jeffrey pine plantation, with 149 trees per acre
Collins et al. (2007)	Managed wildfire	Mixed-intensity managed wildfires successfully restored natural habitat heterogeneity in Yosemite mixed-conifer forests
Fule´ et al. (2004)	Controlled burn	Successful application of mixed-intensity prescribed fire, during fire season, in September, in dry forests of Grand Canyon National Park that had 134 trees per acre and had not burned since 1879
Kilgore and Sando (1975)	Controlled burn	Successful lower-intensity prescribed fire in late fire season in a forest with 83 tons per acre of surface fuel

H. By Killing and Removing Some Trees, Does Thinning Save More Trees Compared to Drought and Native Bark Beetles?

No. Thinning kills vastly more trees than it prevents from being killed by drought and native bark beetles, based on the Forest Service's own data. Below is a figure from Lindenmayer et al. (2025: https://www.sciencedirect.com/science/article/pii/S0006320725001089), using Forest Service data (Fettig et al. 2012), demonstrating the dramatic overall increase in tree mortality that results from thinning predicated on the assumption that it will "save" trees from drought and bark beetles (figure courtesy of Bryant Baker).



I. Do Dead Trees Increase Wildfire Behavior?

No. The overwhelming weight of science from the largest and most comprehensive studies find either no effect of higher densities of snags on wildfire intensity/severity (Bond et al. 2009, Hart et al. 2015, Hart and Preston 2020, Hanson 2021), or finds lower overall wildfire severity in areas with higher levels of snags and downed logs from previous tree mortality resulting from drought and native bark beetles (Meigs et al. 2016).

J. Are Snags (Standing Dead Trees) and Patches of Snags a Negative Indicator of the Ecological "Health" of Forests?

No, it's quite the opposite. Patches of dead trees, or snags, resulting from wildfire or drought and native bark beetles, are called "complex early seral forest habitat", also known as "snag forest habitat". This unique forest habitat type is comparable to old growth forest in terms of native biodiversity and wildlife abundance, based on quite literally hundreds of scientific studies on this subject, which are cited and summarized in two books, DellaSala and Hanson (2024: https://shop.elsevier.com/books/mixed-severity-fires/dellasala/978-0-443-13790-7) and Hanson (2021: https://www.kentuckypress.com/9780813181073/smokescreen/).

IX. Wilderness comments

In our comments on previous forest planning efforts in the Blue Mountains, we strongly advocated increasing recommended potential wilderness to include all existing roadless areas and other applicable locations with wilderness quality lands. Our organizations selected a representative example from each national Forest in the Blue Mountains region (addressed specifically later in this objection). In our previous DEIS comments, and subsequent Objections,

we presented a detailed critique of the Forest Service's potential wilderness evaluation process, with recommendations to improve upon the EIS analysis concerning wilderness quality lands. Ecological science, including the science regarding ongoing climate change, emphasizes the need to protect unroaded areas to maintain and recover their wilderness characteristics pending eventual legislation and designation, and to provide for existing uses where compatible with protecting wilderness character.

Ecologists (Noss et al. 1995; Noss and Peters 1995) have determined that old growth ponderosa pine forests constitute one of America's most endangered ecosystems. They report that old-growth ponderosa pine has suffered an estimated 85-98% area loss due to destruction, conversion to other uses, and significant degradation in structure, function, and composition. While faring better than most forested areas, the Blue Mountains region has suffered loss of most of much of its original old growth ponderosa pine. Logging, which continues to this day, is one of the principal causes of this decline.

With its emphasis on protecting and restoring all natural processes, wilderness designation provides the highest level of protection for the full range of native species (Hendee and Mattson 2002). Although administratively designated roadless areas (e.g., wildlife habitat areas and inventoried roadless areas) provide some ecological protection of wildlife habitat, the agency historically has sacrificed roadless areas and wildlife protection in favor of resource extraction and motorized recreation (Forest Service 2000; Crist and Wilmer 2002; Concerned Scientists 2004; DellaSala and Frost 2001; DeVelice and Martin; Heilman et al 2002; Loucks et al. 2003; Noss and Cooperidder 1994; Noon et al. 2003; Strittholt and DellaSalla 2001). The passage of the 1964 Wilderness Act was Congress's response to federal land management agencies' failure to protect these values (Frome 1997). The proposed wilderness additions, we and other conservation organizations have emphasized in our previous comments, would protect critical wildlife linkages and important core refugia essential to "afford perpetual protection to the native fauna and flora" (U.S. Congress 1905).

Several additional studies have shown the importance and value people place on these passive use benefits of wilderness (Cordell et al. 1999). These values or needs are reflected in the National Survey on Recreation and the Environment finding that roughly 70 percent of those surveyed agreed or strongly agreed to the question, "How do you feel about designating more Federal lands in your state as wilderness?" Over 96 percent agreed or strongly agreed with the statement, "I enjoy knowing that future generations will be able to visit and experience wilderness areas." As we clearly demonstrate in the following herein, the agency's Potential Wilderness Area recommendations in this DEIS fail to provide adequate interim protection of the Blue Mountains region's three National Forests' significant but endangered de facto wilderness, nor does it reflect the public desire to protect this vanishing resource.

Section 2(c) of The Wilderness Act, "Definitions of Wilderness," states:

A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized 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 Act 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.

Ecological benefits of protecting wilderness quality, ecologically more intact areas include: maintaining species diversity, conserving a "reservoir" of ecological processes and a diversity of genetic material, protecting threatened and endangered species, protecting watersheds, maintaining large, contiguous, nonfragmented wildlife habitats, maintaining inherent natural resilience, and serving as a base line for natural conditions to compare with changes in other environments (Dawson and Hendee 2009).

The 2018 FEIS for the Blue Mountains Forest Plans Revision in part acknowledges this, while its developed alternatives fail to embody this: "Wilderness serves as a baseline demonstrating the functions of healthy ecosystems that can be contrasted with human activities that change our world. Wilderness areas provide a variety of valuable ecosystem services including carbon sequestration, watershed protection, and air quality, and may contain habitat for numerous threatened and endangered species and other rare biological resources. Managing an area to protect its wilderness character provides unique opportunities and benefits for present and future generations that may otherwise be irreparably lost." (2018 FEIS pg. 221)

The quality and value of our non-profit conservation organization's members' and volunteers' recreational, educational, natural, aesthetic and other activities throughout the greater project area will be irreparably harmed if the BMFPR DEIS is implemented as currently stated. The long term ramifications of this regional, three National Forests, planning document would result in significant adverse impacts to the region's forests, harming its ecological integrity, wildlife and avian species, and native plants and soil communities, causing further forest fragmentation, and would likely increase the risk of severe fires on public and private lands across the region given that it would open millions of acres of resilient wilderness quality lands to the known harms of logging and other resource management extraction activities. If implemented, the DEIS would result in irreparable harms to the area's rare more ecologically intact forest environment, wildlife habitat, and scientific and natural recreational values, causing significant harms to the interests of the members and volunteers of our organization. The DEIS failure to acknowledge the importance of protecting all existent roadless and wilderness quality lands would preclude the current and future ability to learn from ongoing resilient natural forest processes throughout most of the rare remaining more ecologically intact wilderness quality unroaded lands across the three Blue Mountains forests.

As presented, the DEIS proposed alternatives significantly diverge from scientifically credible research and appropriate management methods for the Blue Mountains region's National Forests. The DEIS analysis failed to accurately and adequately address the ecological rarity and paramount importance of the region's remaining wilderness quality roadless area forest ecosystems. The DEIS failed to responsibly address the critical importance of all these disparate areas across the region's landscape as essential habitat and refugia for ESA and State listed species and regional species of concern. The DEIS failed to adequately address the role all of the wilderness quality roadless area lands play in essential habitat connectivity, providing for the genetic viability of current and future generations of listed species and species of concern. Additionally, the DEIS failed to sufficiently address and accurately disclose that these more

ecologically intact locations are rare places across the forest landscape where significant ecological evidence indicates these areas are not outside the natural range of fire cycle and disturbance patterns – elevating their irreplaceable importance in recovering the ecological integrity of the region's public lands forests.

Ecologically the Blue Mountains Forest Plan Revision DEIS analysis alternative provisions are in direct contravention to sound scientific recommendations, long-term ecological objectives, the natural structure and cycles of the region's forests, and native species habitat and viability requirements. The forthcoming FEIS must be substantively revised to incorporate ecologically credible science research recommendations and meaningful, enforceable standards and guidelines.

The DEIS would open the majority of scant remaining wilderness quality public lands to irreparable management degradation, including widespread logging, road building, off road vehicle intrusions, and other management harms. Logging degradation unleashed by this legally deficient process would result in the extensive use of soil community damaging heavy ground-based logging machinery, resulting in significant irreparable degradation across the region's forests to otherwise rare relatively intact natural forest ecology and biodiversity. The DEIS would open logging and management harms across areas that credible scientific research emphasizes are best left to their ongoing natural ecological cycles.

The DEIS provisions will harm the environment in a number of significant ways that the Forest Service has not objectively disclosed in the DEIS. The EIS provides a scientifically unfounded, contrived, and ecologically ignorant analysis and misrepresentation of planning issues and impacts.

The DEIS's developed alternatives and supporting analysis do not meet NEPA's requirements for at least the following reasons:

- The DEIS does not accurately present the range of readily available research on the imperative roles wilderness quality unroaded lands play, including increased forest carbon sequestration, and significantly greater inherent resilience to the likely and as yet unknown impacts of ongoing climatic change, yet this information is foundational to the region's long-term ecological resilience.

- The DEIS fails to objectively disclose and address scientific research that recommends strongly against the opening of well-over 1.7 million acres of potential wilderness to logging rationales, nor does the DEIS objectively present scientific research addressing the excessive irreparable harms of such logging across the landscapes of all three Blue Mountains forests.

- The DEIS stated purpose and need objectives are not consistent with range of presented alternatives, which would open vast areas of wilderness quality unroaded forests to unwarranted and damaging logging and road building. Unroaded, more ecologically intact forests contain many of the larger, more fire-resistant trees in moderate- to higher-elevation forests. Opening these areas to damaging logging

would needlessly remove many mature and old trees that currently provide forest structure essential to ongoing natural forest cycles and long-term resilience.

- The DEIS does not adequately disclose and address the project's direct and cumulative effects pertaining to wilderness quality unroaded areas. Direct effects along with widespread cumulative impacts and overall fragmentation from past, recent, and ongoing logging and other management projects throughout the forest, need to be assessed at both a localized and a landscape-scale.

- The DEIS fails to objectively and reasonably consider that its failure to protect all of the rare remaining ecologically intact unroaded areas will severely limit future research on natural forest functioning, resilience, and disturbance cycles and patterns in these rare wilderness quality areas. The region's unlogged, unroaded forests have naturally regenerated across the millennia from recurrent natural disturbance cycles including wildfire. These locations have experienced relatively little or no management impacts in comparison with the region's surrounding extensively managed forest landscape. The DEIS would unreasonably preclude future scientific research opportunities to learn from the area's rare locations with ongoing natural ecological processes and cycles. It is unfortunate that these future opportunities would be incrementally yet irretrievably lost if this DEIS is implemented, as such research could help better inform forest management during this current era of exponentially increasing climate change and cumulative human disturbance across the region's once natural forest landscapes. Indeed, the bulk of credible scientific research pertaining to climate change emphasizes the essential importance of all rare remaining wilderness quality lands, where natural cycles and established resilience are prominent. While the DEIS skirts at these issues, it utterly fails to simply state this reality straight out in a clear manner the public can readily understand, choosing obfuscation and evasion instead.

- The approximately 1.7 million acres of wilderness quality lands that this DEIS would fail to protect would be far better protected and set aside from harmful management intrusions. As such these areas could help facilitate better scientific understanding of natural forest processes and functioning. These rare ecologically resilient unroaded areas have an unequalled capacity to serve as templates of relatively intact dynamic natural forest ecological processes, cycles, adaptation and functioning. These remaining unroaded more ecologically intact areas can help inform and guide research-based restoration objectives elsewhere, across the region's landscape of severely management altered and degraded forest habitat. Their response and resilience in ever growing climate change situations can help better inform both scientists and land managers in efforts to provide for the long-term resilience of public lands forests.

