EARTHJUSTICE

March 23, 2026

VIA BLM E-PLANNING PORTAL
https://eplanning.blm.gov
Project Number DOI-BLM-ORWA-0000-2026-0001-RMP-EIS
Email: BLM_OR_Revision_Scoping@blm.gov

Re: Comments on Bureau of Land Management's Notice of Intent to Revise Resource Management Plans for Northwestern and Coastal Oregon and Southwestern Oregon in Oregon/Washington and Prepare an Associated Environmental Impact Statement.

Greetings:

Please accept these scoping comments submitted by the undersigned groups on the Bureau of Land Management (BLM) Notice of Intent (Notice of Intent or Scoping Notice) to revise its 2016 Resource Management Plans (RMPs) for western and southwestern Oregon. Many of the undersigned groups will also be submitting individual comments to stress areas of particular importance to their work. Submitted in connection with these comments are over 500 studies, papers, agency documents, and other evidence that support the points made within these comments and are relevant to BLM's consideration of revisions to these RMPs.

INTRODUCTION AND SUMMARY

These comments provide input into the scoping process for BLM's proposed revisions of the Western Oregon Resource Management Plans. The undersigned groups and their thousands of members advocate for management of our federal public forests in scientifically sound ways that protect fire-resilient mature and old growth forests, threatened and endangered species, and clean water for current and future generations. Federal forests also advance human and community health, provide areas for recreation, ensure clean, drinkable water for our communities, and play a significant role in storing carbon to ameliorate the impacts of climate change.

We share a common and hopeful vision for the long-term health and resilience of the forests, rivers, wildlife, and communities of western Oregon. Our members, staffs, boards, supporters, and volunteers believe that public forests are valuable beyond their weight in dimensional lumber. We treasure the world-class landscapes that we live and work in, and we envision a future for western Oregon that includes large and vibrant old-growth forests, rivers teeming with salmon, and communities that thrive from the sustainable and responsible use of our natural resources.

There is a lengthy history surrounding revisions of these particular RMPs. In 1995, the six southwest Oregon BLM districts amended their RMPs to adopt the scientifically based Northwest Forest Plan, an ecosystem management plan that also covered 19 national forests in the Pacific Northwest. In 2008, BLM first proposed to withdraw its 2.6 million acres from

Northwest Forest Plan management, adopting RMPs that dramatically reduced protections for old-growth forests, threatened and endangered species, and aquatic habitat. This revision was ultimately vacated by an Oregon federal district for failing to comply with the Endangered Species Act (ESA).[1]

BLM quickly started a second revision process that led to the 2016 RMPs in effect today. During that process, consultation with FWS and NMFS under the ESA somewhat reduced BLM's visions of vastly expanded timber harvest. But timber harvest still increased under the 2016 plans, and protections for northern spotted owls, marbled murrelets, native fish, river systems, watersheds, and mature and old-growth forests suffered. Not content with the timber increase, however, timber industry groups challenged the 2016 RMPs for allegedly failing to provide enough timber.[2] While a D.C. district court ruled in favor of timber plaintiffs, this decision was reversed by the D.C. appellate court, which held that BLM had a duty to consider multiple uses when managing this lands, including protection of threatened and endangered species and clean water, when managing these lands.[3] In fact, in 2023, two different appellate courts reviewed the language of the land management law at issue—the Oregon and California Railroad Grant Lands Act (O&C Act)—and each held that BLM had the discretion to manage its lands to comply with multiple federal statutes, and particularly, that BLM was *not* under a legal obligation to sell 100% of its declared annual sustained yield capacity.

BLM has now managed these lands under the 2016 RMPs for ten years. As required by BLM policy, BLM undertook a plan evaluation to determine whether land use decisions and other analyses remained valid and whether the plan was being implemented appropriately.[4] In 2022, BLM issued an Evaluation Report for the 2016 Oregon RMPs. That report concluded that no changed circumstances or new information supported RMP revisions, and the only basis for revisions at that time was the now reversed 2019 D.C. district court order that demanded increased logging:

> Other than the [since vacated district court order], there is no information indicating any RMP decisions need to be revised or dropped or that any areas require new decisions at this time. There are no changed circumstances or new information creating a situation where expected impacts or environmental consequences of the RMPs are significantly different than those anticipated in the RMP EIS. At the broadest level, it appears that plan objectives are being met or are likely to be met. Therefore, other than this [vacated] remedy order, there is no need for an RMP amendment or revision at this time.[5]

This evaluation and the 2023 court decisions could have led to a more predictable period for these BLM forests. Yet BLM has decided to revise the western Oregon RMPs yet again, with an

[1] *Pacific Rivers Council v. Shepard*, Final Judgment, No. 03-00442-HU (D. Or. May 16, 2012).

[2] *Swanson Group Mfg. LLC v. Bernhardt*, 417 F. Supp. 3d 22 (D.D.C. 2019).

[3] *American Forest Resource Council v. United States*, 77 F.4th 787 (D.C. Cir. 2023).

[4] 43 C.F.R. 1610.4-9; BLM Land Use Planning Handbook, H-1601-1, p.34.

[5] BLM Resource Management Plan Evaluation Report at 36 (March 2022).

aim to increase timber production, this time to a level "that aligns with the historically higher levels of production" on these lands.[6] To be clear, the referenced "historically higher levels of production" are the 1960s and 1970s—*before* adoption of the current federal laws that BLM must comply with.

BLM cannot legally return to the harvest levels of 60 years ago. Those unsustainable harvest levels ignored clean water, threatened and endangered species, and science-based ecological forestry principles; existed in a different climate with lower fire risks; and prioritized short-term financial gains over long-term community health and resilience.

BLM also discusses its desire to harvest more green and salvage timber due to wildfires. Rather than reducing fire risk, BLM's proposal to return to one billion board feet volumes will exacerbate wildfires through increased commercial logging and deepen environmental harm with salvage logging that harms an already fragile ecosystem. In 2022, BLM wrote about its fire and fuels management that "progress is being made across all treatment types in the fires and fuels program."[7] BLM also explained that its modeling for the 2016 RMPs showed minimal effects to the long-term allowable sale quantity from simulated wildfires, and that evaluation after two fires in the early days of the RMPs agree with the minimal effects on timber determination.[8] BLM then analyzed each sustainable yield unit to determine whether to change allowable sale quantity, based primarily on fire, and did not recommend any changes.[9]

BLM also waives in passing at Executive Order 14223, Addressing the Threat to National Security from Imports of Timber, Lumber, and Their Derivative Products, and Executive Order 14225, Immediate Expansion of American Timber Production. While these executive orders reveal the current administration's priorities, nothing in either order overrides BLM's legal duties discussed further below.

To be clear, BLM provides no valid justification for revising these plans. Four years ago, BLM itself found "no information indicating any RMP decisions need to be revised." To the contrary, ever-evolving science since 2016 highlights the need for more forest protections, not fewer. If BLM feels compelled to revise the 2016 RMPs then it must fully account for this science and explore alternatives that better protect western Oregon's forests, watersheds, communities, and wildlife.

BLM's e-planning website puts forward an ambitious schedule for this revision process, with a draft Environmental Impact Statement (Draft EIS) scheduled for June 12, 2026 and a Final Environmental Impact Statement date of November 6, 2026. This rushed schedule is unnecessary and could lead the agency to cut corners. Under the National Environmental Policy Act (NEPA), BLM must fully evaluate impacts and propose and examine in detail all reasonable alternatives,

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[6] BLM, Notice of Intent to Revise Resource Management Plans for Northwestern and Coastal Oregon and Southwestern Oregon in Oregon/Washington and Prepare an Associated EIS, 91 Fed. Reg. 8017, at 8018 (Feb. 19, 2016).

[7] BLM Resource Management Plan Evaluation Report (March 2022) at 25.

[8] *Id.* at 13.

[9] *Id.* at 13–16.

including restoration focused alternatives that return these lands to management under the Northwest Forest Plan, adopt mature and old-growth forest protections, prioritize long-term watershed health, account for evolving climate and wildfire risks, protect imperiled species, advance science-based ecological forestry principles, and promote long-term community stability. NEPA also requires BLM to use high quality science, including Indigenous Knowledge, in its analysis and decision making. BLM must allow time for public notice and comment under NEPA and FLPMA, with FLPMA's minimum 90-day comment period controlling.[10] Consultation under Section 7 of the ESA will require review by both the Fish and Wildlife Service and the National Marine Fisheries Service, both of which have been critical of BLM's past efforts. This proposed revision process, should it go forward, is of great public interest and importance, and BLM must involve the public at every step.

LEGAL FRAMEWORK

BLM must ensure that any proposed revision of the 2016 RMPs complies with:

- the Oregon and California Railroad Grant Lands Act (O&C Act), including obligations to provide a permanent source of timber, protect watersheds, regulate stream flow, contribute to the economic stability of local communities and industries, and provide recreational facilities;

- the Federal Land Policy and Management Act (FLPMA), which governs BLM's land management on issues and matters where not in conflict with the O&C Act;

- the National Environmental Policy Act (NEPA), including requirements to take a "hard look" at environmental consequences, use high-quality scientific information, and consider all reasonable alternatives;

- the Endangered Species Act (ESA), including obligations under Section 7(a)(2) to avoid jeopardy to protected species and destruction or adverse modification of designated critical habitat, and duties to follow recovery plans for listed species like northern spotted owl, marbled murrelet, and salmon and steelhead populations;

- the Clean Water Act (CWA) and its mandates that BLM comply with water quality standards and protects river systems from point and non-point source pollution; and

- the Public Lands Rule, which requires BLM to manage public lands to maintain ecosystem resilience, ecological integrity, and habitat connectivity.

I. THE O&C ACT REQUIRES BLM TO ACHIEVE MULTIPLE, CO-EQUAL GOALS.

BLM's scoping notice emphasizes the need to increase timber harvest, purportedly on a sustained yield basis, to levels that "align[] with the historically higher levels of production from

[10] 43 U.S.C. § 1712; 43 C.F.R. § 161.2(e).

BLM-administered public lands governed by the O&C Act.[11] BLM asserts that the need for this revision "is established by the requirements of the O&C Act" to determine the productive capacity of the lands, declare the allowable sale quantity, and offer that quantity for sale annually.[12] That is not what the O&C Act requires or allows. The O&C Act does not require maximum timber production from every acre all the time, or for that matter, from any particular acre at any time. Indeed, other than calling for a sustained yield of timber from such O&C lands as may be classified as "timberlands," the O&C Act does not specify the sale of *any* particular amount of timber from the O&C lands once BLM has identified lands suitable for forest production.

The O&C Act governs railroad grant lands that were revested in the federal government due to the railroad company's breach of its statutory duties. In the Act, Congress sought to put an end to wasteful and destructive logging practices that clearcut large forest areas for short-term gains without safeguarding the forests and other resources. The Act instituted a conservation ethic, marking the first federal statute to impose sustain-yield constraints on timber cutting. It is a short statute:

> [the O&C lands] shall be managed . . . for permanent forest production, and the timber thereon shall be sold, cut and removed in conformity with the principal [sic] of sustained yield for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating stream flow, and contributing to the economic stability of local communities and industries, and providing recreational facilities.[13]

For years, the timber industry contended that BLM was required to manage O&C lands under a timber-first mandate, even though the Ninth Circuit had held that BLM must comply with NEPA, the ESA, and other environmental laws in its management of these lands.[14] This issue, especially that of ESA compliance, was at the heart of the legal controversy surrounding the 2008 RMP revisions, with the ultimate result being the vacatur of those RMPs because BLM failed to consult with FWS and NMFS under ESA § 7(a)(2).[15] BLM promulgated the 2016 RMP revisions (currently in place) with ESA and CWA compliance in mind, and the D.C. Circuit upheld BLM's balance in the 2016 RMPs.[16]

In *AFRC v. United States*, the appellate court addressed appeals from groups challenging the 2017 expansion of the Cascade-Siskiyou National Monument and the 2016 RMPs. The appeals were consolidated because the interpretation of the O&C Act was at the heart of both challenges. The appellate court was clear in its ruling: the 2016 RMPs were a permissible exercise of the

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[11] BLM, Notice of Intent, 91 Fed. Reg. at 8018.

[12] *Id.*

[13] 43 U.S.C. § 1181a.

[14] *See, e.g., Portland Audubon Soc'y v. Lujan*, 998 F.2d 705, 709 (9th Cir. 1993); *Seattle Audubon Soc'y v. Lyons*, 871 F. Supp. 1291 (W.D. Wash. 1994).

[15] *Pacific Rivers Council v. Shepard*, Final Judgment, No. 03-00442-HU (D. Or. May 16, 2012).

[16] *Am. Forest Res. Council v. United States*, 77 F.4th 787 (D.C. Cir. 2023).

Secretary's discretion under the O&C Act. BLM had the discretion—and indeed the legal duty—to create old-growth and riparian reserves to comply with the ESA and CWA, even though those reserves removed land from the timber base.[17]

The D.C. Circuit stressed the multiple uses of these federal lands:

> Moreover, although the principal management objective of the O & C Act is "permanent forest production ... in conformity with the princip[le] of sustained yield," 43 U.S.C. § 2601; *see also Headwaters, Inc. v. BLM*, 914 F.2d 1174, 1184 (9th Cir. 1990) ('[T]he O & C Act envisions timber production as a dominant use.'), the Act also authorizes the Secretary to manage the O & C land for uses other than the production of timber, including 'protecting watersheds, regulating stream flow, and contributing to the economic stability of local communities and industries, and providing recreational facil[i]ties,' 43 U.S.C. § 2601.[18]

The Ninth Circuit came to the same conclusion in a nearly identical challenge to the expansion of the Cascade-Siskiyou National Monument.[19] There, the appellate court concluded that "the O&C Act's plain text envisions economic, recreational, and environmental uses for the O&C Lands beyond logging and grants [BLM] significant discretion in how to achieve statutory compliance."[20]

A. Safeguards Drawn From the O&C Act

Under the O&C Act, O&C lands classified as "timberlands" "shall be managed . . . for permanent forest production," subject to constraints in the O&C Act itself and other laws.[21] Permanent forest production, of course, is not synonymous with commercial logging. A 1979 Interior Solicitor memorandum clarified that forest production need not be for commercial use. That is but one of many types of "forest production." Such "forest production" also could be to protect watersheds, stream flows, or recreation.[22]

Forest production under the O&C Act also is not an end in itself but appropriate only to the extent that it promotes stability of local communities consistent with the other purposes of the Act. In the O&C Act, Congress sought to curtail the type of boom-and-bust logging frenzies that had generated economic instability. Congress decidedly did not support maximizing timber production for short-term economic gain. Instead, it sought to institute long-term sustainability

[17] *Id.* at 801–03 (It was within BLM's discretion "to reclassify O&C land as non-timberland, thus removing the land from the O&C Act's 'permanent forest production' mandate.").

[18] *Id.* at 800.

[19] *Murphy Company v. Biden*, 65 F.4th 1122 (9th Cir. 2023).

[20] *Id.* at 1135; *see also id.* at 1133 ("Here, the O&C Act's plain language empowers [BLM] to classify and manage the revested and reconveyed lands for several purposes—predominantly, but not exclusively, timber production. We cannot ignore the conservation provisions of the Act.").

[21] 43 U.S.C. § 1181a.

[22] Interior Solicitor Mem. (Aug. 27, 1979).

from timberlands. To achieve these goals, BLM must consider alternatives that broadly promote community stability, not just those that would provide "more" commercial timber production.

Indeed, the Final Environmental Impact Statement for the 2016 RMPs indicated that an alternative that simply increased timber harvest would be inconsistent with the O&C Act, which requires that timber harvest "contribut[e] to the economic stability of local communities and industries."[23] "Because the timber industry has a long, national history of high volatility, alternatives with harvest volumes that exceed current levels are likely to introduce greater instability to local economies, based on past business cycles."[24] Introducing greater instability to local economies is inconsistent with the O&C Act.

Finally, the O&C Act explicitly lays out other co-equal requirements for management of the O&C lands. Specifically, the lands must be managed for the purpose of "protecting watersheds, regulating stream flow. . . and providing recreational facilities."[25] Given the grammar and structure of the language of the O&C Act, these requirements are on a par with forest production. The mandate to protect watersheds and stream flow readily supports establishing safeguards like those embodied in the Aquatic Conservation Strategy (ACS) of the Northwest Forest Plan and even in the current ACS under the 2016 RMPs. Similarly, BLM must manage the O&C lands to protect high-quality recreation opportunities. The Interior Solicitor has advised that this mandate "is broad enough to include such things as scenic highways or scenic rivers which are identified as such through the Bureau's planning process."[26] With respect to a wild and scenic river partially on O&C lands, the Interior Solicitor counseled that logging could occur in areas important for recreation *only if* it would not impair recreational or aesthetic qualities.[27]

B. Safeguards Drawn From Other Laws

Numerous statutes other than the O&C Act also establish legal duties that BLM must meet in managing the O&C lands. BLM has long recognized that it must manage the O&C lands to meet multiple co-equal and complementary statutory requirements under the O&C Act as well as other laws.

The operating principle the courts have articulated for managing O&C lands under the O&C Act, FLPMA, and other laws has become one of meeting multiple legal responsibilities. BLM must meet all of its statutory obligations, many of which call for environmental safeguards even where such safeguards lead the agency to classify lands as not suitable for timber production. Indeed, this basic structure underlies the 2016 RMPs. The critical point is that the O&C Act does not tell BLM which lands, or how much land, to identify as suitable for timber production when determining how to comply with all of its statutory obligations. It only says that the agency should provide a sustained yield of timber from those lands that are so classified. It does not set

[23] 43 U.S.C. § 1181a.

[24] 2016 RMP FEIS at 702.

[25] 43 U.S.C. § 1181a.

[26] Interior Solicitor Mem. at 10. (May 14, 1981).

[27] Interior Solicitor Mem. at 1–2 (Oct. 4, 1978) (emphasis added).

either a minimum land base or a minimum timber production requirement, and BLM has not identified either as a matter of law or fact.

More recent court rulings have confirmed that in fact, BLM must comply with NEPA, the ESA, the CWA, and other environmental laws, in addition to the O&C Act, which may have the effect of reducing the amount of timber that can be produced from the O&C lands on a sustained yield basis.[28] Consequently, it is plain that BLM has the legal authority—and in fact a duty—to classify lands as not suitable for timber production and to reduce timber harvests as necessary in order to comply with the provisions of other laws, as well as the multiple O&C Act mandates.

C. A Sustained Yield of Timber Does Not Dictate Increased Logging.

The O&C Act defines "sustained yield" as being "for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating stream flow, and contributing to the economic stability of local communities and industries, and providing recreational facilities."[29] As noted above, these are co-equal purposes that do not specify any particular level of sustained yield of timber, nor could they if all of the purposes are to be met. Yet implicit in BLM's scoping notice is the premise that some levels of sustained yield timber production have a stronger legal footing than others even if those levels of sustained yield also place other protected resources (and purposes and needs for a plan revision) at greater risk. This is incorrect. What is missing from the scoping notice is any explanation or accounting for how BLM thinks it can increase timber harvest off these lands to a level not seen since the 1970s and 1980s in light of the risks this level of timber production poses to other resources.

II. FEDERAL LAND POLICY AND MANAGEMENT ACT

The Federal Land Policy and Management Act (FLPMA) requires BLM to manage public lands "under the principles of multiple use," and that "management must conserve the quality of scientific, scenic, historic, ecological, environmental, air and atmospheric, water resource, and archeological values; preserve and protect certain public lands in their natural condition (including ecological and environmental values); maintain the productivity of renewable natural resources in perpetuity; and consider the long-term needs of future generations, without permanent impairment of the productivity of the land."[30] BLM must prevent "unnecessary or undue degradation" of public lands.[31]

FLPMA has a savings clause that provides that the O&C Act prevails "in the event of conflict with or inconsistency between [FLPMA and the O&C Act] insofar as they relate to management of timber resources, and disposition of revenues from lands and resources . . ."[32] In developing a revised RMP, BLM must meet its FLPMA obligations and implementing regulations unless a

[28] *Murphy*, 65 F.4th 1122; *AFRC*, 77 F.4th 787.

[29] 43 U.S.C. § 1181a.

[30] *Id.* § 6101.5(a), (b).

[31] *Id.* § 2101.5(d)(5).

[32] *Id.* § 1701 note.

clear conflict with the O&C Act exists.[33]

FLPMA obligations include: (1) satisfying the criteria outlined in 43 U.S.C. § 1712(a), including observing multiple use principles, complying with pollution control laws, and giving priority designation to areas of critical environmental concern (ACECs); (2) ensuring meaningful public participation at each stage of the planning process; and (3) satisfy other planning regulatory requirements.

A. BLM's Plan Revision Must Satisfy FLPMA's Statutory Criteria.

Under FLPMA, the Secretary must "develop, maintain, and, when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands."[34] FLPMA directs that land use plans, including their revisions, shall:

(1) use and observe the principles of multiple use and sustained yield set forth in this and other applicable law;[35]

(2) use a systemic interdisciplinary approach to achieve integrated consideration of physical, biological, economic and other sciences;

(3) give priority to the designation and protection of areas of critical environmental concern;

(4) rely on available inventory of public lands, their resources, and other values;

(5) consider present and potential uses of the public lands;

(6) consider the "relative scarcity of the values involved" and alternate means to realize those values;

(7) weigh long-term benefits to the public against short-term benefits;

(8) comply with state and federal pollution control laws, including the CWA; and

(9) coordinate with the land use planning and management of other federal, state, and local agencies and of Tribes.[36]

None of these provisions conflict with the O&C Act's multiple, co-equal goals.[37]

The scoping notice provides no information about how BLM intends to satisfy these provisions. For example, BLM has not explained how a revised management plan will prioritize ACECs,

[33] *Id.* § 1702; 43 C.F.R. Pt. 1600.

[34] 43 U.S.C. § 1712(a).

[35] *See id.* § 1702(c) (defining multiple use to mean "the management of the public lands and their various resources so that they are utilized in the combination that will best meet the present and future needs of the American people …" and listing various resource values including recreation, watershed, wildlife, fish, and timber among others).

[36] *Id*. § 1712(c).

[37] *See AFRC*, 77 F.4th at 802 (riparian reserves and late successional reserves in the 2016 RMP are consistent with the O&C Act).

weigh long-term benefits to the public against short-term benefits or consider the relative scarcity of the values at stake, including mature and old growth forests, healthy watersheds, and imperiled species. To meet these criteria, BLM should consider protecting old growth forests within the planning area as ACECs and consider designating other protective ACECs.[38] ACECs include "areas within the public lands where special management attention is required … to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards."[39] Since the O&C Act supersedes FLPMA only where the two conflict, BLM still has an obligation to designate ACECs particularly where special management is needed to protect ecological values that are consistent with the O&C Act's goals.[40] Old growth protections firmly meet the ACEC definition and regulatory criteria under 43 C.F.R. § 1610.7-2(d) because they provide cultural and scenic value, protect fish and wildlife habitat, ensure healthier watershed, and are naturally resistant to catastrophic fire.

Nor does BLM explain how its proposed revised management plan will coordinate with land use planning and management of other federal agencies, including the Forest Service's efforts to revise the Northwest Forest Plan of which BLM lands were once a part. BLM also does not explain how it intends to ensure compliance with the ESA or CWA.

BLM must, at a minimum, provide these explanations in its Draft EIS and Draft Management Plan and make those documents available for public comment with a 90-day comment period.[41]

B. BLM Must Adhere to the Public Lands Rule.

The Public Lands Rule requires BLM to manage public lands to maintain, restore, and promote their ecosystem resilience, ecological integrity, and habitat connectivity.[42] Under the Public Lands Rule, ensuring multiple use and sustained yield requires BLM to "conserve the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; preserve and protect certain public lands in their natural condition (including ecological and environmental values); maintain the productivity of renewable natural resources in perpetuity; and consider the long-term needs of future generations, without permanent impairment of the productivity of the land."[43] BLM must manage old growth forests to "protect their intactness" and habitat connectivity.[44] To this end, BLM's planning process and EIS must use high-quality information, including Indigenous Knowledge, and solicit public input

[38] 43 C.F.R. § 1610.7-2 (establishing process for designating ACECs).

[39] *Id*. § 1702(a); 43 C.F.R. § 1610.7-2.

[40] *See* 43 U.S.C. § 1702.

[41] *Id.* § 1712 (requiring that BLM allow opportunity for public involvement with "adequate notice and opportunity to comment upon and participate in the formulation of plans and programs relating to the management of the public lands"); *id.* § 1610.2(e).

[42] 43 C.F.R. Part 6100.

[43] *Id.* § 6101.5.

[44] *Id.* § 6102.1.

to identify and delineate boundaries for intact landscapes in the planning area, evaluate alternatives to protect these intact landscapes, and identify which landscapes will be managed for protection.[45]

C. BLM Cannot Issue a Final Plan without Meaningful Public Participation on a Draft Plan and Draft Environmental Impact Statement.

Public participation is critical to BLM's resource management plan process.[46] Comments on the scoping notice alone will not meet BLM's FLMPA public involvement mandate nor will it satisfy NEPA.

BLM has not indicated whether it will seek further public comment on the planning or NEPA processes. Instead, the scoping notice indicates that BLM will not hold any public meetings during the scoping period, has no current plans to hold public meetings later, and will "provide additional opportunities for public participation consistent with the NEPA and land use planning requirements … ."[47] This language falls short of BLM's obligation to explain in the scoping notice "[t]he kind and extent of public participation opportunities to be provided" during the planning process.[48] Instead, BLM's vague statement creates uncertainty about whether it will seek further comment on its Draft Management Plan and Draft EIS or how it intends to comply with the ESA on its short planning timeframe. With respect to public involvement, BLM should clarify that both documents will be subject to a 90-day public comment period.[49] Without such public comment BLM will not be able to finalize the proposed plan.[50]

D. BLM Must Analyze Inventory and Monitoring Data to Formulate Reasonable Alternatives.

In addition to the regulations identified above and the NEPA discussion below, BLM must ensure that it formulates reasonable alternatives based on its analysis of inventory data and

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[45] *Id*. §§ 6102.1; 6102.2; 6102.5.

[46] *See e.g.*, 43 U.S.C. § 1712; 43 C.F.R. § 1601.0-2 (resource management planning must "ensure participation by the pubic, state and local governments, Indian tribes and appropriate Federal agencies); *id*. § 1601.0-8 ("The development, approval, maintenance, amendment and revision of resource management plans will provide for public involvement …"); *id*. § 1610.2(e); *id*. § 1610.5-6 (plan revisions must comply with planning regulations).

[47] BLM, Notice of Intent, 91 Fed. Reg. at 8019.

[48] 43 C.F.R. § 1610.2(c)(5).

[49] 43 U.S.C. § 1712; 43 C.F.R. § 161.2(e) ("Ninety days shall be provided for review of the draft plan and draft environmental impact statement.").

[50] *See* 43 C.F.R. § 1610.4-8 (requiring the Field Manager to evaluate comments received and select and recommend a proposed RMP and final EIS to the State Director, who shall then review and publish the final plan and EIS); 1610.5-1 (requiring public notice and opportunity for public comment on any significant change made to the proposed plan before a final plan is approved).

information, including monitoring data, under FLPMA.[51] When formulating alternatives, BLM must "consider all reasonable resource management alternatives and develop several complete alternatives for detailed study," including a no-action alternative.[52] In addition, consideration of alternatives must "estimate and display the physical, biological, economic, and social effects of implementing each alternative considered in detail."[53] The draft and final plans also must include intervals and standards for monitoring and evaluation of the plan.[54] The monitoring and evaluation intervals and standards "shall be based on the sensitivity of the resource to the decisions involved and shall provide for evaluation to determine whether mitigation measures are satisfied, whether there has been a significant change in the related plans of other Federal agencies …, or whether there is new data of significance to the plan."[55]

As part of its obligation to evaluate significant changes in related plans of other Federal agencies, BLM must consider any changes to the Northwest Forest Plan. The Forest Service issued a Draft EIS in November 2024 to amend the Northwest Forest Plan. Although that planning process has been delayed and may be further revised, any changes to the Northwest Forest Plan, of which BLM's WOPR lands were once a part, will alter the effectiveness of BLM's revised land management plan.

III. NATIONAL ENVIRONMENTAL POLICY ACT

Congress passed NEPA to establish a national policy of environmental protection and to require the federal government to further specific environmental goals by "all practicable means, consistent with other essential considerations of national policy."[56] In passing NEPA, Congress emphasized that federal agencies must follow the statute "to the fullest extent possible."[57] Consistent with this broad mandate, NEPA requires that federal agencies prepare a detailed EIS for any major federal action that may significantly affect the quality of the human environment.[58] An EIS must consider the reasonably foreseeable environmental effects of the proposed agency action, including any unavoidable reasonably foreseeable adverse impacts from the proposed action and the relationship between the short-term use of the environment and the "maintenance and enhancement of long-term productivity."[59] Federal agencies must use reliable data and

[51] *Id.* §§ 1610.4-3; 1610.4-4.

[52] *Id.* § 1610.4-5.

[53] *Id.* § 1610.4-6.

[54] 43 C.F.R. § 1610.4-9.

[55] *Id*.

[56] 42 U.S.C. § 4331(b).

[57] *Id.* § 4332.

[58] *Id*; *see also* 43 C.F.R. § 1601.0-6 ("Approval of a resource management plan is considered a major Federal action significantly affecting the quality of the human environment.").

[59] 42 U.S.C. § 4332(C)(iv).

resources in the EIS and ensure the professional and scientific integrity of its analysis.[60]

By focusing the agency's attention on the environmental consequences of its proposed action, NEPA "ensures that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast."[61] Under NEPA's statutory requirements, agencies must take a "hard look" at environmental consequences of its actions.[62] While "NEPA does not mandate particular results,"[63] it requires federal agencies to "consider every significant aspect of the environmental impact of a proposed action."[64] It also ensures that agencies "inform[] the public that [they have] indeed considered environmental concerns in [their] decisionmaking process."[65]

A. Purpose and Need

BLM's stated purpose and need for the plan revision is too narrow to allow for a full range of alternatives required under NEPA.

An agency's discretion to determine the purpose and need of a project is not unfettered. Courts require an agency's definition of purpose to be reasonable.[66] "[A]n agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action, and the EIS would become a foreordained formality."[67]

BLM's stated purpose for the plan revision is "to seek an increase in sustained yield of timber harvest that aligns with the historically higher levels of production."[68] Additionally, BLM "seeks to enhance its ability to implement forest treatments to mitigate the devastating effects of

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[60] *Id*. § 4332.

[61] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

[62] *Kleppe v. Sierra Club*, 427 U.S. 390, 410, n.21 (1976); *Ctr. for Biological Diversity v. BLM*, 141 F.4th 976, 993 (9th Cir. 2025) (quoting *N. Alaska Env't Ctr. v. Kempthorne*, 457 F.3d 969, 975 (9th Cir. 2006) (citation omitted)).

[63] *Id.* (quoting *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 814 (9th Cir. 1999)).

[64] *Id.* (citation omitted).

[65] *Id.*; *see also Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.,* 538 F.3d 1172, 1194 (9th Cir. 2008) (an agency adequately conducts a "hard look" when it provides "a reasonably thorough discussion of the significant aspects of the probable environmental consequences" of a proposed action).

[66] *City of Carmel-by-the-Sea v. U.S. Dep't of Transp*., 123 F.3d 1142, 1155 (9th Cir. 1997); *Nat'l Parks & Conservation Ass'n v. Bureau of Land Mgmt.*, 606 F.3d 1058, 1070 (9th Cir. 2010).

[67] *Citizens Against Burlington, Inc. v. Busey,* 938 F.2d 190, 196 (D.C.Cir.1991), *cert. denied,* 502 U.S. 994 (1991)).

[68] BLM, Notice of Intent, 91 Fed. Reg. at 8018.

wildfire and to salvage timber killed by wildfire, drought, and other disturbances."[69]

BLM's stated need for the plan revision "is established by the requirements of the O&C Act to determine the productive capacity of O&C timberlands, declare the allowable sale quantity and offer it for sale annually and consider information in the period following adoption of the 1994 Northwest Forest Plan, during which time timber production substantially decreased compared to historically higher levels, with a corresponding decrease in economic output." BLM asserts that the need for the RMP revision is further established by Executive Order 14223, *Addressing the Threat to National Security From Imports of Timber, Lumber, and Their Derivative Products* and Executive Order 14225, *Immediate Expansion of American Timber Production*.

Through this narrow purpose and need statement, BLM has improperly predetermined that the only way to meet the intent of the O&C Act is through increased timber production. Instead of leaping to such a conclusion, BLM's purpose and need should foster open-ended consideration of alternative ways of regulating water flow, protecting watersheds, and meeting community economic stability while meeting other legal obligations, including those embodied in the ESA and CWA.

B. Full Range of Reasonable Alternatives

BLM must consider a full range of alternatives in the EIS.[70] In preparing an EIS, NEPA requires the agency to "study, develop and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources."[71] The "touchstone" of the alternatives analysis is "whether [the] selection and discussion of alternatives fosters informed decision-making and informed public participation."[72] "The existence of a viable but unexamined alternative renders an environmental impact statement inadequate."[73]

The Scoping Notice states that BLM will consider, in addition to a no action alternative, a preliminary action alternative that will "provide a sustained yield of timber production consistent with the maximum productive capacity of the lands."[74] This is not sufficient. Beyond the no action alternative and the preliminary action alternative, BLM must analyze a full range of alternatives to comply with NEPA's core mandate. Alternatives should include restoration focused alternatives that return BLM lands to management under the Northwest Forest Plan, adopt mature and old-growth forest protections and ensures their connectivity, protect ecosystem reliance to disturbance and climate change, protect imperiled species, protect watershed and

[69] *Id*.

[70] 42 U.S.C. § 4332(2)(C)(iii); *see also* 43 C.F.R. § 1601.0-6.

[71] 42 U.S.C. § 4332(H).

[72] *Westlands Water Dist. v. U.S. Dep't of Interior*, 376 F.3d 853, 872 (9th Cir. 2004) (quoting *California v. Block*, 690 F.2d 753, 767 (9th Cir. 1982)).

[73] *Morongo Band of Mission Indians v. FAA*, 161 F.3d 569, 575 (9th Cir. 1998); *Alaska Wilderness Recreation & Tourism v. Morrison*, 67 F.3d 723, 729 (9th Cir. 1995).

[74] BLM, Notice of Intent, 91 Fed. Reg. at 8018.

clean water, advance science-based ecological forestry principles, maintain late-successional forest integrity, and promote long-term community health and stability based on a holistic economic analysis of forest benefits.