Despite all the mounds, towering shelves, archived vaults, file cabinets, and internet floods laden with countless volumes and articles of scientific research reports with their varied contravening conclusions and recommendations, it is widely acknowledged that ultimately nature is our best and wisest teacher. Science, if it is to teach us anything, must begin by teaching the awareness of the as yet unfathomable, unknown complexity of this living earth's interwoven natural ecosystems. Given our limited awareness of the full range of forest ecosystems, including the full range of biodiversity, dynamic and localized processes, and complexity, science advises humility, prudence and restraint in our actions. Indeed, the core tenets of NEPA clearly state, directing that actions not harm the environment: "NEPA, CEQ Regulation part 1500 - Purpose Policy and Mandate" "Sec. 1500.1 Purpose. (c) Ultimately, of course, it is not better documents, but better decision that count. NEPA's purpose is not to generate paperwork - even excellent paperwork - but to foster excellent action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions **that protect, restore, and enhance the environment**. These regulations provide the direction to achieve this purpose."

A. The Forest Service Must Develop an Alternative that Protects the Last Remaining Wildlands

Among public lands resources, "lands with statutorily-defined wilderness characteristics are of particular importance." *Or. Natural Desert Ass'n v. BLM,*625 F.3d 1092, 1099–1100 (9th Cir. 2010). In 1964, Congress identified the conservation of such lands as a national priority in the Wilderness Act. 16 U.S.C. § 1131(a). Intended to "secure for the American people of present and future generations the benefits of an enduring resource of wilderness[,]" the Wilderness Act provides for the protection and preservation of federal lands in their natural condition. *Id*. Using unique words found in no other natural resource protection law, Congress defined "wilderness," contrasted with "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." *Id*. § 1131(c). By definition, wilderness areas retain their "primeval character and influence, without permanent improvements or human habitation," and retain "outstanding opportunities for solitude or a primitive and unconfined type of recreation." *Id*

There are very few remaining places in the United States that are uninfluenced by human disturbance. Sanderson et al, 2002. The few wild areas that are left correspond to areas on public lands with wilderness characteristics, making this public resource that much more valuable. The reasons for protecting these last remaining wildlands are many. However, when it comes to protection of the last remaining wildlands, including roadless areas and wild rivers, the Forest Service seems much more influenced by local social pressures than by the overwhelming economic, social and ecological reasons for permanent protections of these lands.

Protected wild places provide important recreation opportunities for people from all over the world and associated economic and social benefits to adjacent communities. Recent studies, such as those conducted by the Headwaters Institute, point to the large contribution made to growing western communities through the designation of protected public lands. These studies show that:

- Protected lands help create jobs. Western non-metropolitan counties with more than 30 percent of the county's land base in federal protected status such as national parks, monuments, wilderness, and other similar designations increased jobs at four times the rate of similar counties with no protected federal public lands (345% compared to 83% during the last 40 years).
- These lands also increase incomes. In 2010, per capita income in western non-metropolitan counties with 100,000 acres of protected public lands was on average $4,360 higher than per capita income in similar counties with no protected public lands.
- Protected natural amenities—such as pristine scenery and wildlife—help sustain property values and attract new investments.
- Services jobs are increasingly mobile, and many entrepreneurs locate their businesses in areas with a high quality of life. Conserving lands, while also creating a new visibility for them through protective designations, helps safeguard and highlight the amenities that attract people and business.
- For many seniors and soon-to-be retirees, protected public lands and recreation provide important aspects of a high quality of life. Non-labor sources of income already represent more than a third of all personal income in the West—and will grow as the current elder generation retires.
- Outdoor recreation is important to western economies. For example, the Outdoor Industry Foundation reports that active outdoor recreation in Oregon contributes over $7 billion to the state's economy, supporting 141,200 jobs.
- Current wilderness areas are insufficient to provide for the influx of thousands of visitors, with many wilderness areas requiring permits and having limited visitor capacities to protect existing wilderness from harmful or wildlife disturbing human intrusions. As visitor populations increase, it is imperative that all ecologically qualified wilderness areas are protected, in part to spread out and lessen the adverse impacts of too many human visitors.

See Headwater Economics, 2012; Rasker, 2006; Rasker et al, 2013; Outdoor Industry Foundation, 2012; Lorah, et al 2003; Deller, et al, 2001.

Wilderness, however, is not just a recreation designation. Wilderness plays an important role in other areas of management such as watershed health, refugia for wildlife, preservation of cultural sites, sources of clean air, and as local economic drivers. Moreover, wilderness preservation grows increasingly important to provide reservoirs of biodiversity in the face of global climate change. Untrammeled wildlands can be used as benchmarks for assessing the ecological integrity – e.g. genes, species, and assemblages – and processes – e.g., pollination, demography, biotic interactions, and nutrient and energy dynamics – expected in the natural habitat or region. *See* Karr et al 1995; Pimentel, 2000. These species-rich native communities are also more likely to withstand disturbance. Gelbard et al. 2005.

The current DEIS fails to protect any roadless or wilderness quality area, in contravention to the original Forest Plan Revision EIS which recognized that:

- Ecological benefits of wilderness include maintaining species diversity, conserving a "reservoir" of ecological processes and a diversity of genetic material, protecting threatened and endangered species, protecting watersheds, maintaining large, contiguous, nonfragmented wildlife habitats, and serving as a base line for natural conditions to compare with changes in other environments.
- Wilderness experiences provide recreational and social benefits including those described as spiritual and educational.
- Wilderness provides social, cultural, economic, scientific, and ecological benefits for present and future generations. Many of America's iconic landscapes include wilderness areas that provide outstanding opportunities for solitude and a primitive and unconfined type of recreation.
- Wilderness landscapes can contain culturally significant and sacred sites important to Native Americans, and historic-era cultural resources that speak to the nation's collective heritage.
- Communities enjoy and value these lands for hunting and fishing, wildlife watching, hiking, equestrian pursuits, and other nonmotorized and nonmechanical uses.
- Wilderness areas are a scarce and dwindling resource, requiring humility on behalf of humanity in order to retain their natural condition and to convey an understanding of human and natural history.
- Wilderness serves as a baseline demonstrating the functions of healthy ecosystems which can be contrasted with human activities that change our world.
- Wilderness areas provide a variety of valuable ecosystem services including carbon sequestration, watershed protection, and clean air, and may contain habitat for numerous threatened and endangered species and other rare biological resources.
- Managing an area to protect its wilderness character provides unique opportunities and benefits for present and future generations that may otherwise be irreparably lost.
- Recommended wilderness areas can preserve wilderness character through management efforts to maintain the five wilderness qualities (natural, untrammeled, solitude or a pristine and unconfined type of recreation, undeveloped and other features) that define wilderness character. This, in turn, can create larger contiguous wild areas and reduce recreation pressures within existing wilderness areas.

From the original 2018 FEIS Vol. 1, Chapter 3, p. 215 to 218, such recognition of the paramount importance of wilderness and roadless areas is missing from the current DEIS in both actual disclosures and in the failure of the DEIS to proactively protect both roadless and wilderness quality areas from management harms and irreparable logging degradation.

Unfortunately, despite the overwhelming ecological, social and economic reasons for protecting wilderness values, when it comes to roadless areas and wilderness recommendations the proposed forest plans fall short.

Despite our requests to do so both before and/or during scoping, and the previous forest plan revision process, the current DEIS fails to:

- Adequately and accurately identify all wilderness-eligible lands in the Blue Mountains and include them in the analysis and alternatives;
- Thoroughly examine the impacts of placing all or portions of individual roadless areas under management designations that would not protect their irreplaceable wilderness and unroaded characteristics;
- Offer viable wilderness recommendations commensurate with the ecological qualities, importance, and extent of lands which meet requisite wilderness characteristics; and,
- Appropriately and proactively include areas which help maintain or enhance wilderness characteristics;
- Adequately address and accurately assess key areas and essential connectivity, including these areas within wilderness eligible lands, thereby providing for the viability of the many wilderness and roadless area dependent species.

B. The Forest Service Failed to Identify and Include All Wilderness-Eligible Lands in a Wilderness Inventory

All roadless undeveloped areas that satisfy the definition of wilderness found in the Wilderness Act must be evaluated and considered for recommendation as potential wilderness areas during forest plan revisions. In 2010, the Forest Service conducted a Wilderness Needs Evaluation for the Malheur, Umatilla, and Wallowa-Whitman National Forests. Through this process, 76 potential wilderness areas were identified within the Blue Mountains National Forests. These areas cover 705,310 acres, or 13 percent, of the national forest lands. As pointed out in our scoping and DEIS comments, and in correspondence with the agency, this figure does not represent all of the acreage across the Blue Mountains national forests that meet the criteria of wilderness. The previous FEIS states the agency included an additional 8 areas for a total of 84 potential wilderness areas, increasing the acreage total slightly to 719,030 acres. Yet this figure still falls far short of including all lands which meet wilderness criteria. The current DEIS repeats these same systemic failures.

The detailed inventory of all potential wilderness areas in the Blue Mountains we presented to the agency used the same inventory criteria outlined in the Forest Service Handbook (FSH). However, the Forest Service decided, based on a heavily skewed interpretation of the criteria, to disqualify 203 of the 205 non-inventoried roadless areas (IRA) that we had identified as qualifying from inclusion in the inventory. Many of our inventoried areas were field-verified and developed using advanced GIS technology. While we may disagree on certain areas, the disqualification of virtually the entire inventory was and still is unacceptable. The current DEIS repeats these disclosure and analysis failures.

One of the primary flaws in the Forest Service inventory process is related to the definition of a road. Chapter 70 of the FSH inventory criteria identifies roadless areas as areas of sufficient size that do not contain "forest roads . . . or other permanently authorized roads." The definition of forest roads is: "A motor vehicle travelway over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary." This definition is a dramatic departure from previous inventory criteria, which defined roadless areas as areas that "do not contain *improved* roads *maintained for travel by standard passenger vehicles*." We believe this criteria best meets the intent of the Wilderness Act and should be retained. Indeed, many existent wilderness areas, including those in the Blue Mountains Forest Plan region, contain what once were roadways and even former railroad ways that have long been disused, no longer accessible by motor vehicles, but which serve well as tails for both human hikers and horseback riders. As such, the Forest Service use of the definition quoted above, fails to meet the reasonableness and accuracy standards of the NEPA, is in contravention with existent wilderness realities, and as such must be revised – including withdrawing the current DEIS and revising this analysis to include as potential wilderness areas which meet the previous definition as not containing "forest roads… or other permanently authorized roads."

Applying the Chapter 70 language will lead to the exclusion of areas that contain unmaintained routes, high-clearance routes, off-road vehicle routes, administrative routes, other vehicle ways, and vehicle routes that are managed as trails. While inclusion of these routes may not be appropriate in areas the agency is recommending for wilderness, they do not, in and of themselves, exclude an area from consideration. Many roadless areas—and wilderness areas as well—contain such routes, and it is clear that Congress does not view areas that contain such routes as being de facto eliminated from wilderness consideration. We believe the original inventory criteria should be retained, and the presence of unmaintained routes, high-clearance routes and the like should be addressed in the evaluation process, not the inventory process. Not only did the Malheur National Forest rejected our entire inventory outside of IRAs, it went a step further and dropped entire roadless areas, again based on a flawed criteria process. As we've been stating throughout the whole forest plan revision process, we strongly urge you to add the Flag Creek, North Fork Malheur, Silver Creek and Fox Creek areas back into the inventory.

We also remain concerned that the agency misapplied wilderness evaluation and management criteria prematurely during the inventory stage. This should not happen until the evaluation stage. There appear to be a number of areas/acres that have been eliminated or not inventoried. These situations are the most prevalent in areas where setbacks or buffers from roads or previous disturbances have been employed or large contiguous areas have been eliminated from the roadless inventory because they were connected by an isthmus.

C. The DEIS Fails to Analyze the Impact of Placing all or Portions of Roadless Areas Under Management Designations That Would Not Protect Their Wilderness Characteristics

The DEIS fails to include the requisite examination of the direct effects, indirect effects and cumulative impacts of the preferred alternative proposal to place an IRA or other roadless area in a management zone that allows activities that could impair its wilderness character.

The Roadless Area Conservation Rule EIS offers a detailed description of some of the issues that should be studied, described and discussed for each alternative in a forest. These issues include:

- The projected amount and impact of road construction in IRAs;
- The costs associated with maintaining new roads in IRAs;
- The risks of reducing water quality in IRAs;
- Impacts to air resources from IRA development;
- Economic impacts;
- Consequences of and for fire and fuels management in IRAs
- Impacts of insects and disease in IRAs;
- Impacts to the size of roadless areas;
- Impacts to IRAs of development at various elevation distributions;
- Impacts to terrestrial animal habitat, including fragmentation and connectivity, edge effects, habitat suitability and effectiveness, early successional habitat, game species and late-successional habitat;
- Impacts to aquatic animal habitat and species in IRAs, including fragmentation and connectivity, water hydrology and stream channel morphology, habitat complexity, water quality, pools, riparian vegetation, introduction of nonnative species and diseases and over-harvest;
- Impacts to terrestrial and aquatic plant species in IRAs, including non-native invasives, habitat fragmentation and effects of temporary roads;
- Impacts to threatened, endangered, proposed and sensitive species in IRAs;
- Impacts to research, monitoring and reference landscapes in IRAs;
- Consequences for non-mechanized, mechanized and motorized recreation in IRAs;
- Impacts to scenic quality in IRAs;
- Consequences to heritage resources in IRAs; and
- Impacts from IRA development on existing wilderness and the possibility of future wilderness designation.