IV. ENDANGERED SPECIES ACT

The U.S. Supreme Court has called the ESA "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation."[75] "The plain intent of Congress in enacting [the ESA] was to halt and reverse the trend toward species extinction, whatever the cost."[76] The ESA reflects "a conscious decision by Congress to give endangered species priority over the 'primary missions' of federal agencies."[77] To accomplish this goal, the ESA includes both substantive and procedural provisions designed to protect and recover imperiled species.

For federal actions, the heart of the ESA is Section 7(a)(2), which requires that every federal agency ensure that its actions are not likely to "jeopardize" a listed species or "adversely modify" its critical habitat.[78] The obligation to "ensure" against a likelihood of jeopardy or adverse modification requires the agencies to give the benefit of the doubt to endangered species and to place the burden of risk and uncertainty on the proposed action.[79] Under the ESA, "Congress clearly intended that [the federal agency] give the 'highest of priorities' and the 'benefit of the doubt' to preserving endangered species."[80]

One would be hard pressed to find a statutory provision whose terms were any plainer than those in Section 7 of the Endangered Species Act. Section 7's very words affirmatively command all federal agencies to ensure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of an endangered species or result in the destruction or modification of habitat of such species.

To ensure that this strict substantive mandate is carried out, Section 7 establishes an interagency consultation process to assist federal agencies in complying with their duty to ensure against jeopardy to listed species or destruction or adverse modification of critical habitat. An agency must initiate consultation with NMFS or FWS under Section 7 whenever it takes an action that "may affect" a listed species.[81] Regulations implementing Section 7 broadly define the scope of agency actions subject to consultation.[82]

The Ninth Circuit has emphasized that strict compliance with the ESA's procedures is critical to

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[75] *Tennessee Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978).

[76] *Id*. at 184.

[77] *Id*. at 185.

[78] 16 U.S.C. § 1536(a)(2).

[79] *See Sierra Club v. Marsh*, 816 F.2d 1376, 1386 (9th Cir. 1987); *accord Washington Toxics Coalition v. Envtl. Prot. Agency*, 413 F.3d 1024, 1035 (9th Cir. 2005).

[80] *Marsh*, 816 F.2d at 1386 (citations omitted).

[81] 50 C.F.R. § 402.14(a).

[82] 50 C.F.R. § 402.02 (definition of action).

the success of the ESA, because only through the consultation process can the effects of agency action on listed species be fully and objectively evaluated.[83] Accordingly, scrupulous adherence to the letter and spirit of the ESA consultation process is to be strictly enforced by the courts.

> [T]he strict substantive provisions of the ESA justify more stringent enforcement of its procedural requirements, because the procedural requirements are designed to ensure compliance with the substantive provisions . . .. If a project is allowed to proceed without substantial compliance with those procedural requirements, there can be no assurance that a violation of the ESA's substantive provisions will not result. The latter is, of course, impermissible.[84]

ESA section 4(f) requires the Secretary of the Interior to "develop and implement" recovery plans "for the conservation and survival of" listed species."[85] "Conservation" means to use all methods to bring any endangered or threatened species to the point at which the protections of the ESA are no longer necessary.[86] Thus, a recovery plan must provide a roadmap for the recovery and eventual de-listing of the species. While some courts have held that recovery plans do not themselves have the force of law,[87] agencies may not simply ignore them. Development and implementation of a recovery plan for a listed species is the culmination of the "orderly and timely progression" of the ESA's statutory scheme.[88] A species' recovery plan is "pertinent evidence of the measures necessary to prevent the extinction" of the species.[89]

The environmental consequences of an action include impacts to listed species. Accordingly, if an agency action is inconsistent with an ESA recovery plan or threatens to jeopardize, or reduce appreciably, the likelihood of a listed species' recovery, there is a potentially significant impact within the ambit of NEPA, and the agency must prepare an EIS that the requisite "hard look" at the action's impacts.

V. CLEAN WATER ACT

In 1972, Congress passed the CWA to "restore and maintain the chemical, physical and biological integrity of the nation's waters."[90] The Act further establishes as a national goal that,

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[83] *See Thomas v. Peterson*, 753 F.2d 754, 764 (9th Cir. 1985); *see also PCFFA v. U.S. Bureau of Reclamation*, 138 F. Supp. 2d 1228, 1248–50 (N.D. Cal. 2001); *Greenpeace v. NMFS*, 106 F. Supp. 2d 1066, 1073 (W.D. Wash. 2000).

[84] *Thomas*, 753 F.2d at 764; *see also Pac. Rivers Council*, 30 F.3d at 1055–57 (enjoining logging, grazing, and road-building activities for failure to reinitiate consultation on forest plans upon listing of salmon species).

[85] 16 U.S.C. § 1533(f).

[86] *Id.* § 1532(3).

[87] *See, e.g.*, *Fund for Animals, Inc. v. Rice*, 85 F.3d 535, 547 (11th Cir. 1996).

[88] *Sw. Ctr. for Biological Diversity v. Bartel*, 470 F. Supp. 2d 1118, 1136 (S.D. Cal. 2006).

[89] *Id.* at 1136–37 (S.D. Cal. 2006).

[90] 33 U.S.C. § 1251(a).

wherever attainable, "water quality which provides for the protection and propagation of fish" shall be achieved. One of the primary means of implementing this goal is the establishment and implementation of water quality standards. Accordingly, the CWA directs each state to establish its own water quality standards.[91] Water quality standards limit the amount of pollution present in a waterbody and play a vital role in the CWA's goal of maintaining and restoring the Nation's water quality.

Pursuant to the CWA, all federal agencies must comply with state water quality standards.[92] Section 313 of the CWA provides, in relevant part, that:

> (a) Each department, agency, or instrumentality of the . . . Federal Government, (1) having jurisdiction over any property or facility . . . shall be subject to, and comply with, all Federal, State, interstate, and local requirements . . . respecting the control and abatement of water pollution in the same manner, and to the same extent as any nongovernmental entity.[93]

By its terms, Section 313 imposes a mandatory federal obligation on federal property managers—that they must comply with state water pollution requirements, including approved state water quality standards, just like anyone else.[94] Indeed, after the passage of the 1972 amendments to the CWA, President Carter issued an Executive Order charging the head of each executive agency with responsibility "for compliance with applicable pollution control standards."[95] This Executive Order also directs each federal agency to promptly respond whenever a state notifies it of a pollution control standard violation, and to devise a plan that includes an implementation schedule "for coming into compliance as soon as practicable."[96]

BLM must comply with both the numeric and narrative water quality standards for the rivers and streams within the area covered by this proposed plan amendment. The Supreme Court has specifically recognized that narrative standards may be enforced.[97]

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[91] *Id.* §§ 1313(a), (c)(2)(A).

[92] *Id.* § 1323(a).

[93] 33 U.S.C. §1323(a); *see also Oregon Natural Resources Council v. Lyng*, 882 F.2d 1417, 1424-25 (9th Cir. 1989) ("The CWA also requires states to implement water quality standards with which federal agencies must comply.").

[94] *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1153 (9th Cir. 1998) ("Under the Clean Water Act, all federal agencies must comply with state water quality standards.").

[95] Executive Order 12088: Federal Compliance with Pollution Control Standards, Fed. Reg. 47,707 (Oct. 13, 1978).

[96] *Id*.

[97] *See PUD No. 1 of Jefferson County v. Washington Dep't of Ecology*, 511 U.S. 700, 716 (1994) ("the Act permits enforcement of broad, narrative criteria based on, for example, 'aesthetics'"). *See also id*. at 716–17 ("Petitioners further argue that enforcement of water quality standards through use designations renders the water quality criteria component of the standards irrelevant.

BLM's proposal to again change the RMPs—particularly the riparian reserves—will undermine regional water quality management plans and total maximum daily loads (TMDLs). To ensure that water temperatures are maintained and restored for salmonid viability, Oregon has set TMDLs that define the maximum amount of heat loading that can enter into a waterbody without violating the water quality standard. Because TMDLs include estimates of pollutant loadings from all sources, including non-point sources and natural background levels, they allow for a comprehensive assessment of what reductions are necessary to achieve water quality standards.

VI. EXECUTIVE ORDERS 14223 AND 14225

The scoping notice states that the "need for the RMP revision is further established by Executive Order 14223, *Addressing the Threat to National Security From Imports of Timber, Lumber, and Their Derivative Products* and Executive Order 14225, *Immediate Expansion of American Timber Production*." Executive Order 14223 aims to reduce timber and other wood product imports. Executive Order 14225 directs BLM and the U.S. Forest Service to take a handful of actions to facilitate an immediate expansion of domestic timber production in the name of increasing domestic timber supply and managing wildfire risk. As explained below, heavy logging to reduce fire risk is ineffective and can even increase the risk of high severity fires. Executive Order 14225 also requires all agencies to streamline permitting related to timber production and to use the emergency provisions of the ESA to circumvent the statute's protections. Executive Order 14225 entirely ignores the legal mandates and protections of the ESA, CWA, NEPA, O&C Act, and FLPMA in order to fast-track timber harvesting. It is imperative that BLM prioritizes and complies with its statutory obligations under all these statutes in its RMP revision.

RESOURCE ISUES BLM MUST ADDRESS

The Scoping Notice highlights several resource management issues that BLM intends to address, namely "destructive wildfires and other threats to forest health over the last decade, approaches to management (including barred owl management), and severely reduced timber production compared to historically higher levels (and its resulting adverse economic consequences)."[98] Even though this number of issues is limited, they are core components of the 2016 RMPs, and will require BLM to address related resource issues, outlined below.

I. MATURE AND OLD-GROWTH FORESTS

The federal land management agencies, including BLM, have repeatedly acknowledged the essential role mature and old-growth trees and forests play in protecting ecosystems, fighting climate change, and preserving biodiversity.[99] They have also elevated the unparalleled carbon

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We see no anomaly, however, in the State's reliance on both use designations and criteria to protect water quality.").

[98] BLM, Notice of Intent, 91 Fed. Reg. at 8017.

[99] U.S. Forest Service, *Amendments to Land Management Plans to Address Old-Growth Forests Across the National Forest System: Draft Environmental Impact Statement* 7–8 (June 2024); U.S. Forest Service, *Climate Adaptation Plan* 14 (July 2022).

sequestration and storage function of these forests, particularly infrequent-fire forests such as those found on the westside of the Cascade Range.

Recently, the Forest Service reviewed the essential functions played by old-growth trees. These trees are a necessary feature of old-growth forests, for carbon storage, biodiversity, watershed integrity, and their resilient features. These trees play a vital role after death, becoming snags and coarse woody debris that continue to provide essential ecological values.

Logging mature and old-growth forests and trees is unnecessary to meet restoration or stewardship needs. Moreover, the broader scientific literature strongly supports the retention of these trees and forests, and logging old-growth trees and stands is counterproductive, inefficient, and contrary to both best science and public opinion. Old-growth trees deliver critical environmental and social attributes wherever they occur, regardless of forest type or the age of the surrounding forest. They provide unique habitat, sequester and store vast quantities of carbon, and are irreplaceable on any scale relevant to addressing the climate and biodiversity crises.

As the Forest Service explained:

> the presence of old trees, both within and outside of old-growth forests, represents a critical structural element that provides essential habitats for a diverse array of species and significantly contributes to carbon sequestration, biodiversity, and overall ecosystem resilience. The rarity of old trees in comparison to historical conditions, as well as their keystone ecological functions and services, highlight their conservation value.[100]

The Forest Service also rightly acknowledges the role of old trees for "cultural heritage, traditional practices, and social values."[101]

A. Late-Successional Reserves

When it adopted the Northwest Forest Plan in 1994, the Forest Service and BLM—under judicial order to develop a legally-sound conservation plan to conserve listed species—designated Late-Successional Reserves (LSRs) across the range of the Northern Spotted Owl to ensure that imperiled wildlife had sufficient older forest habitat to persist and eventually recover as required by the ESA. In the 2016 RMPs, BLM retained LSRs as essential components of its land management regime but increased the allowable timber harvest within LSRs. Since 2016, BLM has consistently increased the intensity of harvest in LSRs, which has not only *increased* wildfire risk by creating younger forests less resilient to fire, but also *reduced* the ability of the LSR network to function as intended, *i.e.*, as large blocks of intact older forest needed by listed wildlife species.

In order to meet its historic timber targets, BLM may pursue alternatives that dramatically reduce or even eliminate LSRs altogether. If such alternatives are proposed, BLM must "disclose and

[100] U.S. Forest Service, *Draft Ecological Impacts Analysis Report for the Draft EIS for Amendments to LMPs to Address Old-Growth Forests Across the NFS* 24 (June 2024).

[101] *Id.* at 25.

explain on what basis they deemed the standard necessary before but assume it is not now."[102] Moreover, the agency's rationale for its new policy must be clearly stated, and that rationale must also be genuine: the agency cannot rely on a pretextual or contrived explanation in order to avoid legal or political accountability for its actions.[103]

B. Increased Salvage Logging

The best available science is clear that post-disturbance logging is one of the most ecologically damaging types of land management action a manager can take. BLM must disclose and discuss the robust scientific literature regarding the significant and adverse consequences of salvage logging in the DEIS for the revised RMP.

BLM has been here before. In 2020, BLM promulgated a salvage logging categorical exclusion that was subsequently challenged in federal court.[104] BLM agreed to settle that case by withdrawing the categorical exclusion. BLM must consider the extensive scientific literature that represents the best available science regarding the harms of post-disturbance salvage logging causes.

C. Northern Spotted Owls and Barred Owls

1. Status of the species

The northern spotted owl (*Strix occidentalis caurina*) is threatened under the ESA, and large portions of western Oregon BLM lands fall within designated critical habitat units. Under ESA Section 7(a)(2), federal actions must avoid jeopardy or adverse modification of critical habitat. The RMPs establish the framework for future site-specific actions across millions of acres and any RMP revision thus constitutes a federal action requiring programmatic consultation with the U.S. Fish and Wildlife Service.

The U.S. Fish and Wildlife Service has determined that reclassification of the northern spotted owl from threatened to endangered is warranted but precluded by higher listing priorities.[105] This finding reflects the continuing decline of the species and the increasing vulnerability of its remaining habitat base. Long-term demographic studies document persistent declines across the species' range, with meta-analyses estimating average annual declines of 3–4%, and steeper

[102] *Nw. Ecosystem All. v. Rey*, 380 F. Supp. 2d 1175, 1193 (W.D. Wash. 2005); *Conservation Nw. v. Rey*, 674 F. Supp. 2d 1232, 1247 (W.D. Wash. 2009).

[103] *SEC v. Chenery*, 318 U.S. 80 (1943); *Dep't of Commerce v. New York*, 139 S. Ct. 2551, 2575–76 (2019) ("The reasoned explanation requirement of administrative law, after all, is meant to ensure that agencies offer genuine justifications for important decisions, reasons that can be scrutinized by courts and the interested public").

[104] *Cascadia Wildlands et al. v. BLM*, 6:21-cv-01313-AA (filed Sept. 7, 2021).

[105] U.S. FWS, Endangered and Threatened Wildlife and Plants; 12-Month Finding for the Northern Spotted Owl, 85 Fed. Reg. 81144 (Dec. 15, 2020).

losses in some areas.[106] The northern spotted owl now exists as a metapopulation, whose persistence depends on maintaining sufficient high-quality habitat and connectivity.

Removal or degradation of large blocks of older forest on BLM-administered lands would further reduce the connectivity among habitat patches that is essential for maintaining spotted owl territories and dispersal pathways across the landscape. Fragmentation and loss of interior late-successional forest conditions would also reduce the availability of high-quality nesting and roosting habitat, and increases the risk that the proposed action itself, when analyzed programmatically, could contribute to a jeopardy determination under ESA Section 7(a)(2).

2. Any action alternative that meets BLM's Purpose and Need would preclude recovery of the Northern Spotted Owl.

Under NEPA, BLM must take a hard look at how revising the Western Oregon RMPs would impact the recovery of listed species. And Section 7(a)(1) of the ESA directs BLM to utilize its authorities to "carry[] out programs for the conservation" of listed species,[107] with "conservation" defined as bringing a species to the point where the protections of the Act are no longer required, i.e., the species is recovered.[108] Further, 16 U.S.C. § 1536(a)(2) requires the agency to ensure its actions do not jeopardize listed species, which is an analysis that requires consideration of the action's impacts on species' recovery.[109] Recovery Plans published pursuant to 16 U.S.C. § 1533, while not necessarily sufficient alone to recover a species,[110] "describe reasonable actions and criteria that are considered necessary to recover listed species."[111]

The purpose and need of BLM's RMP revision, which is "to seek an increase in sustained yield of timber harvest that aligns with the historically higher levels of production on BLM-administered public lands governed by the O&C Act,"[112] cannot be met without precluding the

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[106] Dugger et al, "The effects of habitat, climate, and Barred Owls on long-term demography of Northern Spotted Owls," The Condor: Ornithological Applications 118(1):57–116 (2016), https://doi.org/10.1650/CONDOR-15-129.1; Alan B. Franklin et al, "Range-wide declines of northern spotted owl populations in the Pacific Northwest: A meta-analysis" Biological Conservation, vol. 259 (2021), https://doi.org/10.1016/j.biocon.2021.109168.

[107] 16 U.S.C. § 1536(a)(1).

[108] *Id.* § 1532(3).

[109] 50 C.F.R. § 402.02 ("Jeopardize the continued existence o*f* means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species").

[110] It is likely that even complete consistency with the NSO Recovery Plan is not alone sufficient to recover the owl, and to meet its legal obligations the BLM must analyze how NSO recovery would be precluded by its proposed RMP revision outside of the Recovery Plan context as well.