Unfortunately, the DEIS does not contain even the most basic information on the impacts of the proposed action and the proposed alternatives on the wilderness character of the Blue Mountains roadless lands. For example, the DEIS does not:

- Thoroughly examine the impacts of each alternative on the 18 issues listed above from the Roadless Area Conservation Rule Final EIS.
- Consider the impacts of the alternatives on the roadless lands we presented to the agency.
- Consider the impact of allocating 428,700 acres of IRAs as backcountry motor vehicle use (MA 3B) in their ‘preferred alternative,’ suitable for both summer and

winter motor vehicle use. (See FEIS Vol. 1 p. 226-227). Despite our raising of this significant issue in our previous DEIS comments, the agency completely disregarded this issue, taking the contrary path of actually increasing motorized intrusion into IRA's by 74,900 acres as compared to the DEIS's original 353,800 acres (Vol. 1 p. 197-198).

- While the DEIS included a breakdown by alternative and by management areas disclosing how IRAs would be allocated, it did not discuss how the activities allowed in each MA could damage roadless areas wilderness character.

Under all of the alternatives offered, roadless lands face threats to their wilderness character from commercial logging, fuels reduction, "restoration" activities, road building, and ORV use (both winter and summer). Despite these threats, the DEIS discusses only a few of the potential impacts, and never in a comprehensive and systematic way.

NEPA, 42 U.S.C. § 4321 et seq., and the CEQ's implementing regulations, 40 C.F.R. §§ 1500-1517, require that each federal agency prepare an EIS for every major federal action significantly affecting the environment. 42 U.S.C. § 4332(C). The purpose of an EIS is to inform the decision-makers and the public of the significant environmental impacts of the proposed action, means to mitigate those impacts, and reasonable alternatives that will have lesser environmental consequences. An EIS must assess the environmental impacts of the proposed action, including direct effects, indirect effects, and cumulative impacts. 40 C.F.R. §§ 1502, 1508.7-1508.8. NEPA also requires federal agencies to use high quality, accurate scientific information and ensure the scientific integrity of the analysis in an EIS. See 40 C.F.R. § 1500.1(b); 40 C.F.R. § 1502.24.

Abdicating its responsibility to follow the above requirements, the Forest Service has presented deficient analysis and unfounded assertions throughout the DEIS that fails to accurately address and disclose the direct effects, indirect effects, and cumulative impacts of placing the IRAs and other roadless lands in zones where development is allowed. As a result, if implemented the preferred alternative (and to a greater or lesser extent any of the proffered alternatives) would result in irreparable harms to the wilderness character of a significant extent of the remaining irreplaceable roadless areas across three national forests. The DEIS therefore violates FSH 1909.12 by failing to adequately and accurately "Include site specific statements of the environmental consequences that a nonwilderness designation would have on…roadless area(s)." Furthermore, the plan fails to sufficiently and accurately, with meaningful provisions for enforceable standards, "(d)iscuss mitigation measures to avoid or minimize the impact or loss of wilderness characteristics."

The FSH at 1909.12-92-1, 4.19(c)(5) states that a land and resource management plan must "Describe the potential environmental consequences of a wilderness and a nonwilderness recommendation." At FSH 1909.12-92-1, 4.19(c)(5)(b) the Forest Service is required to: Discuss the impact on the roadless area of a wilderness designation and the impact of each nonwilderness prescription. Show the social and economic effects in each case. Include mitigation, if any, for loss of wilderness characteristics and the effects on plant and animal communities. The DEIS fails to offer this information as required in an accurate and meaningfully comprehensive analysis. It is ethically and legally insufficient to make "conclusory" or "perfunctory references" to cumulative impacts or to continue to use the same boilerplate language throughout the DEIS process. *Natural Resources Defense Council v. Hodel*, 865 F.2d 288, 298-99 (D.C. Cir. 1988). Cumulative effects analysis requires "quantified or detailed information. . ." *Neighbors of Cuddy*

Mountain v.U.S.F.S., 137 F.3d 1372, 1379 (9th Cir. 1998). "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." *Id*. at 1380.

More precisely, the DEIS fails to consider the impacts the preferred alternative and the other alternatives would have on the natural integrity, apparent naturalness, remoteness, solitude, special features, manageability, logical boundaries, and special places or values in the Blue Mountains' IRAs and other roadless areas. The effect of the alternatives on the wild character of the affected roadless areas were improperly studied in the DEIS, while the current DEIS overall merely parrots its unsubstantiated assertions absent requisite analysis and definitive clarity; therefore it does not satisfy the detailed analysis requirements set forth in 36 CFR 219.17.

D. The Forest Service Must Analyze an Alternative that Offers More Wilderness Recommendations and Preserves the Wilderness Characteristics of Roadless Areas

In the 2018 FEIS process, of the 1.8 million acres conservationists identified as potential wilderness, that preferred alternative would only allocate 90,800 acres, or five percent, to recommended wilderness. The previous FEIS Vol. 1, Chapter 3, page 223 justifies this by stating that "additional wilderness designation is not necessary within the Blue Mountain national forests. Protection of areas with wilderness potential including the biological species and resources that they contain may be better achieved through alternative land management designations or other legal authorities".

At that time in objection to the 2018 FEIS and its decision we noted that the possibility of subsequent NEPA documents fails to address the impacts of placing IRAs and other land with wilderness potential in zones where management activities are allowed that would diminish their wilderness character. A project-by-project NEPA analysis will not and cannot address the combined and cumulative regional and local environmental impacts of allowing such development to occur in the first place. As the Forest Service concludes on page 1-15 in the 2000 Roadless Area Conservation Rule FEIS:

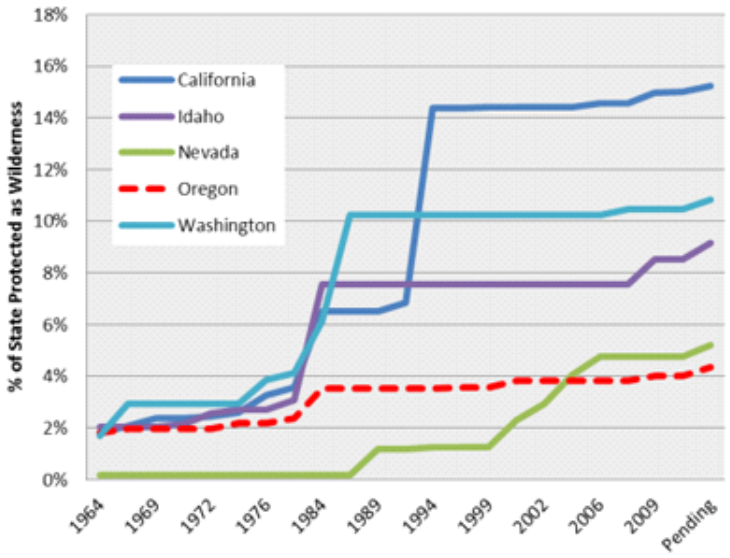
> Regardless of how well-informed individual decisions may be at the local level, any new road building in inventoried roadless areas still results in a loss of roadless characteristics. When local officials evaluate the impacts of their decision to build a road into a roadless area, the incremental effect of the decision is considered. However, when these individual decisions are aggregated over time…the resulting ecological and social outcomes resulting from the loss of roadless areas may become substantial.

Breaking related projects piecemeal into separate future ones, fails to address the cumulative impacts of all these multiple potential projects over time, and the cumulative degradation to roadless and potential wilderness areas, failing the requirements of the NEPA. Simply withdrawing previous NEPA projects and re-issuing them again and again over time, such as in this DEIS and its related previous EIS processes, fails the clarity requirements of the NEPA, wearing down the public with an overload of papers to read, each failing the clear requirements of federal environmental policy laws. Overall, such multiple legally noncompliant "analysis" projects confuse the participating public and tend to wear down the participating public with the USFS's multiple failures to accurately disclose relevant scientific research, and their repeated failures to obfuscate relevant legal and scientific issues with EIS projects that simply fail the

requirements of NEPA and NFMA, resurrecting themselves like a bad sorcerer's apprentice folly of never ending, legally deficient so-called "EIS" processes like this current DEIS version.

Such losses are substantial indeed with the previous FEIS and ROD, as at that time only 90,800 acres would receive real protection, leaving 1,709,200 acres of wilderness quality unroaded lands at risk of irreparable degradation. The current process reputedly would protect virtually nowhere at all, and the multiple EIS projects end up creating a confusing alphabet numerical stew of contradictory numbers that makes a ridiculously confusing process for both the general public and professional non-profit staff, scientists, attorneys and their volunteers to attempt to navigate. The arbitrary changes brought largely by current political governance add to the amateurish deficient realities of these multiple EIS projects, including the current DEIS, which fails the clear requirements of the NEPA in a myriad of ways, as noted in these comments.

The conclusion that "additional wilderness designation is not necessary within the Blue Mountain national forests" is unfounded and in contravention to the vast majority of scientific research concerning the imperative need to protect the remaining ecological integrity of public lands. Only four percent of public lands in Oregon are currently protected as wilderness; this is less than half of what Washington and Idaho have protected and nearly four times less than what California has protected. This is despite the fact that 46 percent of the total land area in Oregon is public lands while that number in Washington is only 23 percent and in California 34 percent. The previous FEIS preferred alternative would only provide protection or a mere 90,800 acres of wilderness quality roadless lands. This would leave the vast majority – 1,709,200 acres of the remaining more ecologically intact roadless lands with irreplaceable wilderness qualities – open to the irretrievable degradation of management actions from road construction to logging to off road vehicle abuse and other significant environmental harms. Such management as proposed in the DEIS, offering protection to less than a paltry 5% of wilderness quality lands, is contrary to all credible scientific recommendations pertaining to wilderness eligible roadless area lands, blatantly failing NEPA's and the 2012 Planning Rule's requirements for scientific integrity, which requires federal agencies to use high quality, accurate scientific information and ensure the scientific integrity of the analysis in an EIS. *See* 7 C.F.R. §§ 1(b).9(h)–(i); 36 C.F.R. § 219.3. Leaving the vast majority - 95% of roadless area wilderness quality lands - vulnerable to irreversible management degradation, without explicitly disclosing the relevant scientific research or accurately and comprehensively analyzing the "reasonably foreseeable environmental effects of the proposed action" violates NEPA. 42 U.S.C. § 4331(C)(i)–(ii).



The differences in protected wildlands is not because the reasons for protecting roadless areas in Oregon are less pervasive then in neighboring states.

Contrary to the scientifically unsubstantial conclusions the agency has reached in this DEIS, and its prior "Wilderness Need Evaluation" of March 2010, and its previous FEIS it is scientifically irrefutable that the Blue Mountains emphatically do need significantly greater extents of protected wilderness areas. Increased recreation pressure is putting demands on existing designated wilderness. If this is not planned for, it may adversely affect these areas' characteristics (for example, the Umatilla National Forest is surrounded by growing communities that are placing increasing demands on existing wilderness areas, as the visitor statistics indicate). Connectivity across the landscape is not being adequately or accurately considered and critical species assemblages that need significantly greater representation in the wilderness system are being ignored. None of the seven designated wilderness areas in the Blue Mountains are immediately adjacent to one another, and some are separated by an interstate highway or developed valley. Alone, none of these existent wilderness areas are capable of providing the habitat range requisite to support the long-term home range, genetic variation, and population viability of wilderness dependent and associated species. It is well known that species will greatly benefit from a more connected landscape in the face of the multiple adverse challenges they must address in order to survive and thrive, from the challenges of habitat fragmentation, seasonal recreational overuse (hunting season and off-road vehicle intrusions and abuse in particular), adjacent private lands development and traffic, and the exponentially growing impacts of ongoing climate change. Yet the agency has failed to adequately disclose or effectively address the abundant scientific research emphasizing such ecological realities. Furthermore, dry grand fir, dry Ponderosa pine, and moist forests are "under represented" in wilderness areas, and 55,000 roadless acres of this type have been identified throughout the Blues. There are strong scientific reasons for evaluating these areas thoroughly. The abject

failure of the current DEIS to adequately disclose and address these significant ecological realities represents an egregious violation of the clear requirements and intent of the NEPA.

E. Recommended Wilderness Areas for the Selected Alternative

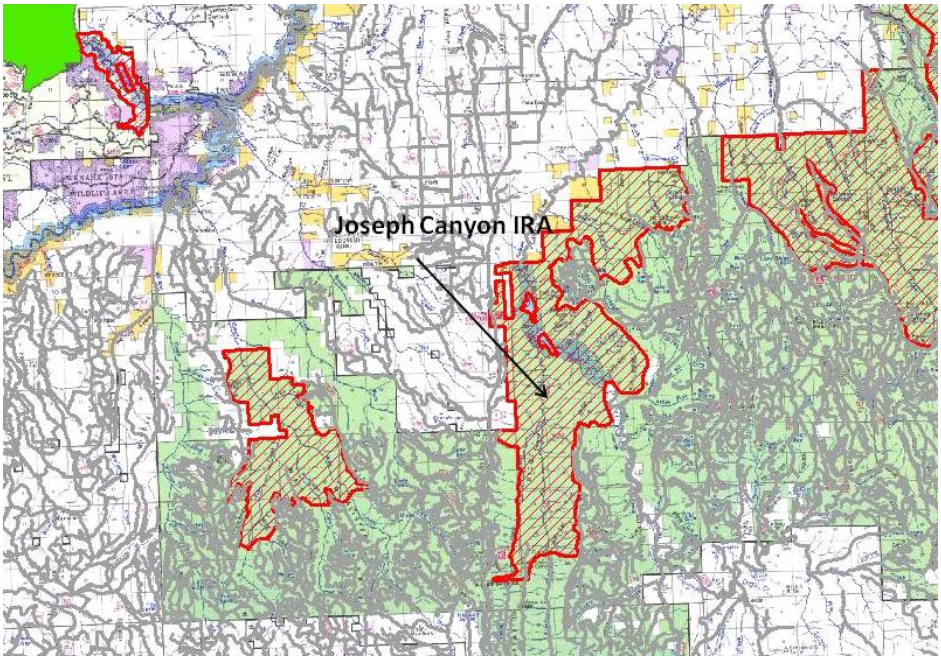
All of the "alternatives" presented in the DEIS are scientifically, legally, and ecologically deficient. Concerning the previous 2018 FEIS process, we previously noted that at best, as with its original alternative C, they incrementally hasten the environmental degradation of the region, and the continued irreparable diminishment of native species at risk and their vulnerable habitats. While we strongly supported the previous FEIS Alternative C's recommendations for 49 wilderness additions totaling 505,000 acres, this alone is vastly insufficient to begin to address scientifically founded recommendations concerning the retention and protection of wilderness and roadless area characteristics wherever they may remain. Though Alternative C captures some of the areas that should be allocated to Preliminary Administratively Recommend Wilderness Area (MA 1B), it is still vastly deficient, as it would open up 72% of the 1.8 million acres of wilderness quality public lands to irreparable management harms. Such a paltry recommendation for wilderness as represented by the previous 2018 FEIS is both legally and scientifically inexcusable. However, it was not alternative C that was selected or further developed in this current DEIS, but the agency's previous FEIS preferred alternative, leaving 95% of the region's more intact wilderness quality lands open to degradation. One small but clear example of the FEIS's many deficiencies can be found in its piecemeal recommendations for what it refers to as the Murderer's Creek Roadless Area, where its proposal omits much of the approximately 44,000 acre contiguous roadless area, including significant portions of Aldrich Mountain, Dry Cabin, and Murderer's Creek wilderness quality lands (see the section on this area below).

As outlined above, the reasons for protecting wilderness resources are numerous. The specific reasons for protecting areas across the Blues are even more voluminous. Given that the timeline for this NEPA project process is limited, and addressing each wilderness quality area in the detail deserved would require considerably greater time than is allotted, in the interests of brevity, clarity, and multiple NEPA timelines we have chosen to highlight just one representative roadless area from each national forest. These choices do not diminish the importance of the other roadless areas, but instead underscore their importance, especially in addressing otherwise irretrievable habitat connectivity, refugia, natural ecological resilience, locations where natural environmental patterns and cycles are still prevalent, and the imperative importance of all of these in beginning to meet the growing challenges and unknowns of evermore manifesting climate change across the landscape. (NEPA requires the agency conduct site-specific research for each affected unroaded, roadless, and potential wilderness area, such as these examples illustrate here. The current DEIS fails to begin to do so, much as its predecessor EIS processes also failed, and requests for copies of its supporting analysis that supposedly are in the 'project record' have been unanswered thus far, though these were given early in the Objection period – no direct replies from the agency have been received at all.)

Joseph Canyon (Wallowa-Whitman National Forest): This roadless area lies adjacent to State Highway 3 on the northern boundary of the Wallowa-Whitman National Forest, 20 miles north of Enterprise. The size estimates range from 25,904 acres to 40,221 acres. The area is well known, largely because of its proximity to State Highway 3 and popular roadside viewpoint that overlooks the 2,000-foot depths of Joseph Canyon.

On page 23, the Wallowa-Whitman National Forest Review of Areas with Wilderness Potential (March 2010) states that this area:

> is noted as an example of the rugged topography in northeast Oregon, characterized by deep canyons with very steep, grass-covered side slopes interspersed with numerous exposed basalt layers. Typical of the region, southern and western slopes are non-timbered with native bunchgrass ecosystems, while many northern and eastern slopes are heavily forested with Douglas-fir and Ponderosa pine being the dominant tree species.



Joseph Canyon Roadless Area *provides critical wildlife habitat, fisheries habitat, and quiet recreation in an otherwise heavily roaded landscape (roads in grey). This Roadless Area also contains Ponderosa Pine Woodlands and old growth forests rare to the area.*

All streams in the Joseph Canyon Roadless area are used by anadromous fish and provide spawning habitat for salmon and steelhead. The area includes Swamp Creek where it is designated as a Wild and Scenic River and includes the Oregon Conservation Strategy Area BM-24. The area is renowned for wildlife and includes Ponderosa Pine Woodlands and old growth forests. There is great historical value that includes all of the major peoples that have shaped the region; the Nez Perce Indians; pioneers and settlers, and early Forest Service. The trails have been used since time immemorial. The area is currently very popular with backcountry hunters and horse-back riders.

During a meeting to decide which areas to include as recommend wilderness in the revised forest plan for the Wallowa-Whitman National Forest, the Forest Service identified the semi-primitive mechanized recreation *opportunities* (emphasis added) as the only reason why the Joseph

Canyon should not be administratively recommended as wilderness. Wallowa-Whitman National Forest Proposal Meeting Notes, La Grande Oregon (January 29, 2008).

Historically, motorized use in this area has been non-existent. The recent intrusions of motorized use, if anything, should not be employed to drop the area from wilderness consideration, but instead underscore the imperative justification to protect this wild area before it is too late. Bear hunters recently discovered ATV tracks at the confluence of Davis and Swamp Creeks and reported this to ODFW due to their concerns about impacts to the trails from ATV's. ATV's had never been in this area before. In contrast, traditional quiet recreation has been well established for as long as anyone can remember. The Forest Service must take action to protect this area before the long tradition of quiet recreation is lost forever.

Furthermore, the benefits of permanently protecting this area's history, culture, and ecology for current and future generations far outweigh the limited motorized opportunities that benefit only a small fraction of people at great public expense and considerable environmental degradation. There are millions of acres of other areas for forest users to take advantage of motorized recreation opportunities.

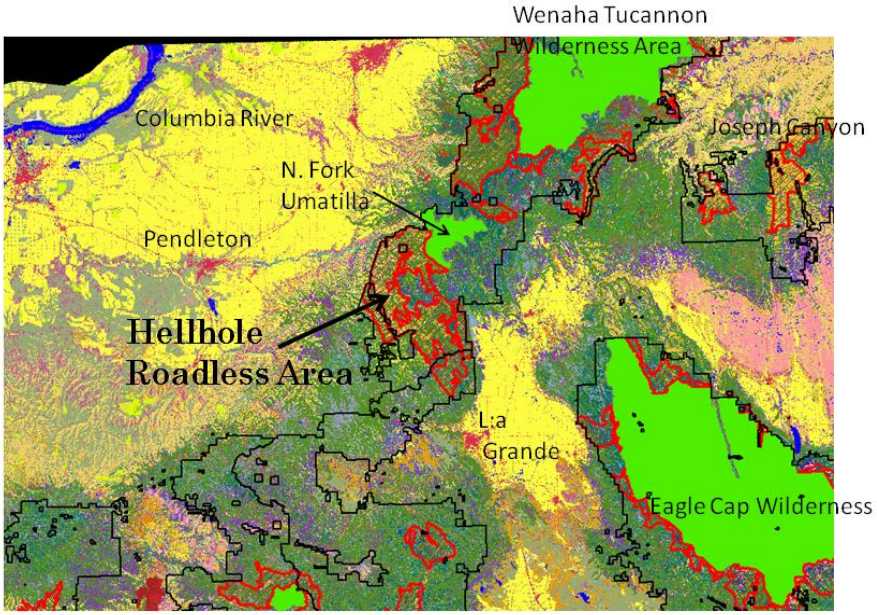
Reasons for administrative wilderness recommendation

- The Joseph Canyon Roadless Area has a well-established and long history of backcountry hunting, horseback riding, and hiking, and is increasingly threatened by OHV's. The potential for conflict between user groups in this area is very high.
- Chico Trail has high historic value as a quiet use trail.
- Natural quiet and solitude values need protecting in Joseph Canyon.
- The Forest Service needs to safeguard wildlife habitat security in this otherwise roaded area.
- The Joseph Canyon Roadless Area is an important connectivity corridor between the Hells Canyon National Recreational Area/Wilderness and the Wenaha-Tucannon Wilderness. Joseph Canyon is a "stepping stone" and stop over area for dispersing and migrating wildlife.
- The Joseph Canyon Roadless Area contains old growth dry plant association groups currently underrepresented in the Blue Mountains Wilderness preservation system.
- The Joseph Canyon Roadless Area contains important steelhead spawning habitat and a Wild and Scenic River.

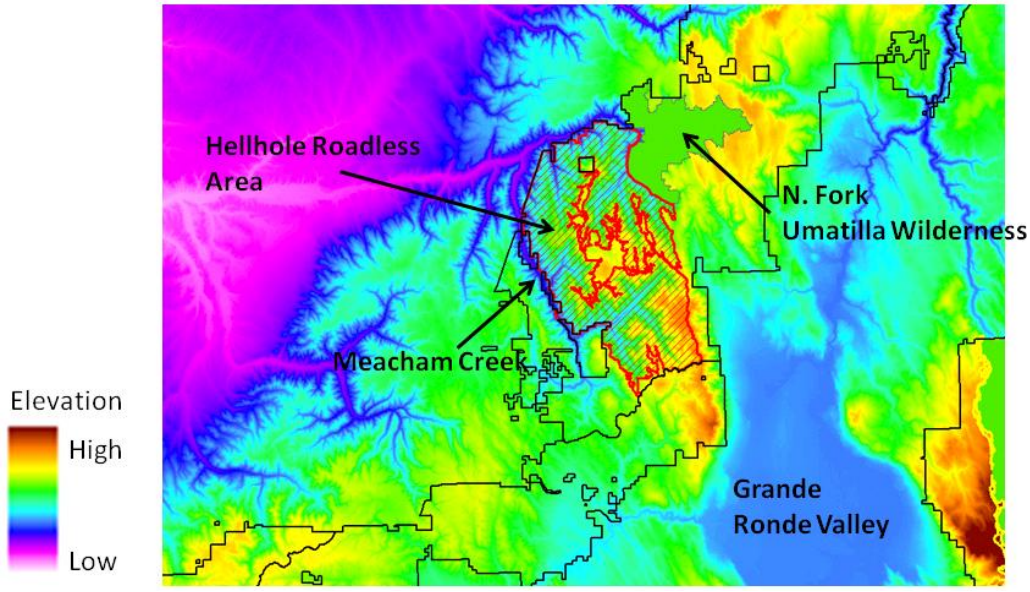
Yet despite the clear recommendations of ecological science, and the importance given to these qualities in developing the Roadless Area Conservation Rules, the current DEIS fails to adequately disclose and address relevant wilderness area qualities, and related scientific research. Instead, the current DEIS fails to protect literally anywhere, while the previous FEIS proposes at best only a paltry 6,750 acres out of 40,221 acres for inclusion in wilderness protected lands – and only proposes this in just one alternative, Alternative C. The remainder of the developed alternatives fail to provide any protection what-so-ever for these wilderness quality lands. Implementation of the agency's Preferred Alternative E-Modified would provide no protection

for this treasured wilderness quality roadless area, resulting in irreparable harm to its ecological character, the natural recreation of current and future generations, and the numerous native species dependent for their very survival on this rare remaining roadless area ecosystem. Such harms that the selection of the preferred alternative would cause are in egregious contravention to the requirements of environmental policy laws, scientific research recommendations, and the responsibilities entrusted to the agency to properly manage federal public lands.
Furthermore the DEIS fails to acknowledge its previous rational for protecting any wilderness areas or unroaded areas, fails to disclose why its conclusions to protect some wilderness quality areas and unroaded ares in the previous FEIS were dropped entirely in the current DEIS, yet such disclosure is clearly part of NEPA's hard look an accurate analysis requirements.