[111] FWS, Final Revised Recovery Plan for the Northern Spotted Owl (2011) at ii. ("NSO Recovery Plan" or "NSORP").

[112] 91 Fed. Reg. 8018 (Feb. 19, 2026).

recovery of the owl. Indeed, it was these "higher levels of production" that BLM seeks to return to that led to the species' listing in 1990,[113] at which point "anticipated future rates of habitat removal on BLM lands in Oregon … were projected to eliminate all [nesting/roosting/foraging] habitat on non-protected BLM lands (except the Medford District) within 26 years."[114]

The owl's status is even more precarious than it was at the time of its threatened listing, and the species now qualifies as endangered. Given this, it is more critical than ever that federal land managers conserve large, contiguous blocks of mature and old-growth forest. However, as demonstrated by its stark inconsistency with the NSO Recovery Plan, BLM's preliminary alternative—as well as any alternative that meets the agency's "purpose and need"—would accelerate the owl's extinction and preclude its recovery.

3. The entire Northern Spotted Owl Recovery Plan relies on maintaining the Northwest Forest Plan's land use allocations.

As an initial matter, the NSO Recovery Plan (and spotted owl recovery in general) would be severely undermined by the shrinking or elimination of reserves because the entire plan "rel[ies] on the habitat conservation network of the Northwest Forest Plan or NWFP,"[115] which imposed logging restrictions on trees older than 80 years old in Late Successional Reserves and Riparian Reserves. As just one example, the NSO Recovery Plan did not include recovery actions to address the inadequacy of existing regulatory mechanisms (ESA listing factor D) because the Service assumed continued implementation of the NWFP across federal lands, including BLM lands.[116] And the Service is clear in the plan that "because of the value to spotted owls, it is' likely that much of the LSR network that was originally established in the NWFP process will continue to serve as the *foundation* for the spotted owl recovery on Federal lands."[117]

Despite the Recovery Plan's assumption that the NWFP's reserve system would be maintained, BLM withdrew its lands from the NWFP with the adoption of revised Western Oregon RMPs in 2016, significantly loosened protections in the reserves it retained, and set timber quotas that led to a vast increase in logging. Now, despite the owl's continued decline, it appears BLM seeks to either eliminate reserves entirely, to drastically reduce their size, or to impart so much discretion into their management that they no longer function as reserves, as the agency could not possibly meet its stated purpose and need without doing so.

Such a revision would further undermine the NSO Recovery Plan and would also put at risk numerous Habitat Conservation Plans ("HCPs") and Biological Opinions, for these documents and the decisions emanating from them assume the maintenance of protections for late-successional forest and riparian areas on BLM lands. BLM must consider how eliminating reserves or otherwise further reducing protections for spotted owl habitat would impact the species' recovery, including how it would undermine existing HCPs, Biological Opinions, and

[113] NSORP at I-6–7.

[114] NSORP at Appendix B-1.

[115] NSORP at I-9.

[116] *Id.* at III-55–56.

[117] *Id.* at III-42 (emphasis added).

the NSO Recovery Plan. It must also develop alternatives that would expand the reserves and strengthen the protections they are afforded.

Additionally, it is unclear how the agency could possibly comply with its ESA obligation to ensure that its actions do not "reduce appreciably the likelihood of both the survival *and* recovery"[118] of the owl should it proceed with shrinking reserves or eliminating protections for the owl's last remaining habitat on BLM lands. When BLM consulted with the Service on its 2016 RMP, the Service said that increasing harvest on BLM lands would not jeopardize the owl because the detrimental effects would purportedly be mitigated by the reserves that BLM was retaining. The Service stated that:

> Remaining spotted owl sites will be clustered on the landscape within reserved [land use allocations] in a manner that will facilitate dispersal of spotted owls both within and between these clusters, which functions to maintain the highest possible occupancy rates. These clusters are expected to function as source populations for both the action area and for lands outside the action area.[119]

The Service said there would be no destruction or adverse modification of critical habitat because "critical habitat in Late-Successional and Riparian Reserves (which include approximately 79 percent of the critical habitat within the action area) will be managed for developing large trees and late-successional conditions (PBFs 2, 3 and 4), including recruitment of habitat PBFs on currently lower quality designated critical habitat."[120] The Service also concluded that "the Harvest Land Base portion of the BLM landscape is expected to provide less and less contribution to spotted owl demographics over time, while the reserve portion of the BLM lands (approximately 75 percent) will provide the necessary contributions for spotted owl conservation."[121] Accordingly, it is unclear how BLM can significantly increase harvest levels

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[118] 16 U.S.C. § 1536(a)(2), 50 C.F.R. § 402.02 (definition of "jeopardy").

[119] 2016 RMP BiOp at 623; *see also id*. at 554 ("the Harvest Land Base portion of the BLM landscape is expected to provide less and less contribution to spotted owl demographics over time, while the reserve portion of the BLM lands (approximately 75 percent) will provide the necessary contributions for spotted owl conservation."); *see also id.* at 700 (finding no jeopardy because of the "location and function of large blocks of habitat for reproducing spotted owls and the ability of the landscape to support spotted owl movement between those blocks.").

[120] *Id.* at 702.

[121] *Id.* at 554; *see also*, *e.g*., *id*. at 605 ("Spotted owls are expected to continue to be able to disperse across the landscape within the action area and to areas outside the action area due to the habitat conditions and protections in the LSRs and Riparian Reserves"); *id*. at 538 ("The distribution of Riparian Reserves across the landscape is expected to function for maintaining a well-distributed spotted owl population within the action area and to assist in spotted owl movement across the action area. […] Where spotted owl habitat does not currently exist we expect it will develop under the proposed management direction"), *id*. at 702 ("The development of PBFs 2, 3, or 4 on up to 59,197 acres of LSR and up to 42,241 acres of Riparian Reserve within these same CHUs is expected to offset the effects of delaying or precluding the development of PBFs in the Harvest Land Base").

on its lands without "reduc[ing] appreciably the likelihood of both the survival *and recovery*" of the owl.[122]

4. Northern Spotted Owl recovery objectives cannot be achieved if BLM significantly increases logging on its lands.

a. The Recovery Plan's Objectives and Recovery Actions.

The NSO Recovery Plan has three objectives, and they all rely on protecting more, not less, owl habitat:

1. Spotted owl populations are sufficiently large and distributed such that the species no longer requires listing under the ESA;
2. Adequate habitat is available for spotted owls and will continue to exist to allow the species to persist without the protection of the ESA; and
3. The effects of threats have been reduced or eliminated such that spotted owl populations are stable or increasing and spotted owls are unlikely to become threatened again in the foreseeable future.[123]

The Service also developed recovery criteria, which "are measurable, achievable goals that [the Service] believe[s] will result from implementation of the recovery actions."[124] Those are:

1. Stable Population Trend: The overall population trend of spotted owls throughout the range is stable or increasing over 10 years, as measured by a statistically reliable monitoring effort.
2. Adequate Population Distribution: Spotted owl subpopulations within each province (*i.e.*, recovery unit) (excluding the Willamette Valley Province) achieve viability, as informed by the HexSim population model or some other appropriate quantitative measure.
3. Continued Maintenance and Recruitment of Spotted Owl Habitat: The future range-wide trend in spotted owl nesting/roosting and foraging habitat is stable or increasing throughout the range, from the date of Revised Recovery Plan approval, as measured by effectiveness monitoring efforts or other reliable habitat monitoring programs.
4. Post-delisting Monitoring: To monitor the continued stability of the recovered spotted owl, a post-delisting monitoring plan has been developed and is ready for implementation within the States of Washington, Oregon, and California, as required in section 4(g)(1) of the ESA.[125]

To accomplish these objectives and meet the delisting criteria, far from contemplating any reduction in the NWFP's reserve system, throughout the NSO Recovery Plan the Service assumes reserves will continue to exist and recommends that federal land managers *increase* the

[122] 16 U.S.C. § 1536(a)(2), 50 C.F.R. § 402.02.

[123] NSORP at ix.

[124] *Id.* at II-1.

[125] *Id.* at ix.

amount of protected owl habitat to help ameliorate ongoing declines and threats such as the barred owl and wildfire. For instance, the Service explains that the "foundation for developing previous spotted owl habitat reserve systems" was provided by "dispersal data and other studies on the amount and configuration of habitat *necessary* to sustain spotted owls."[126] This is why the Service specifically "recommend[s] that any future revisions in Federal land management plans take into account the need for appropriately spaced, large habitat conservation areas for spotted owls."[127]

To meet the recovery objectives, the Service developed "Recovery Actions." Because "maintaining and restoring sufficient habitat is important to address the threats the spotted owl faces from a loss of habitat due to harvest, loss or alteration of habitat from stand replacing fire, loss of genetic diversity, and barred owls,"[128] the most significant recovery actions involve protecting and expanding owl habitat. BLM's intention to return to the harvest levels of the 1960s-1980s flies in the face of these recovery actions and the NSO Recovery Plan as a whole.

For instance, **Recovery Action 10** calls for land managers to "Conserve spotted owl sites and high value spotted owl habitat to provide additional demographic support to the spotted owl population."[129] The Service states that this action "depends on" land managers conserving "currently occupied *as well as historically occupied*" owl sites and high-value spotted owl habitat "*in addition to existing Federal conservation blocks*."[130]

Instead, BLM appears to be planning to vastly reduce the size of federal conservation blocks or to permit so much flexibility that they no longer function as reserves at all. This is even though the NSO Recovery Plan is unequivocal that "extant, high-quality spotted owl habitat *must* be managed, restored, and conserved in the face of a declining population and the potential threats from barred owls."[131]

While the Service states that "active forest management," *i.e.*, logging, "may be necessary to maintain or improve ecological conditions,"[132] BLM should not interpret this as a blank check for unfettered logging under the guise of "reducing fuel loads" or "proactive management" to reduce wildfire risk.[133] As discussed elsewhere in these comments, BLM cannot log its way out of climate change-influenced wildfires, for logging mature and old-growth forests *increases* the frequency and severity of wildfires, as does plantation forestry in general. Under the NSO Recovery Plan, and to meet requirements under NEPA, the ESA, and FLPMA, BLM must utilize the best available information when making decisions about "active forest management," and the

[126] *Id.* at II-3 (emphasis added).

[127] *Id.* at II-3.

[128] *Id.* at vii.

[129] *Id.* at III-43.

[130] *Id.* at III-42.

[131] *Id.* at II-11 (emphasis added).

[132] *Id.* at III-45.

[133] 91 Fed. Reg. 8018 (Feb. 26, 2026).

science is clear that increasingly frequent and severe wildfires and other impacts of climate change are only made worse by the removal of fire- and drought-resilient mature and old-growth trees.

Further, to the extent BLM plans to rely on pre-disturbance surveys, these cannot take the place of protecting large, contiguous blocks of land because owls require massive territories to complete their life cycle and because due to natural disturbance processes, "not all habitat-capable lands in a spotted owl home range are likely to contain spotted owl habitat at any one time."[134] Further, as the NSO Recovery Plan explains, "[i]t is not uncommon for an occupied spotted owl site to be unoccupied in subsequent years, only to be re-occupied by the same or different spotted owls two, three or even more years later."[135] Temporarily unoccupied sites therefore "provide conservation value to the species by providing habitat that can be used by spotted owls on nearby sites while also providing viable locations on which future pairs or territorial singles can establish territories."[136] BLM must evaluate and develop alternatives in light of how ignoring the call of Recovery Action 10 will prevent the owl's recovery, and should develop alternatives that conserve "currently occupied *as well as historically occupied*" owl sites and high-value spotted owl habitat "*in addition to existing Federal conservation blocks*."[137] And under the ESA, BLM must ensure that, by failing to protect all owl sites and high value spotted owl habitat to mitigate the effects of the numerous threats facing the owl, the agency would not be precluding its recovery.[138]

Recovery Action 12 calls for the post-fire conservation of large trees, snags, downed wood, and other features that require the most time to develop.[139] Removing these components through salvage logging, and salvage logging of mature trees in general, is not compatible with owl conservation because among broader ecological impacts it removes nesting/roosting/foraging habitat, prey habitat, increases fire risk, and alters patterns of landscape heterogeneity.[140] Additionally, "post-fire timber harvest activities undermine many of the ecosystem benefits of major disturbances."[141] Indeed, several studies indicate that "spotted owls use forest stands that have been burned, but generally do not use stands that have been burned and logged."[142] This is true regardless of burn severity. Accordingly, the NSO Recovery plan expressly states that the

[134] NSORP at III-46.

[135] *Id.* at III-45.

[136] *Id.* at III-45.

[137] *Id.* at III-42.

[138] *Id.* at III-43.

[139] *Id.* at III-47.

[140] *Id.* at III-48.

[141] *Id.* at III-48.

[142] *Id.* at III-48; *see also* 2016 RMP BiOp at 605–06.

Service "anticipate[s] many cases where the best approach to retain these features involves few or no management activities."[143]

Yet BLM clearly plans to ignore Recovery Action 12, as its scoping notice states its specific intent to permit even more salvage logging than it already does under the guise of reducing fuel loads. BLM takes this position even though "support is lacking for the contention that reducing fuel loads from post-fire harvest reduces the intensity of subsequent fires, and planting of trees after post-fire harvest can have the opposite effect."[144]

Under NEPA, BLM must take a hard look at the impacts of increasing salvage logging, including on spotted owl post-fire landscape use and on its long-term recovery, and on wildfire severity in general. And BLM must do so not only in the context of what the NSO Recovery Plan requires but in the context of spotted owl recovery more broadly, because it is likely that for the owl to recover land managers must go beyond what is included in that plan, which was published 15 years ago. The agency should also examine alternatives that *greatly reduce or prohibit* salvage in the action area, regardless of reserve status. Under the ESA, BLM must also analyze how permitting more salvage logging will reduce not only the spotted owl's ability to survive on the landscape, both post-fire and long-term, but also on its ability to recover.

Recovery Action 32 calls for the maintenance of "high-quality spotted owl habitat stands [that] are characterized as having large diameter trees, high amounts of canopy cover, and decadence components such as broken-topped live trees, mistletoe, cavities, large snags, and fallen trees."[145] Maintaining these stands—not in lieu of the reserve system, but in addition to it—is important for "provid[ing] spotted owls high-quality refugia habitat from the negative competitive interactions with barred owls."[146]

Further, the Service is explicit that identifying these stands requires field verification; in other words, BLM cannot rely on outdated modeling when planning timber sales.[147] Recovery Action 32 also contemplates "restoring" these complex stands, which largely requires allowing mature trees to reach old-growth status, *not* heavily logging mature trees that are on their way to becoming old. As has already been indicated across BLM lands since it removed itself from the NWFP, the agency cannot possibly comply with this recovery action, or with the NSO Recovery Plan as a whole, when it overarchingly concerns itself with meeting timber quotas.

The barred owl threat is not independent of the habitat loss threat; all available data shows that the two are inextricably intertwined because as the barred owl problem worsens, the owl needs more suitable habitat to take refuge in. The Service has repeatedly emphasized the "importance of maintaining habitat across the range of the northern spotted owl regardless of occupancy to provide areas for recolonization and dispersal."[148] Given this, BLM should not ignore the call of

[143] NSORP at III-49.

[144] *Id.* at III-47 (citations omitted).

[145] *Id.* at III-67.

[146] *Id.* at III-67.

[147] *Id.* at III-67.

[148] 86 Fed. Reg. 62607 (Nov. 10, 2021).

Recovery Action 32, and it must evaluate alternatives that maintain existing reserves and expands them to include *all* owl habitat, even if not of the highest quality, and regardless of current land use allocation.

b. NSO Recovery and Riparian Reserves

BLM apparently plans to eliminate Riparian Reserves and/or to further shrink them to as narrow as 25 feet, which is entirely incompatible with NSO recovery. Riparian Reserves "provide both demographic support and connectivity/dispersal between the larger blocks" of NSO habitat,[149] and BLM's existing Riparian Reserves, *though inadequate*,[150] "facilitate east-west spotted owl movement and survival between the Coast Range and Cascade Mountains."[151]

Riparian reserves are disproportionately important to owl conservation and to barred owl mitigation, especially in areas where late successional forest is less abundant.[152] Spotted owls' habitat selection shows a preference for riparian hardwoods that is more than 4x greater than the non-forest reference and is only slightly less than the owls' preference for old conifer forest (>5x).[153] Additionally, the diverse mix of food sources and habitat structures in riparian reserves appears to meet important needs of both species with less direct competition for resources.[154] There is also evidence that when spotted owls venture close to barred owls, their selection for riparian forests intensifies.[155] Further, riparian areas mitigate wildfire effects and often continue to be used by owls post-fire, since they tend to maintain more standing live trees.[156]

When BLM consulted with the Service on its 2016 RMP Revision, the Service said it found no jeopardy to the owl or adverse modification to its critical habitat because the ecological impacts of increasing harvest on BLM lands would purportedly be mitigated in large part by the restrictions on silvicultural activities in Riparian Reserves, which "are expected to provide well-distributed, high quality dispersal habitat for spotted owls."[157] The Service concluded that "the Harvest Land Base portion of the BLM landscape is expected to provide less and less contribution to spotted owl demographics over time, while the reserve portion of the BLM lands

[149] NSORP at A-14.

[150] As discussed elsewhere in this comment, BLM already took an ax to riparian reserves on its lands by vastly reducing their width and protections when it pulled out of the NWFP in 2016.

[151] 2016 RMP BiOp at 12.

[152] *Id.* at 565 (citations omitted).

[153] Wiens J.D. et al, "Competitive Interactions and Resource Partitioning Between Northern Spotted Owls and Barred Owls in Western Oregon," *Wildlife Monographs* (2014) 185:1–50, DOI:10.1002/wmon.1009.

[154] *Id*.

[155] *Id*.

[156] 2016 RMP BiOp at 565.

[157] *Id.* at 612.

(approximately 75 percent) will provide the necessary contributions for spotted owl conservation."[158]

BLM should not shrink existing Riparian Reserves across its lands and/or loosen restrictions on logging in them because doing so would undermine not only spotted owl survival, but its ability to recover to the point of being delisted. The NSO Recovery Plan is not a NEPA document, and BLM must use the best available information to look at impacts to NSO recovery independent of what is required in the NSO Recovery Plan. It must also consider alternatives that expand and provide greater protections in Riparian Reserves. And under the ESA, BLM cannot take any actions that would "reduce appreciably the likelihood of both the survival *and recovery* of a listed species in the wild."[159]

In sum, under NEPA, BLM must analyze how returning to "historically higher" harvest levels would undermine owl recovery, including, but not limited to, how doing so would conflict with the NSO Recovery Plan. The agency must also evaluate alternatives that meaningfully support owl recovery. Further, BLM must not take actions that will "reduce appreciably the likelihood of both the survival *and recovery* of"[160] the owl, and if the agency is to meet its stated purpose and need, it would undoubtedly violate this mandate. Significantly increasing logging on BLM lands would also conflict with the agency's ESA Section 7(a)(1) mandate to "carry[] out programs for the conservation" of listed species, where "conservation" is defined as bringing a species to the point where the protections of the Act are no longer required, i.e., the species is recovered. [161]

5. BLM must fully consider impacts to Northern Spotted Owls from any plan revisions.

a. Habitat Impacts

Because critical habitat designation for the northern spotted owl is based on the presence of primary constituent elements, including canopy cover, large trees, and spatial configuration, reductions in these features at landscape scales may constitute adverse modification even where some habitat remains. BLM-administered lands in western Oregon provide critical habitat for the northern spotted owl and function as a substantial portion of the remaining federal forest matrix

[158] *Id.* at 554; *see also*, *e.g*., *id*. at 605 ("Spotted owls are expected to continue to be able to disperse across the landscape within the action area and to areas outside the action area due to the habitat conditions and protections in the LSRs and Riparian Reserves"); *id*. at 538 ("The distribution of Riparian Reserves across the landscape is expected to function for maintaining a well-distributed spotted owl population within the action area and to assist in spotted owl movement across the action area. […] Where spotted owl habitat does not currently exist we expect it will develop under the proposed management direction"), *id*. at 702 ("The development of PBFs 2, 3, or 4 on up to 59,197 acres of LSR and up to 42,241 acres of Riparian Reserve within these same CHUs is expected to offset the effects of delaying or precluding the development of PBFs in the Harvest Land Base").

[159] 16 U.S.C. § 1536(a)(2), 50 C.F.R. § 402.02.

[160] 16 U.S.C. § 1536(a)(2), 50 C.F.R. § 402.02.

[161] 16 U.S.C. § 1532(3).

outside Congressionally reserved lands. These lands are essential for landscape connectivity among Late-Successional Reserves and other protected areas established under the Northwest Forest Plan. The EIS must rigorously evaluate how proposed management changes, including increases in timber harvest, would affect habitat quantity, quality, and connectivity; population viability and metapopulation dynamics; and competitive interactions with Barred Owls (*Strix varia*). In addition, because BLM lands provide critical nesting, roosting, and dispersal habitat, the EIS must analyze whether proposed management alternatives maintain or improve landscape conditions consistent with the Service's Recovery Plan.

Because much of the western Oregon BLM land base occurs in a checkerboard ownership pattern, the functional size of late-successional forest patches is substantially reduced by adjacent industrial timberlands harvested on short rotations. The EIS must therefore evaluate habitat availability not simply by mapped stand acreage, but by effective interior forest area that provides high-quality nesting, roosting, and dispersal conditions for northern spotted owls and other interior forest species (e.g., red tree voles, northern goshawks, great gray owls).[162] Analyses should incorporate edge effects, fragmentation, and connectivity, and project how alternative harvest scenarios on both federal and adjacent private lands affect the persistence of interior forest habitat. Without such modeling, the EIS would overestimate habitat availability and fail to take the "hard look" required under NEPA at the ecological consequences of forest management in these landscapes. These edge-mediated effects are not captured in stand-level inventory data and therefore require landscape-scale analysis.[163]

The 2016 Western Oregon Resource Management Plans included commitments to evaluate habitat and site persistence for northern spotted owls and marbled murrelets, including a 10-year assessment of site loss and habitat trends.[164] However, there is no evidence that BLM has completed or publicly disclosed a comprehensive, planning-area-wide analysis of site loss for either species. Instead, subsequent NEPA documents continue to tier to the 2016 RMP/EIS and rely on previously modeled effects rather than empirically measured outcomes. This reliance on outdated assumptions, without incorporating monitoring results, raises significant concerns regarding compliance with NEPA's requirement to use high-quality, accurate scientific information and to evaluate whether management actions are achieving intended conservation objectives. The EIS must disclose the results of any site-loss monitoring conducted since 2016 and evaluate whether observed trends in spotted owl territory occupancy and marbled murrelet site persistence are consistent with the assumptions underlying the current management framework. Absent this analysis, BLM cannot demonstrate that the current management

[162] Franklin, A.B. & Gutiérrez, R.J., "Spotted owls, forest fragmentation, and forest heterogeneity," Studies in Avian Biology, vol. 25 (2002); Johnson, D.H. "Spotted owls, great horned owls, and forest fragmentation in the Central Oregon Cascades," Oregon State University (1993).

[163] Raymond Davis et al, Northwest Forest Plan—the First 15 Yeas: Status and Trends of Northern Spotten Owl Populations and Habitats, U.S. Forest Serv. (2011); Dugger et al, "The effects of habitat, climate, and Barred Owls on long-term demography of Northern Spotted Owls" The Condor: Ornithological Applications 118(1):57–116 (2016), https://doi.org/10.1650/CONDOR-15-129.1.

[164] BLM 2016 RMP.

framework is meeting its conservation objectives, nor can it rely on prior assumptions to support new planning decisions.

The EIS must also quantify spatial distribution of nesting and roosting habitat; connectivity of dispersal habitat across BLM and adjacent federal lands; assess occupancy probability, reproductive success, and territory persistence; and evaluate long-term metapopulation viability, including risk of local extirpation.

b. Prey

Recent taxonomic research has determined that the flying squirrel occurring within the range of the northern spotted owl is a distinct species, the Humboldt's flying squirrel (*Glaucomys oregonensis*), rather than the previously assumed northern flying squirrel.[165] This species constitutes a primary prey item for northern spotted owls and is strongly associated with late-successional forest conditions, including high canopy closure, complex vertical structure, and fungal communities supported by older forests. Extensive research demonstrates that flying squirrel abundance declines in young, simplified stands and in forests managed under short-rotation harvest regimes, where canopy connectivity, down wood, and truffle availability are reduced.[166] As a result, forest management that reduces structural complexity or shifts landscapes toward younger age classes may significantly reduce the prey base available to spotted owls, even where some structural habitat elements remain.[167] The EIS must therefore evaluate how proposed management alternatives affect not only spotted owl habitat directly, but also the availability of key prey species such as the Humboldt's flying squirrel. Failure to analyze prey dynamics would result in an incomplete assessment of habitat quality and would risk underestimating impacts to spotted owl survival and reproduction. Accordingly, BLM must analyze how alternative management scenarios would affect primary constituent elements of spotted owl critical habitat; connectivity among critical habitat units; long-term habitat recruitment and persistence; (4) the role of BLM lands within designated Recovery Units; and effects on the prey base of northern spotted owls.

In addition, alternatives must be evaluated for consistency with Recovery Actions, including Retention of Recovery Action 32 habitat, which emphasizes maintaining large blocks of high-quality habitat to support territory occupancy and dispersal. Because critical habitat designation for the northern spotted owl is based on the presence of primary constituent elements, including canopy cover, large trees, and spatial configuration, reductions in these features at landscape scales may constitute adverse modification even where some habitat remains.

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[165] Arbogast, B.S. et al, "Genetic data reveal a cryptic species of New World flying squirrel: Glaucomys oregonensis," Journal of Mammalogy, volume 98 at 1027–1041(2017), https://doi.org/10.1093/jmammal/gyx037.

[166] Wilson, Todd M.; Forsman, Eric D. 2013. Thinning effects on spotted owl prey and other forest-dwelling small mammals. In: Anderson, P.D.; Ronnenberg, K.L., eds. Gen. Tech. Rep. PNW-GTR-880. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 79–90.

[167] *Id*.

c. Barred Owl Management

Barred owl expansion has fundamentally altered northern spotted owl ecology. Barred owls compete for territory and prey, displace spotted owls from established territories, and may directly prey on spotted owls.[168]

Long-term demographic analyses show barred owl presence significantly reduces survival, reproduction, and territory occupancy.[169] Habitat degradation and fragmentation amplify these effects by increasing forest edge conditions, simplifying forest structure, reducing availability of large, structurally complex forests. Barred owls occupy a broader range of conditions, including younger and fragmented forests.[170]

To protect northern spotted owls, **Recovery Action 25** calls on BLM to ensure that survey protocols adequately detect spotted owls in areas with barred owls. In addition, **Recovery Action 30** directs that BLM must manage to reduce the negative effects of barred owls on spotted owls so that Recovery Criterion 1 can be met.

To this end, BLM in the EIS must analyze the combined effects of timber harvest, habitat fragmentation, and barred owl expansion. Specifically, BLM should evaluate whether increased harvest could: (1) reduce high-quality nesting and roosting habitat; (2) increase edge effects and landscape fragmentation; (3) facilitate colonization by barred owls; and (4) reduce resilience of spotted owl populations already under competitive pressure. BLM's analysis must be spatially explicit, considering territory-level, landscape, and recovery unit scales. Empirical studies indicate that spotted owl territories exhibit reduced occupancy and increased abandonment when canopy cover and core habitat fall below threshold levels, underscoring the importance of maintaining sufficient habitat within and around known sites. The EIS must also evaluate whether proposed forest management strategies could undermine barred owl removal efforts by degrading habitat necessary for spotted owls to reoccupy territories or reproduce.

FWS has implemented barred owl removal programs, which have shown increased spotted owl

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[168] Elizabeth G. Kelly et al, Are Barred Owls Displacing Spotted Owls? The Condor 105:45–53 (2003), https://doi.org/10.1093/condor/105.1.45; Wiens J.D. et al, "Competitive Interactions and Resource Partitioning Between Northern Spotted Owls and Barred Owls in Western Oregon," *Wildlife Monographs* 185:1–50 (2014), DOI:10.1002/wmon.1009.

[169] Dugger et al, "The effects of habitat, climate, and Barred Owls on long-term demography of Northern Spotted Owls," The Condor: Ornithological Applications 118(1):57–116 (2016), https://doi.org/10.1650/CONDOR-15-129.1; Wiens et al, Effects of experimental removal of Barred Owls on population demography of Northern Spotted Owls in Washington and Oregon—2017 progress report: U.S. Geological Survey Open-File Report 2018–1086, (2018), https://doi.org/10.3133/ofr20181086.

[170] Wiens J.D. et al, "Competitive Interactions and Resource Partitioning Between Northern Spotted Owls and Barred Owls in Western Oregon," *Wildlife Monographs* 185:1–50 (2014), DOI:10.1002/wmon.1009; Appel, C.L. et al, "Using passive acoustic monitoring to estimate northern spotted owl landscape use and pair occupancy," Ecosphere 14(2):e4421 (2023), https://doi.org/10.1002/ecs2.4421.

survival and population growth in treated areas.[171] However, success depends on available high-quality habitat. BLM actions that reduce such high-quality habitat could further imperil spotted owl survival.

d. Survey, Monitoring, and Modeling

Accurate population monitoring is critical. Traditional call-playback surveys are now supplemented by Autonomous Recording Units (ARUs). ARU detection probabilities differ substantially from traditional methods and are influenced by owl vocalization frequency; environmental noise; microphone sensitivity and placement; and algorithmic filtering of acoustic data. The EIS must evaluate: (1) detection probability differences between ARU and traditional surveys; (2) sampling effort required to achieve comparable cumulative detection probabilities; and (3) potential biases when combining datasets from different survey methods.

To satisfy NEPA, the ESA, and Public Lands Rule obligations, BLM should incorporate quantitative, spatially explicit modeling that analyzes habitat suitability for nesting, roosting, and dispersal; connectivity across BLM and adjacent lands; projections of habitat recruitment and availability under alternative harvest scenarios; and population modeling incorporating demographic data and barred owl competition. These models should reflect current scientific understanding, including habitat fragmentation, barred owl impacts, and metapopulation dynamics.[172] BLM must disclose model structure, assumptions, parameterization, and uncertainty, and must validate model outputs against empirical monitoring data where available.

Recent analyses indicate metapopulation collapse risk, with low occupancy and declining reproduction even where habitat retention is moderate.[173] Accordingly, the EIS must explicitly

[171] Wiens, J.D. et al, Effects of experimental removal of Barred Owls on population demography of Northern Spotted Owls in Washington and Oregon—2017 progress report: U.S. Geological Survey Open-File Report 2018–1086, (2018); https://doi.org/10.3133/ofr20181086.

[172] Appel et al, "Using passive acoustic monitoring to estimate northern spotted owl landscape use and pair occupancy," Ecosphere 14(2):e4421 (2023), https://doi.org/10.1002/ecs2.4421; Dugger et al, "The effects of habitat, climate, and Barred Owls on long-term demography of Northern Spotted Owls." The Condor: Ornithological Applications (2016) 118(1):57–116. https://doi.org/10.1650/CONDOR-15-129.1; Wiens J.D. et al, "Competitive Interactions and Resource Partitioning Between Northern Spotted Owls and Barred Owls in Western Oregon," *Wildlife Monographs* 185:1–50 (2014), DOI:10.1002/wmon.1009; Wiens, J.D. et al, Effects of experimental removal of Barred Owls on population demography of Northern Spotted Owls in Washington and Oregon—2017 progress report: U.S. Geological Survey Open-File Report 2018–1086, (2018); https://doi.org/10.3133/ofr20181086.

[173] Dugger et al, "The effects of habitat, climate, and Barred Owls on long-term demography of Northern Spotted Owls," The Condor: Ornithological Applications 118(1):57–116 (2016), https://doi.org/10.1650/CONDOR-15-129.1; Wiens, J.D. et al, Effects of experimental removal of Barred Owls on population demography of Northern Spotted Owls in Washington and Oregon—2017 progress report: U.S. Geological Survey Open-File Report 2018–1086, (2018); https://doi.org/10.3133/ofr20181086; Appel et al, "Using passive acoustic monitoring to estimate

model metapopulation viability, incorporating territory occupancy probabilities, effects of habitat loss, fragmentation, and canopy reduction on dispersal, and local extirpation risk under each alternative management scenario.

e. Accuracy of Forest Structural Data

Recent evaluations indicate stand exam datasets overestimate structural attributes (canopy closure, basal area, stand density), which may inflate habitat availability estimates. As a result, existing vegetation datasets may create a statistical illusion of stable or sufficient habitat conditions when functional habitat quality and availability in fact are declining.[174] The EIS must evaluate dataset reliability and consider independent verification using LiDAR or high-resolution remote sensing to ensure accurate habitat suitability assessments.

The use of best available science also applies to stand age classification. New technologies with greater capability to map habitat at a finer scale are available and should be used for assessing the condition of the landscape.[175]

f. Temporal Mismatch Between Forest Growth and Harvest

Mature forests require decades to centuries to develop late-successional characteristics, critical for nesting and roosting (large trees, canopy closure, complex vertical structure). The EIS must evaluate whether proposed harvest rates exceed long-term recruitment capacity; expected timelines for development of nesting and roosting habitat; impacts on prey availability and long-term habitat suitability; and the targeted rotation age for the foreseeable future. BLM must also provide justification for the targeted rotation age and how that rotation age will affect the long-term retention of older forest conditions in the landscape.

Given that development of suitable nesting and roosting habitat requires many decades to over a century, any short-term increases in harvest that reduce existing habitat will not be offset within planning-relevant timeframes, resulting in a net decline in functional habitat availability.

Because the development of late-successional structural features, including large-diameter trees, multi-layered canopies, and abundant down wood, requires many decades to over a century, short-rotation harvest regimes substantially reduce the recruitment and persistence of functional habitat for northern spotted owls and other late-successional species.[176]

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northern spotted owl landscape use and pair occupancy," Ecosphere 14(2):e4421 (2023), https://doi.org/10.1002/ecs2.4421.

[174] Davis et al, "Northwest Forest Plan—The First 15 Years (1994–2013): Status and Trends of Northern Spotted Owl Populations and Habitats," U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station (2011).

[175] I.e., Landscape, Ecology, Modeling, Mapping, & Analysis, GNN Structure (Species-Size) Maps, https://lemma.forestry.oregonstate.edu/data/structure-maps.

[176] F.J. Swanson et al, "The forgotten stage of forest succession: early successional ecosystems on forest sites." Frontiers in Ecology and the Environment 8(2):94–101 (2010), https://doi.org/10.1890/090157.

g. Cumulative Effects and Metapopulation Collapse Risk

BLM must analyze cumulative effects on northern spotted owls from timber harvest on federal lands; logging on adjacent private industrial forests; wildfire and post-fire salvage logging; climate-driven changes in forest structure; and barred owl expansion and partial removal programs.