Hellhole (Umatilla National Forest): Just north of Mt. Emily and about 10 miles out of La Grande lies an enormous area of canyons and forests that occupies one of the most connective, undeveloped regions of lands left on the Umatilla National Forest. Interestingly, the actual "Hellhole" is seldom visited and considered deep backcountry. It further forms a connection with the tiny North Fork Umatilla Wilderness Area and then more roadless country to the north that adjoins the Wenaha-Tucannon Wilderness Area. This is a critical connective corridor. The Hellhole is remote, has high natural solitude, and is a perfect place to let natural systems function (see Figures below). The Hellhole Roadless Area should be eagerly proposed and designated as Wilderness. It would be an asset well beyond that which most people understand. The area provides a large area of big game winter range. There are many old growth forests throughout the area.



Hellhole Roadless Area *overlaid on a land cover map. The Hellhole extends across an important corridor of the Umatilla National Forest and forms a critical large scale animal movement and plant migration corridor. Wilderness designation would be the best and highest use of this land for many reasons, including climate change preparation.*



Hellhole Roadless Area *on Digital Elevation Model. This image illustrates that the Hellhole Roadless Area boundary includes high ridges along the Southeast boundary and then drops down to Meacham Creek (West boundary) and the Umatilla River (North boundary). Reserves that include broad elevational gradients have exceptional value for biological conservation. The Hellhole is one of the most important areas to protect on the Umatilla National Forest.*

Concerning the large acreage size of this rare roadless area, with conservation estimates are still out as to the its total size, a review of Rare II agency documents discloses the total acreage as 69,502 acres. Indeed, a Federal Register notice for the adjoining "Plentybob Project" from 1999 discloses that the project bordered along 53,250 of Hell Hole's roadless areas. Yet the previous FEIS proposed in their preferred alternative to protect only about 32% of this ecologically much more intact, wilderness quality roadless area – leaving an unacceptable 68% of the area open to significant management harms. Again, such a proposal defies credible scientific recommendations and violates both the NEPA's and NFMA's requirements concerning sound science and full disclosure, as well as wildlife species viability respectively. While the previous FEIS's Alternative C fares better, it still would leave 2,431 rare roadless acres open to irreparable harms, while failing to meet NEPA's requirements concerning scientific integrity, full disclosure, expert advice, and accurate analysis. The Current DEIS fails to adequately address this reality or to disclose why areas previously proposed for protection have been dropped in this DEIS process. If some monumental degradation occurred the DEIS fails to state what this may have been or to address these issues in a meaningful hard look analysis required by the NEPA. If indeed the area is still such as it was during the previous NEPA process, then it is requisite that the agency explain why areas it deemed merited protection in the previous FEIS suddenly were dropped from any protections in this current DEIS. NEPA requires that developed alternatives be reasonable and be based upon accurate site-specific conditions, and substantive scientific research. Here in this current DEIS process the agency has instead arbitrarily and capriciously tossed aside its previous rational for proposing protections for these areas, without any disclosures or analysis why this has changed in the new DEIS.



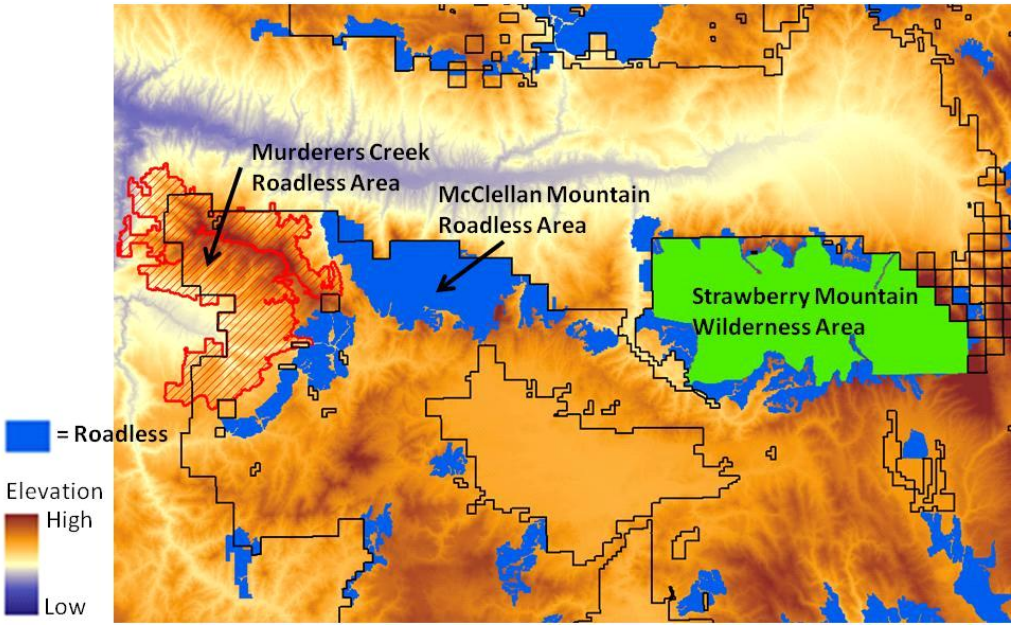
<u>Murderer's Creek</u> (Malheur National Forest):
Aldrich ridge and the surrounding approximately 49,924 acre roadless area that has been referred to as the Murderer's Creek Roadless Area is an ecologically rare never-logged undeveloped roadless area forest. The contiguous roadless extent of this area includes the 22,660+ acre Aldrich, Dry Cabin, & Cedar Grove inventoried and uninventoried roadless areas, in addition to adjoining BLM and Oregon State lands, and the Todd roadless area, along with a mix of other uninventoried unroaded contiguous forests. This area includes redband trout and steelhead salmonid spawning streams and focal old forest habitat for American marten; wolverine; goshawk; Lewis,' black-backed, pileated and other woodpeckers; a host of neotropical migrant and native avian species; and other old growth forest dependent species (see photo at left). Its forests include the only Alaskan Yellow Cedar Grove remaining in the greater region. The area supports an abundant diversity of rare native forest flowers and plants. Forest soil communities are among the most ecologically intact remaining in the Blue Mountains region. The roadless forests include numerous springs, seeps, bogs, marshes, ponds, and waterways. Evidence of pre-European settlement era native presence abounds, including obsidian flake scatter sites, hunting points, trails, and campsites. Its water-systems are important salmonid tributaries to the Middle Fork John Day River. Adjoining roadless areas (Field Peaks, Moon Mountain and others) connect this large roadless expanse with the Strawberry Wilderness to the east and the Black Canyon Wilderness and Spanish Peaks roadless in the Malheur National Forest to the west.



This roadless area has been proposed for wilderness since the 1970's. Ecologically inappropriate harmful Forest Service logging and management projects, including the Aldrich, JOBS, Billy I and II, Thorn, and others, have been the source of public community contention, appeals, and litigation over the course of the previous decades. Each of these projects has been prevented from incurring harms in this rare ecologically intact large roadless area.

The area is poised to play an irreplaceable role in the maintenance of numerous regional and listed species and species of concern. Far ranging species such as wolves, wolverine, and lynx have potential habitat, refugia, and transitory connective habitat with adjoining roadless and wilderness to the east and west located along and near the geological fault line that raised the Aldrich ridge and connected ridges spanning from the Ochoco to the Strawberry wilderness.

It is imperative that the adopted forest plans provide permanent protection for this rare ecologically intact forest ecosystem and the many wildlife, avian, botanical, and aquatic regional species of concern and federal and state listed species this area supports. The forest plans must protect the unlogged roadless character of the entire contiguous approximately 49,924 acre (+/-) roadless potential wilderness area, and begin the substantive process towards its eventual wilderness designation.



Murderer's Creek Roadless Area *(red boundary): Protecting the East-West corridor stretching from the Strawberry Mountains and across the Aldrich Mountains is essential for connectivity. Murderer's Creek Roadless Areas is the largest contiguous Roadless Area in this area serving as critical core habitat for wildlife.*

Despite the irreplaceable ecological importance of the Murderer's Creek – greater Aldrich Mountain roadless area, the previous FEIS only proposed protection for it in their Alternative C, and then protecting only 22,660 acres, leaving 27,264 acres - over half of this rare wilderness quality area - open to irreparable management harms, while having the audacity to call this a "conservation alternative." Additionally, among the inconsistencies in the alternatives is the

agency's preferred alternative protection of 430 more acres of McClellan Roadless Area than is protected as potential wilderness in the so-called 'conservation' alternative. Yet, no viable explanation is disclosed for this mystifying discrepancy between these two different figures, representing yet another inconsistency in an FEIS rife with numerous errors, be these procedural, factual, legal, as well as scientific, they abound throughout the prior legally non-compliant 2018 FEIS. The current DEIS again fails to address these discrepancies. Instead, it arbitrarily and capriciously tosses aside any and all protections it proposed previously, without addressing why its previous acknowledgement of the need for protecting almost half of this area has suddenly been dropped in the new DEIS. If conditions changed, then the agency must disclose these changes and justify its failure to protect any of this ecologically key area. Such changes violate the clear requirements of the NEPA. The agency must disclose the scientific research and site-specific conditions upon which its changed management provisions are based.

F. The Adopted Forest Plans Must Incorporate Meaningful Standards and Enforceable Guidelines for Congressional Designated Wilderness Areas, Recommended Wilderness Areas, and Wilderness Study Areas

In the previous FEIS, the revised Forest Plan for the Blue Mountains National Forests has resulted in significantly reduced management standards. Across the spectrum of management categories, standards have been largely replaced by non-binding "desired conditions" and "guidelines," which the Forest Service may disregard in project-level decisions at its sole discretion.

The agency's subsequent DEIS further degrades management protections, leaving public lands forests subject to great harm from improper management focused more on monetary extraction from logging and all its related harms.

According to the Forest Service, standards are the only plan components that "must be followed when an action is being taken to make progress toward desired conditions." "Standards differ from guidelines in that standards do not allow for any deviation without a plan amendment." In other words, standards containing the word "will" or "shall" are binding on forest management activities, whereas guidelines containing the word "should" and other plan components do not constrain project-level decisions. *See Norton v. Southern Utah Wilderness Ass'n*, 542 U.S. 55, 72 (plan decisions are not enforceable unless "language in the plan itself creates a commitment binding on the agency"). The problem with this approach is that it contradicts the mandates of NFMA and its 1982 regulations, and makes informed analysis of environmental consequences under NEPA improbable if not outright impossible.

The Forest Service enjoys substantial deference in its interpretation of the intent of forest plan guidelines. "Agencies are entitled to deference to their interpretation of their own regulations, including forest plans." *Hapner v. Tidwell*, 621 F.3d 1239, 1251 (9th Cir. 2010) (internal quotation omitted). Many of the guidelines in the revised Forest Plan contain the discretionary word "should," not mandatory terms such as "will" or "shall." *See U.S. v. UPS Customhouse Brokerage, Inc.*, 575 F.3d 1376, 1382 (Fed. Cir. 2009) ("'Will' is a mandatory term, not a discretionary one"); *New England Tank Indus. of N.H., Inc. v. United States*, 861 F.2d 685, 694 (Fed. Cir. 1988) (distinguishing mandatory term "will" from discretionary term "should"). The Ninth Circuit recognizes that certain forest plan components may be planning guides but not mandatory standards. In *Lands Council v. McNair*, 629 F.3d 1070, 1078 (9th Cir. 2010), the

Court accepted that forest plan language stating old-growth stands "should" be at least 25 acres in size functioned as "a guide for planning purposes, but does not prohibit counting stands less than 25-acres as old growth." *Id*. Similarly, in *Ecology Center v. Castaneda*, 574 F.3d 652, 660-61 (9th Cir. 2009), the Court deemed that the language of guidelines incorporated into a forest plan did not "create a mandatory standard." Instead, the guidelines were not enforceable under NFMA because they were cast in "suggestive" language using the word "should," and "merely recommended" a particular practice "when possible." *Id*. at 661 (internal quotation omitted).

In short, the Forest Service enjoys considerable deference in the implementation and application of forest plan guidelines, things that it "should" or "should not" do. As elsewhere, similarly in this plan revision affecting three large regional national forests, the Forest Service overreached. By consigning many significant aspects of wilderness and forest management to aspirational goals and guidelines, the agency has abdicated its basic responsibilities under NFMA and its planning rules. Moreover, it has not disclosed clearly the effects of this change (and, logically, it cannot disclose effects) when the range of potential concrete outcomes is so broad as to be effectively unknowable, violating NEPA.

Standards and guidelines are at the heart of a forest plan. The proposed opening to logging and other irreparable management harms in this DEIS in virtually all roadless and wilderness quality areas violates the scientific, reasonableness, requirements of the NEPA, lacking in any scientifically-sound parameters for meaningful standard and guideline protections These serve as the basis for future decisions. Maintaining wilderness values is a responsibility the agency has under the Wilderness Act and is not discretionary. Thus, it is clear the following changes must be incorporated into the selected alternative:

Proposed components based on the 2018 Plan Revisions (*italics* are used for additions. ~~Strikethroughs~~ are used to delete a word. Bulleted points are additional comments.):

MA 1A WIL-1: S-19 Standard. With the exception of permitted livestock, animals other than pack stock and pets (see glossary) shall not be authorized or allowed in wilderness areas.

- Separation between pack goats and bighorn sheep must be maintained.

MA 1A WIL-2: S-28 Standard. Wheeled vehicles, such as wagons and game carts, shall not be authorized or allowed within wilderness areas.

MA 1A WIL-3: G-61 ~~Guideline~~. *Standard*. New proposals for outfitter and guide special use permits or recreation event permits ~~should~~ *shall* be approved only when the special use or event is consistent with wilderness area desired conditions and a need is identified by a needs assessment and capacity analysis.

MA 1A WIL-4: G-63 ~~Guideline~~. *Standard*. Party sizes greater than 12 people and/or 18 head of stock ~~should~~ *shall* not be authorized or allowed within wilderness areas.

MA 1A WIL-5: G-64. ~~Guideline~~. *Standard*. The hitching or tethering of a horse or other saddle or pack animal ~~should~~ *shall* be not be authorized or allowed within 200 feet of lakes or within 100 feet of streams and posted wetlands within wilderness areas.

MA 1A WIL-6: S-29. Standard. Hitching or tethering of horses or other saddle or pack animals to trees, except for loading or unloading, shall not be authorized or allowed at campsites within wilderness areas.

MA 1A MAL-WIL-1: S-25. Standard. Storing or abandoning personal property, equipment, and supplies for more than 72 hours shall not be authorized or allowed in the Strawberry Mountain Wilderness Area.

MA 1A MAL-WIL-2: G-62. ~~Guideline~~. *Standard*. Camping and campfires ~~should~~ *shall* not be authorized or allowed within 200 feet of lakes, streams, or other camps within wilderness areas.

MA 1A UMA-WIL-2: G-62. ~~Guideline~~. *Standard*. Camping and campfires ~~should~~ *shall* not be authorized or allowed within 200 feet of lakes, streams, or other camps within wilderness areas.

MA 1A WIL-FIRE-1: G-65. ~~Guideline~~. *Standard*. All firelines ~~should~~ *shall* be restored by actions such as scattering slash piles along and onto firelines, knocking down or burning all slash piles greater than 18 inches tall, pulling back and covering all sod with slash, and placing boulders, logs, and slash on firelines to discourage use and camouflage entrance points. Additionally, all firelines that are within 100 feet of intercepting trails, roads, or stream crossings ~~should~~ *shall* be restored by cutting stumps flush and close to the ground (height of 4 to 5 inches), covering tops with a layer of soil (1 to 2 inches), and chopping and roughening the ends of logs and stumps.

MA 1A WIL-FIRE-2: G-66. ~~Guideline~~. *Standard*. Waterbars ~~should~~ *shall* be constructed on fireline slopes that exceed 10 percent.

MA 1A WIL-FIRE-3: G-67. ~~Guideline~~. *Standard*. Garbage and trash ~~should~~ *shall* be removed.

MA 1A WIL-FIRE-4: G-68. ~~Guideline~~. *Standard*. Camps ~~should~~ *shall* be restored by replacing logs and rocks, recontouring terrain, scarifying soil, and scattering twigs, rocks, and dead branches to discourage use and camouflage entrance points.

MA 1A WIL-FIRE-5: G-69. ~~Guideline~~. *Standard*. Closed roads that were opened to provide access to wilderness areas ~~should~~ *shall* be closed after the use has concluded.

MA 1A WIL-FIRE-6: G-70. ~~Guideline~~. *Standard*. Wilderness trails used as used as firelines ~~should~~ *shall* be returned to original condition after the use has concluded.

MA 1B/C WIL-ST-1 G-71. ~~Guideline~~. *Standard*. Existing and proposed uses that could compromise wilderness area eligibility prior to congressional designation ~~should~~ *shall* not be authorized.

Proposed new standards and guidelines to be drafted and included:

- Requiring that the ecological role of fire within wilderness areas would be maintained as a natural process and naturally-ignited fires would be allowed to burn without suppression unless private lands adjacent to the wilderness are at risk, or for public health and safety reasons.

- Prohibiting the use of bulldozers, trucks, *chainsaws* or other motorized tools to put out fire within wilderness areas unless it is necessary to protect private lands or for public health and safety reasons. In such latter situations, the utilization of intrusive methods shall be limited to boundary areas of wilderness, and shall not be permitted within the interior of the wilderness itself.
- Requiring all visitors to pick up and pack out all litter and trash.
- When campsite condition surveys indicate a need for change in stock use policy the following actions shall be considered
- Limit overnight camping to an appropriate number of nights for any one site.
- Designate specific campsites for stock use, while proactively prohibiting such use where harms would incur.
- Limit the number of stock allowed when camping overnight.
- Permit no overnight grazing of pack and saddle stock.
- Prohibit use of stock where warranted.

The standards and guidelines of the BMFPR DEIS are seriously flawed and incapable of meeting the stringent requirements of the NFMA. The forthcoming FEIS should adopt the proposed plan components in order to be legally and scientifically compliant.

G. The Forest Service Failed to Adequately Consider a Reasonable Range of Viable Alternatives Relevant to Protecting and Maintaining Wilderness Quality Roadless Area Lands

The National Environmental Policy Act ("NEPA") requires the Forest Service to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. § 4332(2)(E).

During the previous Blue Mountains Forest Plan Revision process, our organization, as well as other conservation groups, supplied the Forest Service with specific written comments asking the agency to fully consider and compare impacts of an action alternative that would increase protection of roadless areas and potential wilderness lands, including dependent species viability, in response to cumulative impacts and fragmentation of current and past agency management, and the realities of exponentially manifesting climate change.

The Forest Plan Revision process requires an ecosystem approach, an opportunity for review and long-range vision concerning roadless areas, species of concern and listed species and the rampant habitat degradation that has, and continues to occur throughout the Blue Mountains forests. The planning process reasserts and unparalleled opportunity to develop scientifically sound, far seeing alternatives that are capable of maintaining rare remaining wilderness quality habitat essential to aid in the recovery of at-risk terrestrial, avian and aquatic species and their diverse and often overlapping habitats. Although federal land management cannot arrest all sources of ecological degradation and resultant listed species and species of concern decline, the Forest Service can implement meaningful and enforceable standards and guidelines to maintain

and restore the ecological integrity of wilderness quality roadless area habitat. This approach is both prudent and necessary given the current perilous state of many listed species populations and the often-difficult task of recovering population trends and protecting their remaining habitats from further harms.

The current DEIS preferred alternative protects virtually no roadless or wilderness quality areas at all. By ignoring climate change issues and scientific recommendations on the importance of roadless wilderness quality lands, the agency has abdicated the requirements of the NEPA concerning sound science, expert advice, cumulative impacts, fragmentation, and imperiled species of concern and listed species. The agency in so doing would further violate the requirements of the NFMA with the resultant degradation of essential ecologically more intact habitats for these many species. This is supposed to be a long-term, long range planning document. It is inexcusable that the agency has ignored these significant scientifically sound realities, producing a planning document in this era of significant manifesting climate change harms that fails to have any meaningful awareness or effective action concerning this. The agency has not responsibly nor meaningfully considered such an alternative, and as a result the range of alternatives presented in the BMFPR DEIS is unreasonably narrow. In taking a NEPA requisite 'hard look' at the DEIS it is clear that its proposed standards and guidelines and best management practices, even if these were to be fully funded, implemented and monitored, are clearly inadequate to begin to meet statutory and regulatory requirements to provide for viable fish and wildlife populations and their habitats.

Additionally, the Forest Service presented a limited range of contrived alternatives in the current DEIS that it chose not to develop—limited commercial timber harvest in the DEIS. The DEIS at 3 states:

> We looked at this alternative recommendation but did not study it in detail because it would not meet the legal requirements of the Multiple Use Sustained Yield Act and the National Forest Management Act. These laws require national forests to provide multiple uses and benefits, which include the harvest and sale of timber products. All alternatives we analyzed in detail include areas that are either suitable or unsuitable for timber production and harvest. For example, wilderness areas and recommended wilderness areas are unsuitable for both timber production and harvest. Some areas are not suited for timber production but may allow limited timber harvest, while other areas are suited for both.

If the agency had reasonably approached these above issues in their EIS analysis, they would have been able to develop a reasonable scientifically based range of mixed alternatives that incorporates the science regarding roadless, wilderness, species of concern and listed species, and manifesting climate change. Such a scientifically based, "hard look" NEPA analysis plan could not shirk its duty to proactively protect wilderness quality lands wherever these may yet exist across the forest, and to strategically limit – albeit not exclude entirely – logging extraction activities to areas where they would not further degrade or fragment the forest ecosystem. Instead, the agency has contrived "either or" alternatives that serve little practical purpose other than pretense.

The failure of the agency to take a requisite "hard look", to base its alternatives on the available range of applicable science, and to provide for the long-term vision necessary in a major three-forest region-wide planning document is inexcusable, legally, scientifically, ethically. If an

alternative meets the purpose and need then it is reasonable, and it must be considered in an environmental impact statement. *Native Ecosystems Council*, 428 F.3d at 1247–48 ("In judging whether the Forest Service considered appropriate and reasonable alternatives, [the] focus [is] on the stated purpose"). The agency's fabrication and misuse of contrived 'alternatives,' is naught more than a shallow attempt to evade developing a meaningful, scientifically sound alternative. As such, the DEIS's failure to develop a meaningful range of reasonable alternatives and excluding these from detailed analysis consideration is arbitrary and capricious, and violates NEPA, the NFMA and the APA.

Request: Withdraw the DEIS and remand the it for detailed study of reasonable action alternatives that incorporate the sound science of climate change, ecological integrity, and at-risk species relevant to the Blue Mountains Forest ecosystems. To assist the agency in gathering relevant scientific research, we herein offer this site with quite a number of relevant research studies: https://roadless.org/roadless-research (for further relevant information see our final section at the conclusion of these comments).

H. The Forest Service Must Analyze the Synergistic Impacts of Livestock Grazing and Climate Change on Wilderness Quality Roadless Areas

The DEIS fails to accurately address the full impacts of livestock grazing on wilderness quality roadless areas, especially given the synergistic and cumulative impacts of grazing with ever-more emergent climate change realities. The agency's estimates of range capability fail to account for synergistic effects of livestock grazing and climate change on soil, water, vegetation and fire regime (Beschta et al. 2012). It is unlikely that rangelands in the planning area ever will return to "historical norms" that supported forage production capacity over the past century. Scientific research addressing regional uncertainties in model projections of hydroclimate change, and the continuation of natural climate variability on all timescales, point to the probability that much of western North America will be drier in the current century than in the one just past. Skillful prediction of the magnitude and timing of this drying will require prediction of the rate of anthropogenic change and prediction of the evolving natural variability for which currently there is scant evidence of any predictability beyond the interannual timescale. Another likely outcome is a continuing decline in winter snowpack and earlier onset of snow melt that will add to the stress on regional water resources. Seager and Vecchi (2010: 21282). Historically, "interglacial climates in the southwestern US can experience prolonged periods of aridity, lasting centuries to millennia, with profound effects on water availability and ecosystem composition. The risk of prolonged aridity is likely to be heightened by anthropogenic forcing" (Fawcett et al. 2011: 520). It is predicted that much of eastern Oregon will more and more resemble the climate conditions found throughout the southwestern US, as climate change manifests for significantly over the coming decades. Add to this the already significant extent in regional fires and fire severity, it is clear the agency needs to take a more thorough "hard look" at the science pertaining to climate change in the Blue Mountains region, as well as the ongoing impacts of livestock grazing. The Forest Service does not meaningfully address the realities of climate change and wilderness quality lands in the DEIS, even though it was repeatedly cited by the commenting public, especially in conservation comments, and as such is readily available in the planning record. The Forest Service violated the NEPA, the NFMA and the APA with its

clearly outdated, arbitrary and capricious assumptions of range capability and suitability as pertains to wilderness quality roadless lands throughout the region.