D. Marbled Murrelets

BLM must take a "hard look" at how each alternative it considers will impact murrelet recovery, and any alternative that meets BLM's purpose and need would preclude recovery. The "purpose and need" of BLM's plan revision as stated in the Scoping Notice— "to seek an increase in sustained yield of timber harvest that aligns with the historically higher levels of production on BLM-administered public lands governed by the O&C Act"[177]—cannot be met without jeopardizing, and precluding the recovery of, the marbled murrelet.

1. The Marbled Murrelet Recovery Plan relies on the reserve system established by the Northwest Forest Plan to restrict logging activities in late successional and old growth forests.

FWS listed the marbled murrelet as "threatened" under the ESA in 1994, after decades of logging in coastal old growth forests in northern California, Oregon, and Washington, decimated the species' nesting habitat.[178] These same logging practices had also led to younger, even-aged, and highly fragmented forests.[179] The Northwest Forest Plan finalized in 1994, was intended to curb the impacts of this destructing logging by adopting an ecosystem-based approach to managing federal lands in northern California, Oregon, and Washington, that, among other things, protected and accounted for many values provided by these landscapes, including habitat for murrelets, northern spotted owls, and other imperiled and unique species.

The Northwest Forest Plan is the "backbone" of the Murrelet Recovery Plan.[180] In helping develop the Northwest Forest Plan, the Forest Ecosystem Management Assessment Team Marbled Murrelet Working Group set three general goals to guide management of murrelet habitat on federal lands:

1. Stabilize or improve nesting habitat through protection of all occupied sites (both current and future);
2. Develop future habitat in large blocks (Creating more interior habitat and possibly decreasing avian predation); and

[177] BLM, Notice of Intent, 91 Fed. Reg. at 8018.

[178] FWS, Recovery Plan for the Threatened Marbled Murrelet (*Brachyramphus* marmoratus) in Washington, Oregon, and California (Sept. 1997) (hereafter, "Murrelet Recovery Plan"), at 4 ("At the time of [the murrelet] listing, old-growth forests throughout western Oregon and Washington had been reduced by about 82 percent from prelogging levels.").

[179] Murrelet Recovery Plan at 4–5.

[180] *Id.* at 3.

3. Improve distribution of habitat, thereby improving distribution of marbled murrelet populations.

To help achieve these goals, the Northwest Forest Plan included certain "integral" measures:

1. Provision of an LSR network that protects and maintains approximately 1,300,000 acres of marbled murrelet nesting habitat;
2. The survey for and protection of all sites occupied by marbled murrelets in Marbled Murrelet Zones 1 and 2; and
3. Management of the occupied sites to improve habitat conditions around those occupied sites and reduce fragmentation.[181]

The Northwest Forst Plan established the LSR network as the primary system and strategy to protect murrelets and their habitat on federal lands.[182] Half of the murrelet habitat on federal lands was placed in the LSR, including 79 percent of the known murrelet sites at the time.[183] Further, the Northwest Forest Plan required murrelet surveys for logging activities outside the LSR, and any newly-discovered murrelet sites would be re-designated as LSR.[184]

FWS used the Northwest Forest Plan's strategy as the foundation for the broader recovery strategy it released three years later, in the Murrelet Recovery Plan.[185] The Recovery Plan sets forth three primary objectives:

1. To stabilize and then increase population size, changing the current downward trend to an

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[181] Biological Opinion for the Northwest Forest Plan, in Appendix G to the Final Environmental Impact Statement to the Northwest Forest Plan (hereafter, "NWFP BiOp"), at 25.

[182] Standards and Guidelines for the Northwest Forest Plan, as Attachment A to the Northwest Forest Plan Record of Decision, at C-9; *see also* NWFP BiOp at 5 (describing LSRs as being managed to protect and enhance habitat for owls and murrelets).

[183] NWFP BiOp at 26; *see also id.* ("This percentage [of murrelet sites in the LSR] is to some extent a result of the relatively low level and patchy distribution of survey effort conducted throughout the range of the species, and the use of known marbled murrelet occupied sites in the development of the LSR system.").

[184] *Id.* at 5 ("Protection is prescribed for all forest sites occupied by marbled murrelets found outside the mapped LSRs. This consists of conducting surveys to a Service-endorsed protocol and designating as LSR the contiguous marbled murrelet nesting and recruitment habitat (stands capable of becoming suitable within 25 years) within 0.5 miles of the area where murrelet activity is detected. In addition, any timber activity within the 0.5 mile circle should be designed to protect and enhance nesting and recruitment habitat which is retained.").

[185] *See* Murrelet Recovery Plan at 3 ("The recovery strategy outlined in the [Recovery Plan] therefore builds upon the Forest Plan in areas that were not considered or could not be considered (e.g., non-Federal lands) during development of the Forest Plan."); NWFP ROD at 15 (anticipating that the final recovery plan for the murrelet would use the management direction from the NWFP "as a base from which to build a strategy for recovery").

upward (improving) trend throughout the listed range;

2. To provide conditions in the future that allow for a reasonable likelihood of continued existence of viable populations; and
3. To gather the necessary information to develop specific delisting criteria.[186]

The Recovery Plan identifies several "necessary" steps to achieve these objectives, including, among other things, increasing murrelet population productivity and minimizing or eliminating threats to survival.[187] To complete these steps and stabilize the murrelet's population, habitat must be maintained and protected and the loss of unoccupied but suitable habitat must be minimized.[188] This is true not just for habitat on federal land but on private and state lands as well.[189]

2. BLM's plan revision will be disastrous for murrelet recovery.

Murrelet recovery would be severely undermined by the shrinking or elimination of reserves because the strategy for federal lands relies on prohibiting or otherwise restricting logging the mature and old-growth trees that serve as the species' nesting habitat, restrictions that, for decades, have been implemented through the reserve system. Notably, BLM revised its RMPs in 2016, significantly loosening protections in the reserves it retained and setting timber quotas that led to a vast increase in logging, but it nonetheless still maintained the LSR and riparian reserve system as the backbone around which the RMPs' murrelet protections were structured. Now, BLM seeks to either eliminate reserves entirely, to drastically reduce their size, or to impart so much discretion into their management that they no longer function as reserves.

BLM's purpose and need, as stated in the scoping notice, is wholly incompatible with, and counter to, murrelet recovery. As an initial matter, FWS's recent 5-Year Review concluded that there was an "overall lack of recovery" of the species, and thus that FWS should continue to list murrelets as "threatened" under the ESA because the species remains likely to become endangered in the foreseeable future.[190] Despite the efforts and protections afforded to murrelet habitat over the past several decades, the long-term abundance trend for the species overall (across the Northwest Forest Plan area) has remained flat over the past two decades.[191] According to FWS, the species is faring slightly better in Oregon than in Washington,[192] but this means that protecting murrelet nesting habitat in Oregon is more important than ever to the recovery of the species.

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[186] Murrelet Recovery Plan at 112.

[187] *Id.* at 112.

[188] *Id.* at 119.

[189] *Id.* at 119–20.

[190] FWS, Marbled Murrelet (*Brachyramphus marmoratus)* CA, OR, WA DPS, 5-Year Review: Summary and Evaluation (Aug. 5, 2024), at 14–15.

[191] 2024 Murrelet 5-Year Review at 4, Table 1.

[192] *Id.*

BLM land in Oregon is critical to murrelet recovery. According to FWS's biological opinion on BLM's 2016 RMPs, BLM land in Oregon supports 41 percent of all high-quality murrelet habitat in Oregon, and 14 percent of the high-quality murrelet habitat across the species' listed range.[193] According to FWS, "the population of murrelets relying on BLM's nesting habitat is a significant portion of the population."[194] And any alternative that meets BLM's purpose and need will decimate this nesting habitat. The prohibitions and restrictions on logging mature and old-growth trees are the cornerstone of both the short-term and long-term murrelet recovery strategy on federal lands. As FWS explained when evaluating the effects of the Northwest Forest Plan to murrelets:

> The LSR network would provide two important functions for the conservation of the marbled murrelet: 1) it would provide immediate protection against further removal and fragmentation of marbled murrelet nesting areas on Federal lands throughout the range of the spotted owl; and 2) over time, as currently unsuitable habitat matures and develops qualities of suitable nesting habitat, there should be a decrease in the fragmentation and an increase in the size of marbled murrelet nesting areas contained within LSRs. This second function would increase the amount of interior habitat and should decrease predation in these areas.[195]

Murrelet recovery depends on strict, expansive restrictions on logging the species' mature and old-growth habitat, restrictions that are imposed (on federal lands) through the reserve system. Indeed, the reserve system is a critical component of the Murrelet Recovery Plan. BLM's plan revision will preclude achievement of the Plan's Recovery Actions, and of the species' overall recovery.

a. Recovery Action 1: Implement management plans for each Marbled Murrelet Conservation Zone.

The Recovery Plan divides the range of the murrelet into six conservation zones and then identifies strategies particular to each zone to provide for the long-term survival and recovery of the murrelet.[196] Each zone is the equivalent of a "recovery unit."[197] Zone 3 (**Recovery Action 1.3**) extends from the Columbia River south to North Bend, Coos County, Oregon, and contains the majority of the known murrelets sites in Oregon (as of 1997, when the Recovery Plan was issued). Maintaining suitable and occupied murrelet nesting habitat in this zone, which include BLM lands, "is an essential component for the stabilization and recovery of the marbled murrelet."[198] Zone 4 (**Recovery Action 1.4**) extends south from North Bend, Coos County, Oregon, to the southern end of Humboldt County, California, and includes large blocks of

[193] 2016 RMP BiOp at 253.

[194] *Id.*

[195] NWFP BiOp at 26.

[196] Murrelet Recovery Plan at 115–19.

[197] *Id.* at 115.

[198] *Id.* an at 127.

murrelet habitat that is critical to the species' recovery over the next century.[199] In this zone, "[r]ecovery actions should be focused on preventing the loss of occupied nesting habitat, minimizing the loss of unoccupied but suitable habitat, and decreasing the time for development of new suitable habitat."[200]

The recovery objectives for these Conservation Zones cannot be achieved, and will be set back, if BLM adopts an alternative consistent with its stated purpose and need. BLM must consider an alternative that fulfills and advances the recovery of murrelet populations in these Zones.

b. Recovery Action 2: Delineate and Protect Murrelet Habitat

Pursuant to **Recovery Action 2**, protecting suitable murrelet habitat in the LSR between 0 to 35 miles inland from the Oregon coast is "essential" for murrelet recovery.[201]

BLM's preliminary action alternatives are wholly inconsistent with this Recovery Action. The Recovery Plan's strategy for federal lands depends upon maintaining the reserve system established by the Northwest Forest Plan and restricting the amount of logging in potential or suitable murrelet habitat by placing the vast majority of that habitat into the reserve system. Indeed, in 2016 FWS stated the following in concluding that BLM's current RMPs were consistent with Recovery Action 2:

> The BLM will include more acres of murrelet nesting habitat within the reserves and critical habitat under the PRMP than the NWFP and we believe the PRMP reserve system provides a high level of protection for habitat and provides a high potential for ingrowth of murrelet habitat in the Late-successional and Riparian Reserve designations. Due to the greater amount and protection of nesting habitat for murrelets than in the NWFP as referenced in the recovery plan, we believe the PRMP is consistent with the conservation needs of the murrelet as outlined in the murrelet recovery plan.[202]

In other words, FWS found the current RMPs consistent with Recovery Action 2 because BLM was proposing to not only maintain but add to the amount of murrelet nesting habitat in the reserves, and also because FWS believed that the protections for murrelet habitat in the LSR under the 2016 RMPs would be better for murrelets than the protections afforded by the NWFP. BLM's preliminary action alternatives, as described in the scoping notice, will do the opposite: eliminate or significantly reduce the reserve system, and the accompanying protections and conservation benefits it affords to murrelets and their habitat. These alternatives are wholly inconsistent with Recovery Action 2.

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[199] *Id.* at 128.

[200] *Id.*

[201] *Id.* at 131; Forest Ecosystem Management: An Ecological, Economic, and Social Assessment: Report of the Forest Ecosystem Management Assessment Team (July 1993), at IV-23 (identifying Oregon's "marine environments to 35 miles inland" as falling within Zone 1).

[202] 2016 RMP BiOp at 317.

c. Recovery Action 3: Incorporate Management Recommendations for Protecting Habitat Areas.

Recovery Action 3 identifies short term and long-term management recommendations to protect murrelet habitat and contribute to the species' recovery.

i. Short-Term Recovery Actions

Recovery Action 3.1 identifies short-term actions to stabilize and increase the murrelet population, including maintaining and protecting occupied nesting habitat and minimizing loss of unoccupied but suitable nesting habitat, and decreasing adult and juvenile murrelet mortality.[203] These short-term actions are "critical" to murrelet recovery because of how long it might take (100-200 years) to develop new nesting habitat.[204] **Recovery Action 3.1.1.1** states that it is "imperative" to maintain all occupied nesting habitat through implementation of the Northwest Forest Plan *i.e.*, through the reserve system and its logging restrictions.[205] **Recovery Action 3.1.1.2** recognizes the importance of *maintaining* potential and suitable murrelet habitat in larger contiguous blocks with north/south and east/west distribution, stating that these larger stands will meet the following objectives:

> (1) have more nesting and hiding opportunities, (2) provide for multiple alternative nesting sites for individual pairs of birds over time, (3) facilitate nesting for multiple pairs of birds (and thus promote increased social contact), and (4) provide greater interior forest habitat conditions (to reduce potential nest and adult predation, increase protection of nests from windstorms and environmental changes, and reduce loss of habitat from windthrow and fire). Larger stands also may provide a core of birds to attract or develop sufficient activity and eventual nesting by subadults or nonbreeding adult birds to replace breeding adults lost from this habitat over time due to natural causes or human activities.[206]

Recovery Action 3.1.1.3 calls for maintaining and enhancing buffer habitat around occupied habitat, to mediate edge effects and their impacts on murrelets.[207] "To have the greatest benefits, buffer widths should be a minimum of 300-600 feet and should consist of whatever age stand is present, including existing plantations (which should be managed to provide replacement habitat)."[208]

These critical short-term recovery actions depend on prohibiting logging in and around occupied murrelet sites and suitable nesting habitat. Indeed, FWS found the 2016 RMPs consistent with the short-term recovery actions because, under those RMPs, "[e]xisting, known occupied

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[203] Murrelet Recovery Plan at 138–40.

[204] *Id.* at 121.

[205] *Id.* at 138.

[206] *Id.* at 139.

[207] *Id.* at 140.

[208] *Id.*

murrelet sites would be included within the LSRs under the PRMP" and [t]herefore, all current nesting habitat associated with occupied sites would be retained."[209] Further, the logging restrictions around occupied sites, including restrictions on logging in the buffer habitat adjacent to occupied sites, would reduce fragmentation of murrelet habitat.[210] The 2016 WOPR biological opinion recognized the importance of the 300-foot buffers around occupied sites to stabilizing and increasing the murrelet population, protecting against edge effects, and reducing fragmentation and allowing more ingrowth over the long term.[211] BLM's proposal to increase logging to historical levels would require it to significantly curtail, if not eliminate entirely, these logging restrictions, effectively precluding BLM lands in western Oregon from contributing to the short-term recovery of murrelets.

ii. Long-Term Actions

Recovery Action 3.2 addresses the long-term actions needed to stop murrelet population decline and instead increase population grow. Specifically, **Recovery Action 3.2.1** calls for increasing the amount and quality of suitable murrelet nesting habitat, which the plan identifies as particularly important in the northern portion of the Oregon Coast Range.[212] Several sub-actions narrow down on how this Action is to be accomplished:

- **Recovery Action 3.2.1.1**: decreasing fragmentation by increasing the size of suitable stands to provide a larger area of interior forest conditions
- **Recovery Action 3.2.1.2**: protecting recruitment nesting habitat to buffer and enlarge existing stands, reduce fragmentation, and provide replacement habitat for current suitable nesting habitat lost to disturbance events
- **Recovery Action 3.2.1.3:** using silvicultural techniques to increase speed of development of new habitat

Recovery Action 3.2.2. then identifies the need to improve distribution of nesting habitat by improving and developing the north/south and east/west distributions of nesting habitat (**Recovery Actions 3.2.2.1 and 3.2.2.2**). Improving distribution will "help[] to buffer existing

[209] 2016 RMP BiOp at 317; *see also id.* ("Protection for occupied nest trees includes a 300-foot buffer habitat.").

[210] *See e.g.*, 2016 RMP BiOp, at 228 ("Designated LSRs not only protect habitat currently suitable to murrelets (whether occupied or not), but will also develop future suitable habitat in large blocks."); *id.* at 236 ("The LSR system identifies large, contiguous blocks of late-successional forest that are to be managed for the conservation and development of the older forest features required by the murrelet, and as such, serve as an ideal basis for murrelet critical habitat."); *id.* at 320 ("The Service believes the proposed protection for occupied sites will work more effectively to block up habitat in fragmented high-quality habitat and in low quality habitat where nesting structure may be unevenly distributed throughout younger stands compared to BLM's interpretation of their current RMP.").

[211] *Id.* at 228, 319–20.