I. The DEIS Fails to Account for Contradictory Analysis Produced in the 2018 FEIS

The arbitrary changes between the 2018 FEIS and the present DEIS—brought about largely by this era's current political governance changes (which remains entirely undisclosed in this DEIS)—add to the issues present in the DEIS, which fails the clear requirements of the NEPA in a myriad of ways.

In this era of rapidly emerging climate change chaos, which these NEPA analysis processes fail to accurately or adequately address or disclose, a scientifically thorough EIS is clearly needed, as changing climatic conditions adversely impact all human and wildlife communities across the totality of our nation's landscape. It is imperative as numerous scientific research studies addressing climate change conclude that ecologically intact wilderness quality and roadless areas be protected in perpetuity as these areas help alleviate the catastrophic impacts of ongoing climate change, providing essential refugia for wildlife, and ecological templates for land managers, giving society its best chance for surviving and enduring in the realities of multiple 500 year storms, fires, and other ongoing environmental mayhem and outright harms to our communities. However, despite this clear, scientifically advocated need, the current DEIS completely fails to address or disclose the ecological and scientific imperative need to address and incorporate scientific research on climate change into this analysis process. Indeed, the DEIS fail to develop any effective alternatives that are based upon sound science especially concerning ongoing climate change.

The current DEIS fails to adequately address this reality or to disclose why areas previously proposed for protection in the previous FEIS have been dropped in this DEIS process. If some monumental degradation occurred, the DEIS fails to state what this may have been or to address these issues in a meaningful hard look analysis required by the NEPA. If indeed these areas are still as they were during the previous NEPA process, then it is required that the agency explain why areas it deemed merited protection in the previous FEIS suddenly were dropped from any protections in this current DEIS. NEPA requires that developed alternatives be reasonable and be based upon accurate site-specific conditions and accurate scientific research. In the current DEIS process, the agency has instead arbitrarily and capriciously tossed aside its previous rationale for proposing protections for these areas, without any relevant or adequate disclosures or analysis as to why this has changed in the new DEIS. Absent such disclosures, absent any relevant research disclosures on climate change, this confusing DEIS process fails the clear requirements of the NEPA for meaningful public involvement, sound science, hard look analysis, and developed scientifically sound effective alternatives.

As part of these comments, regarding the imperative scientific research recommendations of 24 peer reviewed scientific research studies to protect all wilderness quality roadless areas, we herein submit this link to relevant research recommendations, and request that the FEIS responsibly and accurately discloses and addresses the imperative need to protect all natural

ecosystems in perpetuity to best offset the harms and impacts of climate change and our ever ongoing developing society: https://roadless.org/roadless-research

- Among the research recommendations and conclusions are "as forest biomass density goes up, fire intensity goes down" Zald & Dunn (2018), and Haekenbury & Hakkenberg, (2024). Noting that logging thinning makes forests more prone to high intensity burns due to a number of factor including greater wind speed, and solar exposure resulting in significant drying. Additionally most of he agency's thinning projects leave behind significant piles of fuels across the affected forest landscape.
- "Mature forests with higher canopy cover had lower fire severity" Thompson & Spies, (2009).
- "Wildfire was significantly reduced by previous burning, but there was no effect of thinning" Kelp et al (2025), indicating that logging thinning failed to reduce fire severity.
- "Thinning increased wind speeds by 15 to 20 times", noting increased fire severity impacts in logging thinned areas. Hardage et al (2022).
- "Fire will spread 4.5 times faster in an open forest area compared to a dense forest area, and fire in open forest will require 20 times the fire suppression effort as fire in a dense forest." Countryman (1956)
- "Open forests have a more severe fire weather microclimate than dense forest." Chen et al (1999)
- "Long unburned forests don't tend to burn." Odion and Hansen (2010), Miller et al (2012)
- And conclusions by some of the USFS own scientist researchers that the agency has chosen to ignore and failed to disclose in violation of the NEPA: "More open forests with lower biomass have higher fire severity because they have hotter drier windier microclimates, and as these conditions decrease dramatically over relatively short distances into the interior of older forests with multilayer canopies and high tree density." Lesmeister et al (2021) Hung & Willians (2026).
- Vast hordes of important scientific evidence from historical forest surveys certified by US government agencies (USFS, GLO,) have been suppressed and ignored by the USFS.: Baker et al (2023), and Yackwlic et al (2025).

Overall, the abundant bulk of long term historical and ongoing scientific research concludes that natural forest ecosystems by their inherent nature are the most resilient and resistant to the impacts of severe forest fires. Such fires occur most frequently in areas overly managed by the USFS, degraded by past logging and ongoing pretentious projects that inaccurately profess to reduce fire severity by logging-thinning, which has been shown clearly does not work, nor are such logging projects advised in this era of escalating climate change wherein ecologically intact forests are our best way of countering climate change and uncharacteristic severe fires. We herein request the agency withdraw the forthcoming FEIS be based upon sound science before any final revised Blue Mountains Forest Plans are adopted.

X. Sensitive Plants and Botany comments

We are very concerned about at-risk, Special status, Listed, or Sensitive botanical species, or those that are potential Species of Conservation Concern. The FEIS failed to adequately analyze or avoid potential harm to these species from past, present, or future management actions such as logging, road-related activities, livestock grazing, mining, and other actions.

Imperiled botanical species on will be at greater risk of destruction and habitat degradation across these Forests due to the increased logging, roading, and livestock grazing proposed by the DEIS. Special-status botanical species such as ESA-listed Threatened species are likely to suffer declining populations and will be at jeopardy of extirpations and extinctions. Our concerns include any at-risk, Special status, Listed, or Sensitive botanical species including vascular plants, bryophytes, lichen, fungi, and mycorrhizae.

Spalding's catchfly (Silene spaldingii), for example, can be negatively affected by logging, and is only mentioned once in the DEIS, as part of a list of Threatened and Endangered species. Similarly, we are also concerned about Macfarlane's Fouro'clock (Mirabilis macfarlanei), which is affected by livestock grazing. We are also concerned about species such as Davis fleabane, Snake River daisy, White fleabanes, Wallowa needlegrass, and others, which were not even mentioned in the DEIS. Lithosol habitats and other suitable habitats for these species should be avoided.

XI. Economics comments

The DEIS fails to disclose that the timber output planned under the preferred alternative 2 would be unsustainable, leading to a declining flow of timber and a boom-bust cycle.

The proposed Forest Plan Revision DEIS proposes to log over well over 300 million board feet annually across the three forests: *"Under alternative 2, timber outputs of approximately **364 million board feet annually** would result in roughly 72,800 commercial vehicle trips per year"* (DEIS pg. 47). (Emphasis added)

However, past Forest Planning Efforts on the Blue Mountains in 2018 acknowledged in their analyses that 300 million board feet or more annually would likely lead to a decline in timber output after two decades, and cause a boom-bust cycle. The 2018 USFS Draft Record of Decision for the Malheur, Umatilla, and Wallowa-Whitman National Forests Revised Land Management Plans (pg. 37) states: *"Forest Service socio-economic analysis suggests that fully implementing the Departure Alternative would likely result in a **"boom and bust"** cycle affecting communities surrounding the Malheur, Umatilla, and Wallowa-Whitman National Forests. Modeling for the Departure Alternative indicates that **harvest levels at or above 300 million board feet (for the three National Forests combined), could be reduced to half that level after 20 years.** Such a rapid decline in timber harvest has a well-documented potential to decrease incomes, increase poverty, increase foreclosure and bankruptcy rates, increase crime rates, decrease populations and school enrollments, and decrease tax revenues. For these reasons, I decided not to select the Departure Alternative."* (Emphases added)

The USFS 2018 FEIS quote above refers to Alternative D, which proposes a timber volume output of 353 million board feet, the highest volume proposed in that FEIS: *"The projected annual timber volume sold for the Blue Mountains national forests for **Alternative D is approximately 353 million board feet**"* (USFS 2018, FEIS pg. 35). (Emphasis added)

The 2018 FEIS for the Blue Mountains Forest Plan Revision acknowledged that logging proposed under Alternative E Departure Analysis (326 million board feet annually) would also lead to a non-sustainable, declining flow of timber after 20 years. The 2018 FEIS states *"The predicted annual timber volume sold for the Blue Mountains national forests **for Alternative E-Modified Departure is approximately 326 million board feet**"* The 2018 FEIS (vol 1 chapter 2 pg. 41-42) also states:

> *"Alternative E-Modified Departure Plan components for Alternative E-Modified Departure are identical to plan components for Alternative E-Modified except for objectives that increase the pace and scale of restoration over the next 20 years. The National Forest Management Act limits the allowable sale quantity (ASQ) to a volume that can be harvested annually "in perpetuity," which is known as a "nondeclining even-flow." The intent of nondeclining flow is to prevent higher than sustainable harvest levels in one decade from resulting in lower harvest levels in future decades, which is especially important for communities where a consistent supply of wood products from national forests contributes to and helps maintain the stability of the local economy.*
>
> *The 1982 planning regulations (219.16 (a)(3)) allow for the evaluation of alternatives that "depart" from the nondeclining even flow requirement if it will lead to better attaining the overall objectives of multiple-use management when any of the following conditions are indicated:*
>
> *• to significantly reduce or prevent high mortality losses from any cause;*
>
> *• to improve forest age- or size-class distributions;*
>
> *• implementation of the base sale schedule would have a substantial adverse impact upon a community in the economic area of the forest; or*
>
> *• overall multiple-use objectives would otherwise be better attained.*
>
> *Under Alternative E-Modified Departure, the timber sale program quantity (TSPQ - the estimation of annual timber planned for sale), would increase by 59 percent over Alternative E Modified. Within 20 years, Alternative E-Modified Departure would thin a larger proportion (approximately 70 percent) of the dense, overstocked, dry, upland forest in lands suitable for timber production compared to Alternative E (approximately 30 percent). With most of the thinning of dry upland forest completed in the first 20 years, harvest levels for Alternative E Modified Departure would be expected to decrease substantially in future decades, compared to Alternative E-modified, as the Forests transition to a lower overall sustainable, "maintenance" level of harvest."* (Emphasis added)

Note that the timber volumes proposed under these 2018 alternatives are considerably less than the currently proposed volume of 364 million board feet in the 2026 DEIS. The current 2026 DEIS is proposing unsustainable, and would lead to a declining flow of timber and a boom bust cycle.

The 2018 FEIS goes on to acknowledge the negative societal repercussions that are likely to arise from unsustainable logging. The 2018 FEIS (vol. 1, chap. 3: Pg. 142): *"The substantial decline in timber volume sold at the end of the 20-year period could lead to decrease in incomes per capita in the communities surrounding all three National Forests in the socio-economic impact zones, increases in poverty, increases in unemployment compensation payments, foreclosures, personal and business bankruptcies, and decreases in tax revenue relative to what they would have been under the alternatives with a non-declining flow of timber volume sold."*

The FEIS 2018 continues: *"These 2,500 loggers and other workers in firms that do business with the forest products industry including restaurants and retails shops would need housing, schools, municipal services like trash collection and policing for themselves and their families. This could lead to declines in housing availability and affordability. For example, new residents and even long-time residents who rent and work in low wage sectors may have trouble finding affordable housing. Public services including policing, schools, hospitals and roads could be overwhelmed during the boom. That means classrooms could be overcrowded and medical care could be difficult to obtain. The substantial decline in timber volume sold at the end of the 20-year period could lead to decrease in incomes per capita in the communities surrounding all three National Forests in the socio-economic impact zones, increases in poverty, increases in unemployment compensation payments, foreclosures, personal and business bankruptcies, and decreases in tax revenue relative to what they would have been under the alternatives with a non-declining flow of timber volume sold."*

More discussion continues in the 2018 FEIS (pg. 144): *"Alternative E-Modified Departure would manage for a declining flow of timber volume sold from the Blue Mountains national forests. As described above, the declining flow of timber could lead to a boom-and-bust cycle. Low-income populations could be disproportionately affected by an economic boom and bust. While timber volume sold is elevated, in-migration could cause home prices to increase, which would disproportionately affect low-income individuals. However, low-income individuals may also benefit from increased employment opportunities. Under Alternative E-Modified Departure, the decline in timber volume sold after 20 years could lead to an economic bust. Low-income individuals would have fewer resources (e.g., savings and other assets) available to help them adapt to economic change."*

The 2026 Blue Mountains Forest Plan Revision has failed to disclose that the unsustainable, declining flow of timber that they are proposing would result in a boom-bust cycle with severe and widespread economic and societal repercussions in approximately 20 years after implementation.