[212] Murrelet Recovery Plan at 142.

populations against poor breeding success and catastrophic loss and probably facilitates gene flow among separated populations," and "fill in habitat gaps."[213]

BLM's proposal will significantly impair or prevent accomplishment of these long-term actions that are necessary for murrelet recovery. These actions, again, depend on logging restrictions on mature and old-growth trees that the Recovery Plan assumes would be implemented through the reserve system. For example, to increase the size of suitable stands and decrease fragmentation, the Recovery Plan states that "thinning within [LSR] should be restricted to stands less than 80 years," and that "[u]nthinned buffers should be left around any occupied stands."[214] It is also important to protect stands 80 years or older that may develop into suitable nesting habitat in the near future, and as such the Recovery Plan states that "[s]uch stands should not be subjected to any silvicultural treatment that diminishes their capacity to provide quality nesting habitat in the future."[215] BLM's proposal to eliminate protections for late successional and old growth forests is directly counter these long-term actions and the overall recovery of the murrelet.

3. BLM must consider an alternative consistent with the Murrelet Recovery Plan to meet its obligations under NEPA and the ESA.

Under NEPA, BLM must analyze how returning to "historically higher" harvest levels would undermine murrelet recovery, including but not limited to how doing so would conflict with the murrelet recovery, including the recovery strategy set forth in FWS's Murrelet Recovery Plan. BLM must also consider how eliminating the protective reserve system or otherwise further reducing protections for murrelet habitat would impact the species' recovery, including whether and how it would undermine existing habitat conservation plans, safe harbor agreements, and biological opinions.

BLM must also evaluate an alternative (or alternatives) that meaningfully supports murrelet recovery, including an alternative that expands the LSR and riparian reserve system and strengthens its protections. Notably, the current RMPs are themselves inadequate to protect murrelets and their habitat and further the species' recovery. For example, in the 2016 RMPs, BLM significantly reduced the size of the riparian reserves and eliminated the 80-year age limit on logging in the LSR in moist forests, as compared to the NWFP. These changes were highly detrimental to murrelets. BLM must consider an alternative that *increases* stream buffers over current levels, increases the size of the LSR, and reinstates prohibitions on logging trees 80 years or older.

Further, BLM must consider an alternative that requires it to survey all suitable nesting habitat and prohibit logging in occupied nest sites and at least the 300-foot buffer around occupied sites. Notably, although the Marbled Murrelet Management Direction in the 2016 RMPs requires this,[216] BLM has significantly deviated from this Direction, interpreting and implementing it in a

[213] *Id.* at 145–46.

[214] *Id.* at 143.

[215] *Id.*

[216] BLM, Northwestern and Coastal Oregon Record of Decision and Resource Management Plan (2016), at 97–99.

manner that allows it to avoid surveying for murrelets (even in suitable habitat in the LSR), and thus avoid restrict logging in the occupied sites and the 300-foot buffer habitat, as would be consistent with the Direction.[217] This had led to far fewer discoveries of occupied sites than BLM and FWS anticipated in the ESA section 7 consultation on the 2016 RMPs.[218] In addition, BLM is not applying the 300-foot buffer to occupied murrelet sites discovered before BLM withdrew from the NWFP.[219] Instead, it is only applying the buffer to the few sites it discovers under its current RMPs. BLM's twisted interpretation of the Murrelet Management Direction is inconsistent with murrelet recovery and the ESA; it is causing more impacts to murrelets, protecting less habitat, and failing to reduce fragmentation and provide more ingrowth and enhancement of nesting habitat. To meet its obligations under NEPA and the ESA, BLM must consider an alternative that requires surveys of all suitable murrelet nesting habitat, prohibits activities within at least the size of the "occupied stand" as defined by the current RMPs,[220] and further provides for at least a 300-foot buffer around all occupied murrelet sites, not just those discovered after BLM withdrew from the NWFP. BLM should follow the revised survey protocol and terrestrial habitat management recommendations from the Pacific Seabird Group's Marbled Murrelet Technical Committee.[221]

Lastly, while these comments are being submitted as part of BLM's NEPA process, we must note that it is impossible for BLM to develop an alternative that meets its stated purpose and need and is also consistent with its ESA obligations. Specifically, as noted above, ESA Section 7(a)(2) requires agencies to ensure their actions will not "reduce appreciably the likelihood of both the survival *and* recovery" of listed species or destroy or adversely modify their critical habitat.[222] Any alternative that would return logging to historical levels would do just that, as it would

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[217] *See* Bruce Hollen and the RMP Team, Modification and Clarification from the State Office (June 19, 2018), at 1.

[218] The 2016 RMP BiOp predicted that under the RMPs, BLM would discover and protect 97 occupied murrelet sites by the end of 2023. 2016 WOPR BiOp at 318. In March 2022, BLM reported that it had thus far only discovered 38 new occupied murrelet sites. BLM, Resource Management Plan Evaluation Report, Northwestern and Coastal Oregon and Southwestern Oregon RMPs (Mar. 2022), at 33.

[219] *See* Coos Bay BLM, Biological Opinion for Big Weekly Elk (Dec. 1, 2020), at 14, 15; *Cf.* 2016 RMP BiOp at 317 ("Protection for occupied nest trees includes a 300-foot buffer habitat; therefore, the following discussion on protection of occupied sites includes protection for buffer habitat.").

[220] BLM's 2016 RMPs define "occupied stand" as "forest stands, regardless of age or structure, within 1/4 mile (1,320 feet) of the location of marbled murrelet behavior indicating occupancy and not separated from the location of marbled murrelet behavior indicating occupancy by more than 328 feet of non-forest." Northwestern and Coastal Oregon RMP at 98, n.38.

[221] *See* Pacific Seabird Group. 2024. A revised protocol for surveying Marbled Murrelets in forests. Pacific Seabird Group Technical Publication Number 6; Pacific Seabird Group. 2024. Terrestrial habitat management recommendations for Marbled Murrelets. Pacific Seabird Group Technical Publication Number 7. 38p.

[222] *See* 16 U.S.C. § 1536(a)(2); 50 CFR § 402.02 (definition of "jeopardy").

require a drastic reduction to, or elimination of, the reserve system and its protections for the murrelet's mature and old growth coastal nesting habitat, jeopardizing the species' survival and recovery. Further, significantly increasing logging on BLM lands would also conflict with the agency's ESA Section 7(a)(1) mandate to "carry[] out programs for the conservation" of listed species, where "conservation" is defined as bringing a species to the point where the protections of the Act are no longer required, *i.e.*, the species is recovered. [223] BLM's proposal to increasing logging to historical levels is flatly inconsistent with murrelet recovery, and the ESA.

II. RIPARIAN RESERVES AND AQUATIC CONSERVATION STRATEGIES[224]

The Northwest Forest Plan included a scientifically rigorous Aquatic Conservation Strategy (ACS) to protect salmon, steelhead, and their aquatic habitat. The ACS has four basic components: (1) a system of key watersheds or refugia comprising watersheds with the best aquatic habitat or the greatest potential for recovering at-risk fish stocks; (2) Riparian Reserves along streams where certain activities are constrained; (3) watershed analysis to be used to tailor activities to specific watersheds needs; and (4) a comprehensive, long-term watershed restoration program.

When the federal district court upheld the validity of the Northwest Forest Plan, it cautioned with respect to the ACS that, "[i]f the plan as implemented is to remain lawful, the monitoring, watershed analysis, and mitigating steps called for in the ROD will have to be faithfully carried out, and adjustments made if necessary." Later courts found that the science behind the ACS embodied the best available scientific information pertaining to the impacts of forestry activities on salmon and their habitat. Recognizing that the ACS represented the best available science on the intersection between forest management and salmonid protection, NMFS has relied on ACS consistency in order to judge jeopardy.

Any revisions to the 2016 RMPs that reduce protections to listed salmon and steelhead and fail to rely on the best available science to reach conclusions about harm to aquatic ecosystems must be rejected. Lower Columbia River chinook, Upper Willamette River chinook, Southern Oregon/Northern California coho, Lower Columbia River coho, Oregon Coast coho, Lower Columbia River chum, Lower Columbia River steelhead, and Upper Willamette steelhead are some of the anadromous populations listed as threatened under the ESA. Also protected as threatened or endangered are Shortnose suckers, Lost River suckers, and Bull Trout. The vague proposal for "streamside buffers ranging from 25 to 100 feet, depending on stream type, to comply with the Clean Water Act" would jeopardize the survival and recovery of listed salmon and steelhead.

It is also disturbing that BLM fails to mention its ESA obligations to protected aquatic species. BLM relied on the ACS to meet its ESA duties from 1995 to 2016. The 2016 RMPs changed BLM's Riparian Reserve size and management within those reserves and any further reductions in aquatic protections will clearly violate the ESA's best science mandate.

It will be impossible for any proposed alternative that would "increase [] timber harvest levels of

[223] 16 U.S.C. § 1536(a)(1); *id*. § 1532(3).

[224] *See also* Attachment A, Ecoregions LLC comments by Gary Rule.

production to align with historically higher levels of volume" on these BLM lands to adequately protect listed salmon and steelhead. Any alternatives that offer smaller Riparian Reserves and less aquatic protection than the current 2016 RMPs, let alone the Northwest Forest Plan ACS, will not comply with the best available science and risk jeopardy to listed salmon and steelhead.

In addition to shrinking Riparian Reserves and allowing logging within reserves, alternatives to be considered should take into consideration where salmon and steelhead are actually present; they should value high intrinsic value areas and previously identified key watersheds; and they should address key issues, including sedimentation, road densities, and peak flows.

A. BLM's Proposed Revision Will Dramatically Reduce Protections for Listed Pacific Salmon, Bull Trout, and Other Fish, Undermining their Survival and Recovery.

The revision contemplated in the Scoping Notice will dramatically reduce protections for listed Pacific salmon and other fish, dramatically undermining their recovery. The notice states that the only areas where logging will be prohibited are within 25'-100' of streams to comply with the Clean Water Act. This would be a dramatic departure from protections provided under the ACS of the Northwest Forest Plan and the current protections provided by the RMPs. Under both the ACS and RMPs, extensive areas are protected as LSRs and Riparian Reserves. The Northwest Forest Plan ACS protected two site-potential tree heights (roughly 300') on the entirety of the stream network as Riparian Reserves, while the 2016 RMPs protected one site-potential tree height across most of the stream network. In both cases, these reserves were in addition to the LSRs. Removing these protections will have devastating consequences not just to listed fish, but also many species both aquatic and terrestrial, that depend on the habitat provided by Riparian Reserves, including northern spotted owls, salamanders and more, as well as for stream health and water quality. In contemplating such a drastic reduction in protection, BLM must consider both retaining existing protections as the no-action alternative, but also an alternative that restores the ACS, and it must consider all the consequences to stream health and wildlife from stripping these important landscape level protections.

Western Oregon BLM lands provide habitat for a number of protected populations of Pacific salmon, including Oregon Coast coho salmon (OCC), southern Oregon and northern California coho salmon (SONCC), upper Willamette River chinook salmon and steelhead trout, and McKenzie Basin bull trout, as well as the listed Lost River and shortnose suckers (Table 1).[225] These lands also provide small amounts of habitat for lower Columbia River chinook, chum, and coho salmon and steelhead trout, green sturgeon, and Pacific eulachon.

Although protections for freshwater habitats needed by Pacific salmon were weakened by the 2016 RMPs compared to the Northwest Forest Plan, they still maintained protections for hundreds of thousands of acres of freshwater habitat for listed fish species (Table 1). For example, roughly 16 percent of the total area of the Oregon Coast coho's range is found on western Oregon BLM lands, and of this, 82 percent is protected in LSRs or RRs.[226] Accordingly,

[225] BLM, Biological Assessment, Western Oregon Proposed Resource Management Plan (Jan. 28, 2016), at 25–29 (hereafter, "2016 BA").

[226] 2016 BA at 26.

the recovery plan for the ESU concludes that: "[w]e consider the Northwest Forest Plan and BLM's RMP, when fully implemented, to be sufficient to provide for the habitat needs of Oregon Coast coho salmon habitat on federal lands," further noting that "maintaining this high quality habitat on federal lands is necessary for the recovery of Oregon Coast coho salmon."[227]

Table 1. Listed fish populations with substantial habitat acres on Western Oregon BLM, percent of the total range of the population found on BLM, and percent of that habitat that is protected.

Species	Oregon BLM Acres	Acres LSR	Acres RR	BLM Protected %	Percent of Range
Oregon Coast Coho	1,085,611	550,442	341,957	82	16
SONC Coho	729,566	239,947	166,583	56	6
Upper Willamette Chinook	234,485	36,920	76,057	48	5
Upper Willamette Steelhead	184,404	27539	66,926	51	6
McKenzie Basin Bull Trout	51,805	8,250	17,559	50	6
Lost River and Shortnose Sucker	229,826	9,961	19,935	13	11

Although habitat recovery is slow, protections provided first by the Northwest Forest Plan and to some degree maintained by the RMPs, have begun to allow improvement of freshwater habitats for listed fish. In a review of the ACS, Reeves et al. (2018) found that upslope-riparian condition had improved on most LSRs and matrix lands due to "widespread vegetation regrowth and targeted road decommissioning in previously harvested watersheds."[228] This same review also found increased macroinvertebrate diversity and a declining trend in water temperature both hopeful signs of improvement in stream health.[229] These improvements and any continued improvement in freshwater habitat, however, are at severe risk if BLM revises the RMPs to increase logging to historic levels, which certainly can only be accomplished by eliminating most or all of the restrictions on logging in the LSRs and Riparian Reserves. This will fundamentally undermine the survival and recovery of listed fish, particularly those with substantial acres of habitat on western Oregon BLM lands (see table 1).

That western Oregon BLM and other federal lands are critical to recovery of Pacific salmonids and other fish is emphasized in the recovery plans for these species. The Oregon Coast coho recovery plan, for example, notes that both the Forest Service and BLM "must ensure their

[227] NMFS, Final ESA Recovery Plan for Oregon Coast Coho Salmon (*Oncorhynchus kisutch*) (Dec. 2016), at 3-25 (hereafter, "OCC Recovery Plan").

[228] Reeves, G.H. et al. Chapter 7: The Aquatic Conservation Strategy of the Northwest Forest Plan—A Review of the Relevant Science After 23 Years (2018) at 469, in Spies, T.A. et al. Synthesis of science to inform land management within the Northwest Forest Plan area. Gen. Tech. Rep. PNW-GTR-966 (2018).

[229] Reeves et al. 2018, at 471.

actions protect existing high quality habitat and implement actions to restore ecological process in the short-term and long-term," and that "NMFS will need to determine that the habitat condition is, and will likely continue to be, adequate to support a viable ESU before it can remove Oregon Coast coho salmon from the list of threatened species." [230] Likewise, the recovery plan for the southern Oregon and northern California population of coho salmon states that "[l]ate-successional reserves and riparian reserves serve as core areas of high quality stream habitat, fish refugia, and centers from which degraded aquatic systems can be recolonized once they are restored."[231] The SONC Coho Recovery Plan specifically identified roads and timber harvest as stressors and threats that must be addressed to attain recovery.[232] Recovery plans for the other listed fish that occur on western Oregon BLM plans all discuss land-use, including logging, as a threat to the species that must be addressed. The reductions in protections for streams contemplated in this notice will severely undermine the recovery of these species.

B. Stripping Protections for LSRs and Riparian Reserves will Result in Additional Species Needing Listing under the ESA.

During development of the NWFP, the Forest Ecosystem Management Assessment Team evaluated the "likelihood of maintaining well-distributed habitat conditions on the federal lands" for the northern spotted owl, marbled murrelet and over 1,000 plants and animals believed to be associated with late-successional forests, finding a direct relationship between this likelihood and the amount of late-successional forest in reserve status.[233] Should BLM move forward with eliminating the reserve system to drastically increase logging, many of these species will face additional risk and some will invariably require protection under the ESA to survive.

Two examples of species that will likely need protection if the reserves are eliminated are the southern Oregon and northern California population of the fisher and the Applegate population of the Siskiyou Mountains salamander. Both depend on late-successional forests, occur on western Oregon BLM lands and were denied ESA protection in large part because of the reserve system provided by the Northwest Forest Plan and BLM RMPs.[234] The species status assessment for fisher done in conjunction with the 2025 not warranted finding found that a combination of the reserves and mitigation measures in matrix lands would "increase the likelihood by more than 80 percent that "habitat is of sufficient quality, distribution, and abundance to allow [fisher

[230] OCC Recovery Plan at 3–25 and 4–10.

[231] NMFS, Final Recovery Plan for the Southern Oregon/Northern California Coast Evolutionarily Significant Unit of Coho Salmon *(Oncorhynchus kisutch)* (2014), at 3–53 (hereafter, "SONC Coho Recovery Plan").

[232] SONC Coho Recovery Plan at 4–12, 13.

[233] Forest Ecosystem Management Assessment Team, Forest ecosystem management: an ecological, economic, and social assessment (1993); *id.* at II–2.

[234] FWS, Species status assessment report for Fisher (*Pekania pennanti*), Northern California-Southern Oregon Distinct Population Segment, Version 1.0 (2025) (hereafter, "Fisher SSA"); FWS, 12-Month Finding on a Petition To List the Siskiyou Mountains Salamander (*Plethodon stormi*) and Scott Bar Salamander (*Plethodon asupak*) as Threatened or Endangered, 73 Fed. Reg. 4380 (Jan. 24, 2008) (hereafter, "SMS Not Warranted 2008").

populations] to stabilize, well distributed across federal lands (Forest Service and Bureau of Land Management 1994, p. 183)."[235] For the Applegate population of the salamander, the Service concluded in its 2008 not warranted finding that "the extent and magnitude of potential effects caused by timber harvesting are strongly limited by existing land management regulations on the majority of the range of this [population]," noting that 19 percent of its range is managed by BLM with another 66 percent managed by the Forest Service.[236] Clearly, if restraints on logging and road building are removed, both species will need reconsideration for ESA listing.