The DEIS fails to analyze the economic costs associated with negative impacts to water quality, stream habitats, fishing, and other environmental degradation as a result of increase livestock

grazing. In addition to these economic externalities, what are the estimated taxpayers losses from below-market rates for livestock grazing across the three Forests in the Blues?

In addition, the DEIS fails to disclose or analyze the severe negative repercussions associated with proposed logging on recreation opportunities, and recreation-associated economic revenue streams. also fails to analyze economic expenses associated with increased sedimentation in Municipal Watersheds, and the potential expenses related to needed upgrades to filtering technologies for those cities.

XII. Mining comments

The proposed plan contains insufficient plan components to protect forest resources from mining and mineral extraction, and the DEIS fails to analyze the consequences of removing existing safeguards.

The Forest Service has authority to regulate mining to protect National Forest resources under the Organic Act and its implementing regulations. 16 U.S.C. § 551; 36 C.F.R. Part 228. Additional authorities to regulate mining and mineral extraction arise in NFMA, the ESA, the Wild and Scenic Rivers Act, the Wilderness Act, the Clean Air Act, and the Clean Water Act. Section 313 of the Clean Water Act requires federal agencies to comply with applicable water quality requirements, including state antidegradation requirements that may implicate mining and other resource extraction activities. 33 U.S.C. § 1323(a); *See Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1153 (9th Cir. 1998); *National Wildlife Federation v. U.S. Army Corps of Engineers*, 384 F.3d 1163, 1167 (9th Cir. 2004).

The existing Blue Mountains forest plans contain plan components implementing these responsibilities. The Malheur Forest Plan, for example, includes seasonal restrictions for big game, protections for bald eagles and old growth, limitations on mining roads in semi-primitive non-motorized areas, requirements to protect or enhance water resources, and prohibitions on new mining claims and mineral leases within specified river corridors. Malheur Forest Plan at IV-75, IV-98, IV-106, IV-118, IV-129, IV-138. Existing INFISH/PACFISH standards provide additional protections: MM-1 requires minimizing adverse impacts to inland fish and taking all practicable measures to maintain, protect, and rehabilitate affected fish and wildlife habitat in RHCAs; MM-2 directs that structures, support facilities, and roads be located outside RHCAs unless no alternative exists and limits necessary road construction to the minimum required. These standards provide meaningful protection against mining impacts. See *Hells Canyon Pres. Council v. Haines*, No. CV 05-1057-PK, 2006 WL 2252554 (D. Or. Aug. 4, 2006).

Removing these safeguards contradicts the Forest Service's own analysis in the assessment phase of the BMFPR. The Minerals and Geologic Hazards Assessment states that existing management guidance, together with ESA consultation and state Clean Water Act administration, has generally been sufficient to prevent unacceptable resource effects from mining and mineral extraction. Assessment at 11. It also anticipates increased interest in critical minerals and greater management challenges due to deposits occurring near streams supporting threatened or endangered fish. *Id.* The agency offers no adequate explanation for abandoning protections it describes as effective while at the same time anticipating increased threats.

Mining can contaminate surface water and groundwater, generate dust and other air pollution, leave abandoned waste sites, harm fish and wildlife, expose nearby communities to toxic contaminants, and degrade wilderness, recreation, and scenic values. Yet the DEIS fails to examine how removing existing standards would affect mineral exploration and development or exacerbate their impacts. In the FEIS, the Forest Service must justify any proposed removal of these safeguards and take a hard look at the reasonably foreseeable consequences of allowing mining without them.

XIII. Cumulative Effects comments

NEPA requires a quantifiable and detailed analysis of the cumulative effects of a proposed action. 42 U.S.C. § 4332; *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1379 (9th Cir. 1972); *Idaho Sporting Congress v. Rittenhouse*, 305 F.3d 957, 963 (9th Cir. 2002). However, the DEIS only contains a single reference to cumulative effects in its brief discussion of a forthcoming endangered species analysis. DEIS at 64. As such, commenting on any cumulative effects analysis in this DEIS is impossible. The DEIS should have addressed the cumulative effects of the Forest Service's proposed actions, goals, and objectives, and the reasonably foreseeable effects of these proposed forest plans and the likely site-specific actions that will naturally flow from those plans. Without this analysis, the DEIS does not provide sufficient and analysis information for the Forest Service to engage in informed decisionmaking or allow for meaningful public participation, and is therefore *de facto* legally insufficient. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348–49 (interpreting 42 U.S.C. § 4332).

The forthcoming FEIS must address the past and ongoing effects to terrestrial, avian, and aquatic ESA-listed species and species of conservation concern, and their habitat. In addition, the FEIS must account for cumulative effects to forest resources and sensitive plants will be affect by the proposed action. Finally, the FEIS must address the cumulative effects to the Blue Mountains ecoregion as a whole in order to account for the century of ecological degradation the region has suffered under the Forest Service's management. *See* Dr. Dellasala's Expert Report.

XIV. Wildlife comments

Although the Forest Service's planning regulations no longer utilize Management Indicator Species (MIS), the proposed plans can and should still incorporate the population viability standards that protected MIS and their habitat, and in fact should seek to strengthen these protections. Without these enforceable population viability standards, native species on the Blue Mountains national forests face increased risk of extirpation and extinction. Many of these species are already in decline, and require strong habitat and population protections to persist in the face of dual climate and biodiversity crises. The MIS habitat protection standards also protected habitat for numerous other species that did not receive explicit protections themselves. The Forest Service's focus on individual SCC does not provide this same level of proxy protections.

The Forest Service must also include plan components to fully retain and protect wildlife connectivity corridors in order to allow species to migrate from habitat made unsuitable by climate change—from widespread fires, extreme ambient temperatures, and prolonged heatwaves—to suitable habitat. Wildlife connectivity corridors with thermal and hiding cover and water retention are vital for the dispersal of genetic diversity in the face of a rapidly changing climate.

Please refer to the Wildlife Specialist Report prepared by Monica Bond, Ph.D., Principal Scientist with the Wild Nature Institute and a member of BMBP's Board of Director's for additional comments on birds and terrestrial wildlife species, incorporated into BMBP's comments on the DEIS.

A. Roads and Elk

The DEIS proposes to replace the effective, enforceable road density standards with a nebulous "nutrition-based approach". This runs counter to the best available science, and will be devastating to elk and elk habitat security in the Blue Mountains. Decades of peer-reviewed telemetry data, much of it conducted northeast Oregon at the Starkey Experimental Forest, unequivocally demonstrate that high open road densities cause severe behavioral displacement, forcing elk to abandon critical habitats on public lands. By abandoning the 1990 plan's strong, quantitative, and enforceable standards for road density and motorized routes, the agency is actively choosing to prioritize motorized recreation and corporate logging infrastructure over the basic survival needs of native wildlife.

The Malheur National Forest alone contains 7,033 miles of open roads and 2,637 miles of closed roads, for a mind-boggling total of 9,670 miles of existing inventoried roads. The Wallowa-Whitman is similarly inundated with 9,119 total miles of existing roads, demonstrating how the agency has allowed linear infrastructure to completely overwhelm elk security and wildlife habitats across the region. (Please see our "Roads are a widespread threat to water quality and wildlife habitat" attachment for citations and more information on the roads system on these Forests).

Providing elk forage is useless if a bloated network of open roads and constant motorized disturbance prevents elk from safely accessing forage. Under the proposed Forest Plan Revision, the elimination of road density standards ensures that the landscape will remain fragmented by an unsustainable network of roads, causing elk to incur massive metabolic energy costs as they try to avoid ATVs, logging trucks, and other motorized uses. This chronic, human-induced stress strips elk herds of their security cover, rendering elk highly vulnerable to hunting and forcing entire populations to flee high-elevation areas.

Compounding this threat, vital elk security habitat, thermal cover, and sensitive areas for birthing and raising calves have already been systematically dismantled across the Blue Mountains through heavy logging and canopy removal in numerous commercial timber sales. The Forest Service has regularly used site-specific Forest Plan amendments to bypass their own regulations and ignore mandatory standards for thermal protection, wildlife connectivity, and other crucial wildlife habitat. We have witnessed this pattern over and over again in massive sales like the

Ellis, Austin, Ragged Ruby, and Mill Creek projects, where the agency has targeted the last remaining mixed conifer and mature and old forests with multi-layered canopies. The agency has already degraded or destroyed essential hiding cover on summer and winter ranges in recent and ongoing timber sales across the Blue Mountains. The average existing road density on the Malheur National Forest has reached a crisis level of 3.56 miles per square mile. When Wilderness and Roadless areas are excluded, that number spikes to an unacceptable existing road density of 4.23 miles per square mile, resulting in severe forest fragmentation and chronic sediment delivery that chokes our streams.

The negative impacts of these systemic planning failures are already playing out across the region, with displaced elk herds are being driven off their traditional strongholds on National Forests and onto low-elevation private agricultural lands. Rather than addressing the root cause, i.e., the agency's refusal to close and obliterate ecologically destructive forest roads, the DEIS would also intensify conflict through opening up over 722,000 acres of previously protected roadless areas to more roads, logging, and livestock grazing. The agency admits it faces a massive budget shortfall, with an allocated road maintenance budget that only covers approximately 20 percent of the funds needed to adequately maintain this out-of-control road system. Yet, instead of reducing road densities to align with fiscal reality and ecological sanity, the Forest Service is abandoning enforceable standards altogether. We urge the agency to retain and strengthen the current mandatory, legally binding road density standards in order to protect the elk and wildlife habitat, and ecological integrity.

The Forest Service’s attempt to abandon mandatory road density standards in favor of an unenforceable nutrition-based approach will drive downward population trends and cause a loss of viability for elk across the Blue Mountains. The National Forest Management Act (NFMA) and the 2012 Planning Rule require the agency to use the best available scientific information to ensure the diversity and persistence of native species like Rocky Mountain elk. By eliminating the quantitative standards that decades of research show are vital to herd security (please see research such as telemetry studies from the Starkey Experimental Forest), the Forest Service is acting in an arbitrary and capricious manner.

Furthermore, the agency has historically failed to meet its legal obligations to complete comprehensive travel planning under the 2005 Final Rule for Travel Management on the Malheur and Wallowa-Whitman National Forests. Instead of correcting these long-standing compliance failures, this Forest Plan revision seeks to codify them, replacing binding constraints (standards) with vague guidelines that offer no real administrative accountability or measurable protection for wildlife.

This systemic disregard for enforceable standards triggers additional legal violations concerning watershed protection and protected species. The National Environmental Policy Act (NEPA) requires a rigorous analysis of cumulative impacts, yet the agency's framework ignores how eliminating road density standards will compound existing habitat degradation from commercial timber sales. Decades of heavy logging in timber sales like the Ellis and Ragged Ruby sales have already systematically dismantled essential thermal and hiding cover, forcing elk off public lands and violating programmatic intent. Legally binding standards, including road density standards,

are the only mechanism to prevent further landscape fragmentation. By shifting from strict standards to discretionary guidelines, objectives, and desired conditions, the Forest Service abdicates its regulatory duties, leaving vulnerable watersheds and terrestrial habitats exposed to irreversible damage while shielding itself from the public accountability that mandatory Forest Plan standards are designed to guarantee.

XV. Tribal Rights and Interests comments

The 2012 Planning Rule requires the Forest Service to meaningfully engage with Indigenous governments and incorporate Indigenous knowledge into national forest planning efforts. 36 C.F.R. § 219.4. BMBP strongly urges the Forest Service to ensure that Tribal governments are included to the fullest extent possible and desired in the Blue Mountains Forest Plan Revision process in order to maintain and enhance culturally important plants, fish and wildlife species, ecological features, and landscape. Such collaboration will only serve to produce more robust and ecologically appropriate Blue Mountains Forest Plans that best serve the land and the people that rely upon it.

XVI. Conclusion

In conclusion, the Forest Service must either address these concerns in the FEIS or retract the published DEIS and produce a Supplemental DEIS that address the deficiencies identified in these comments.

Sincerely,



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