III. FIRE AND FUELS MANAGEMENT

The dramatic increased harvest limits in BLM's scoping notice are not compatible with protecting forests and communities from wildfire danger and will have negative fire consequences. BLM's draft EIS and draft plan must correct past inaccuracies in its fire analysis, analyze impacts on surface fire, assess increased fire risks, and examine the studies either cited in this section or provided with these comments.

A. BLM's Data Relied upon for its Fire Analysis in the 2016 RMP FEIS Is Inaccurate.

BLM used coarse-scale data that classified forests into structural classes to support the 2016 RMP. This data was the basis of BLM's fire analysis in the RMP FEIS from 2016. Numerous site-specific timber sales have been planned under the 2016 RMP, and it has been revealed time and time again that this coarse scale data both in terms of age class and structural classification are inaccurate. BLM specialists that worked on gathering this data and verifying this data have testified in federal court to this. BLM cannot rely upon this data set for any subsequent revisions; it has been proven to be inaccurate and massively underreported old-growth forests and complex forest conditions. Litigation over these issues is currently ongoing in federal court.

B. BLM Must Analyze the Effects Its Logging Will Have on Surface Fire as well as Canopy Fire.

As elaborated upon below, intensive harvest (heavy thinning and regeneration harvest) increases surface fire risk. But canopy fire does not occur without surface fire. Yet BLM's 2016 RMP EIS analyzed only the effects its proposed harvest would have on canopy fire, and in essence concluded (based on overly simplistic modeling) that the more canopy removed, the less canopy fire will occur. This analytical method ignores that surface fire can be just as dangerous to communities and surface fires are a prerequisite to canopy fires. It also ignores the reality that the more canopy removed, especially in moist forests, fire hazards are increased, including surface fire hazards the consequences of which were unanalyzed in the 2016 RMP FEIS. If it pursues the proposed RMP revision, BLM must thoroughly analyze fire risk and hazard in the new RMP EIS and consider and weigh the tradeoffs with surface fire and canopy fire.

Deficiencies with this "canopy only" model abound. The model's conclusion—that the more canopy removed, the better the fire outcome—directly conflicts with literature that has analyzed

[235] Fisher SSA at 60.

[236] SMS Not Warranted 2008 at 4403.

actual fire outcomes in the Klamath-Siskiyou region.[237] BLM's arbitrary approach also conflicts with the admitted reality that regeneration harvest, which involves high levels of canopy removal, ultimately increases fire risk.[238]

C. BLM Has Admitted that Regeneration Harvest Increases Fire Risk and Hazard for at least 50 years Following Harvest.

To achieve BLM's proffered increases in volume, BLM will have to shift management approaches in the reserves or abandon the reserves altogether to facilitate widespread regeneration harvest or clearcut harvest. This will have negative fire consequences for the region both in terms of increased fire risk and severity. National Wildfire Coordination Group defines fire risk as the chance of a fire starting as determined by the presence and activity of causative agents. Causative agents are the things that start fires and are generally broken into two categories: natural (i.e., lightning) and human-caused (everything else). Fire hazard refers to the ease of ignition, potential fire behavior, and resistance to control of the fuel complex, defined by the volume and arrangement of several strata, including surface, ladder, and canopy fuels.[239] In other words, fire risk is the risk of fires starting and fire hazard generally means fire severity.

This widespread intensive harvest will increase both fire risk and fire hazard for the region as explained by BLM's own fire specialists:

> Regeneration harvest and the subsequent reforestation would change the structural stage, fuel model, and fuel loadings within harvested areas. The combination of regeneration harvest and heavy reforestation (approximately 400 trees per acre of mostly Douglas fir) will result in the establishment of a new homogenous Douglas-fir plantations.
>
> Initially, this will change the stand structural stage from mature to early successional and change the associated stand level hazard from low to moderate/high. The stands would transition from a timber fuel model (TL3,TL5) to a slash fuel model (SB1, SB2) resulting in higher predicted flame lengths, fire duration, and intensity. The ability to control a fire would decrease during this period. Forest management activities increase the surface fuel loads within the

[237] *See* Damon B. Lesmeister et al, Mixed-severity wildfire and habitat of an old-forest obligate, Ecosphere 10(4) (2019) doi:10.1002/ecs2.2696 (study evaluating the Douglas Complex and Big Windy Fires in 2013); *see also* Chad T. Hanson, Is "Fuel Reduction" Justified as Fire Management in Spotted Owl Habitat?, *Birds*, vol. 2 (2021), doi:10.3390/birds2040029 (evaluating the outcome of the Creek Fire in 2020).

[238] *See* Thurston Hills Fuels Specialist Report (BLM fire specialist report admitting that plantations experience "higher severity fire" and that regeneration harvest that is followed by replanting results in higher rates of fire severity and risk for the next 40-50 years).

[239] David E. Calkin et al, A Comparative Risk Assessment Framework for Wildland Fire Management: The 2010 Cohesive Strategy Science Report, Gen. Tech. Rep. RMRS-GTR-262. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, 63 (2011).

> stand. Fuel loading and the increased risk of a fire start would be greatest during the first 5 years following harvest when needles cure but remain attached to tree limbs.
>
> After the early serial stage, over the next 10-40 years, stands would transition thru the structural stages of stand establishment and young stands. These stages are associated with high stand level fire hazard rating. Units would transition from a slash fuel type into a brush fuel type (approx. 3-5 yrs. after planting). Brush fuel types are more volatile and are susceptible to high rates of fire caused mortality. Fires within homogenous young plantations would exhibit high flame lengths, rates of spread, and fire intensity. Fires started within these stands would be difficult to initial attack and control. For 5 to 20 years following planting, overall fire hazard would increase in these stands until the next treatment (pre-commercial thinning) would move the young stand from a high to low density stage. As stands transition into the young-low density stage the fire hazard begins to trend downward and drops from high to moderate.[240]

Timber harvest prescriptions that remove greater basal area from stands leave more surface fuels. This increase in surface fuels has the potential to result in higher rates of spread and greater flame lengths in the event of a wildfire,[241] increasing the risk to firefighters and public safety.[242]

Concerning fire risk, BLM's proposed increased harvest will require an extensive amount of road construction and reconstruction, increasing access into areas that were previously inaccessible by motor vehicle. As a result, over time there will be an increase in the presence and activity of causative agents. As such, fire risk from human caused fire is expected to increase. BLM needs to analyze this increase in risk given that over 90 percent of fires are not natural.

The District Court of Oregon held that BLM's proposed regeneration harvest results in "higher predicted flame length, fire duration, and intensity and decreased ability to control a fire, with the greatest risk of a fire start during the first 5 years following harvest . . . [followed by a transition to] a brush fuel type, which are more volatile and susceptible to high fire-caused mortality [with]

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[240] *See* Jessica Gallimore, Fuels Specialist Report: Thurston Hills (Feb. 27, 2018).

[241] C. Phillip Weatherspoon and Carl N. Skinner, An Assessment of Factors Associated with Damage to Tree Crowns from the 1987 Wildfires in Northern California, *Forest Science*, Vol 41. No. 3 (Aug. 1995); Crystal L. Raymond and David L. Peterson, Fuel treatments alter the effects of wildfire in a mixed-evergreen forest, Oregon, USA, Can. J. For. Res. Vol. 35, doi:10.1139/X05-206 (2005); Susan J. Prichard and Maureen C. Kennedy, Fuel treatments and landform modify landscape patterns of burn severity in an extreme fire event, *Ecological Applications*, vol. 24, no. 3 (2014).

[242] Russell T. Graham et al, Effects of Thinning and Similar Stand Treatments on Fire Behavior in Western Forests, Department of Agriculture, Forest Service, Pacific Northwest Research Station, General Technical Report PNW-GTR-463 (1999); Russel T. Graham et al, Science Basis for Changing Forest Structure to Modify Wildfire Behavior and Severity, Gen. Tech. Rep. RMRS-GTR-120, Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, 43 (2004).

rates high flame lengths, rates of spread, and intensity and would be difficult to initially attack and control."[243] These conclusions by the Court were quotes from BLM's own fire specialists.

D. Heavy Thinning of Existing Mature Forests Will Increase Fire Hazard.

Past BLM management of LSR forests involved heavy commercial thinning which sought to remove approximately 70 to 80 percent of the existing forests (reduce area to 20 to 30 percent relative density index). BLM claimed repeatedly that this logging would have beneficial outcomes, but the science does not back this up and courts have rejected these contentions. To achieve BLM's new volume objectives and increase harvest further, LSR areas will be managed more intensively. Even if this logging is described as "thinning," such commercial thinning is not a "thinning from below" treatment that would target the smallest trees in a stand first. Such logging treatments are frequently analyzed and utilized for fire resilience purposes.[244] BLM's proposed commercial thinning has intentionally targeted canopy for removal, logging the largest, most fire-resilient trees in forest stands under the assumption that the more canopy removed, the better the fire outcomes.[245] This conclusion and reasoning is insupportable and should not be repeated in the new analysis.

The science BLM has relied upon in the past to support including gap creation in its proposed logging prescriptions specifically counsels against BLM's efforts to include such clearings in its prescriptions. For example, BLM relied upon Bigelow and North (2011) to conclude that its thinning will not increase wind speed and fuel moisture and the associated fire risks that correspond to those two variables. That study analyzed gap creation and concludes that these openings "greatly increased wind speeds and higher surface temperatures mean[ing] that they are at risk for more severe fire behavior. This should be of particular concern when group selection openings are embedded within fuels-reduction thinned stands that form part of a network for rapid access by fire-fighting personnel (Moghaddas et al., 2010)."[246] The metastudy by Martinson and Omi (2013) that BLM uses to justify its logging treatments analyzed a number of different fuel reduction treatments, but none of them involved gap or opening creation. The Prichard studies continually relied upon by BLM to justify its logging did not include gap

[243] *See Cascadia Wildlands v. BLM,* 410 F. Supp. 3d 1146, 1158 (D. Or. 2019).

[244] Susan J. Prichard et al, Adapting western North American forests to climate change and wildfires: 10 common questions, Ecological Applications (Dec. 2021), doi:10.1002/eap.2433.

[245] Thinned stands with remaining large trees, thinning from below prescriptions, have been shown to have less severe fire effects when intersected by wildfires. 2016 RMP FEIS at 228; Erik J. Martison and Philip N. Omi, Fuel Treatments and Fire Severity: A Meta-Analysia U.S. Department of Agriculture, Forest Service (June 2013); Jamie M. Lydersen et al, Severity of an uncharacteristically large wildfire, the Rim Fire, in forests with relatively restored frequent fire regimes, Forest Ecology and Management 328: 326-334 (2014), http://dx.doi.org/10.1016/j.foreco.2014.06.005.

[246] Seth W. Bigelow and Malcolm P. North, Microclimate effects of fuels-reduction and group-selection silviculture: Implications for fire behavior in Sierran mixed-conifer forests, Fire Ecology and Management 264:51-59 (2012).

creation, but the authors explicitly counsel against creating openings in southwestern Oregon.[247] BLM never addresses repeated criticisms of its proposal to create gaps in 25 percent of its logged areas and just responds with general claims that thinning generally will have fire beneficial effects. The studies BLM cites to support this claim find that gap creation has negative fire effects. Any continuation of proposing these large gaps in logging prescriptions needs to be analyzed programmatically.

BLM has relied upon the Zald 2018 study to support heavy thinning for fire purposes, but that study discusses fire hazards posed by "plantations" "dominated by young trees" "arranged in a relatively spatially homogenous fuel structure," and concludes these areas would benefit from thinning, but distinguishes these areas from "older forests" that "tend to have greater variability in both tree size and spatial pattern vs. plantations (Naficy et al. 2010), arising from variable natural regeneration (Donato et al. 2011), post-disturbance biological legacies (Seidl et al. 2014), and developmental processes in later stages of stand development (Franklin et al. 2002)."[248]

BLM frequently dismisses the Hanson 2021 study, which concluded that 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," because the study "did not adequately account for other factors affecting fire severity, such as 'ecoregion, elevation, and temperature.'"[249] Ironically, BLM's own fire modeling suffers from the same faults, relying upon average or mean values or estimates instead of actual stand data while failing to include data on ecoregion, elevation, and temperature. The lack of site-specific data to inform the agency's fire modeling resulted in the unsupported conclusion that forest canopy removal would produce better fire outcomes, which conflicts with the conclusions of studies included herein.

E. Logging to Address Fire Is Ineffective.

BLM's commercial "ecosystem-resilience" logging units are controversial because they are admittedly not effective. BLM admits that "during extreme fire weather events and plume-dominated fire behavior, even fuel profiles and vegetation structure representative of historic fire

[247] Susan J. Prichard et al, Fuel Treatments reduce the severity of wildfire effects in dry mixed conifer forest, Washington, USA, Can. J. For. Res., Vol. 40 (2010), doi:10.1139/X10-109 ("the efficacy and longevity of treatments could be reduced compared with the dry forests of our study area. For example, in a landscape analysis of fire severity in the 2002 Biscuit fire in southwestern Oregon, Thompson and Spies (2009) reported that shrub cover was one of the most important predictors of fire severity. Plantations and other clearings involved in the Biscuit fire experienced the highest incidence of fire severity and were associated with a flammable shrub stratum.").

[248] Harold S.J. Zald and Christopher J. Dunn, Severe fire weather and intensive forest management increase fire severity in a multi-ownership landscape, Ecological Applications, 28(4) (2018), doi:10.1002/eap.1710.

[249] Chad T. Hanson, Is "Fuel Reduction" Justified as Fire Management in Spotted Owl Habitat?, *Birds*, vol. 2 (2021), doi:10.3390/birds2040029.

regimes may have a reduced likelihood of altering fire behavior (Lydersen *et al.* 2014), and treated areas may become less effective at altering fire behavior (Ewell *et al.* 2015), resulting in large areas of high severity."[250] These extreme weather events are projected to increase dramatically, thus increasing the likelihood these logging treatments will be ineffective. Studies which have analyzed this projected increase in high-severity fire have concluded that negative impacts from thinning on owl habitat strongly outweigh the negative impacts anticipated from fires.[251] This body of research which has concluded that fuel reduction thinning is ineffective, coupled with BLM's proposed logging prescriptions that include "gap creation," which is known to have corresponding negative fire impacts, casts doubt on whether BLM's project will actually further fire goals.

Even presuming any logging treatments would be effective at mitigating fire, the odds of fire actually intersecting the logged area in the relevant time window following the logging is extremely low. Rhodes and Baker 2008 finding in Ponderosa Pine forests there was a 2 to 4 percent chance of treated areas being affected by high-severity fire). The Rhodes study assumed these treatments would be effective for 20 years, if you reduce that to 11 years, which was the time when fuels returned to pre-treatment levels, "reduces the probability that higher-severity fire affects treatments by ~45%" on top of that already low percentage.[252]

F. Heavy Thinning Will Change a Stand's Structural Stage.

BLM's 2016 RMP operates under the assumption that vegetation structural stage is an important component affecting resistance to stand replacing fire. Despite this importance afforded to forest structural stage in informing fire resistance, BLM does not analyze changes to forest structure that will result from its logging. Heavy commercial thinning and the gap creation proposed by BLM will convert up to 25 percent of its commercially logged forests into openings (areas of complete tree removal) where BLM will be forced to replant trees. These will be open early successional areas, "areas with less than 30 percent canopy cover," and this "structural stage is typically comprised of highly flammable vegetation.[253] When combined with open conditions that can increase surface wind speeds and flames lengths,[254] in general, this structural stage

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[250] 2016 RMP FEIS at 228.

[251] Dennis C. Odion et al, Effects of Fire and Commercial Thinning on Future Habitat of the Northern Spotted Owl, The Open Ecology Journal, 7:37-51 (2014) ("Even an immediate doubling of fire rates due to climate change or other factors would result in far less habitat affected by high-severity fire than thinning. In addition, much of the high-severity fire might occur regardless of thinning, especially if the efficacy of thinning in reducing high-severity fire is reduced as fire becomes more controlled by climate and weather (Cruz and Alexander 2010).").

[252] Jonathan J. Rhodes and William L. Baker, Fire probability, fuel treatment effectiveness and ecological tradeoffs in western US public forests, The Open Forest Science Journal 1(1): 1–7 (2008), http://www.energyjustice.net/files/biomass/library/Rhodes-Baker.pdf.

[253] James K. Agee Fire ecology of the Pacific Northwest forests, Washington, D.C. Island Press (1993).

[254] Jolie Pollet and Philip N. Omi, Effect of thinning and prescribed burning on crown fire severity in ponderosa pine forests, Int. J. Wildland Fire 11 (1):1-10 (2002),

presents" increased fire risks.

Despite this reality, BLM does not factor this into its fire analysis, instead assuming that commercial thinning will not change the underlying forest structural stages. Such structural stages have larger numbers of bigger trees with thicker bark that improve fire resistance and increase the likelihood of low to moderate severity burning. [255] BLM's assumption that these areas will maintain their structural stage, means these areas will maintain higher fire resistance, despite the fact on the ground that 25 percent of these areas will be areas of total tree removal, which will amount to structural changes. Essentially, BLM is selectively presenting only the potential positive impacts of its logging without analyzing or acknowledging the downside. In the EIS, BLM needs to consider the reality that heavy commercial thinning will alter a stand's resilience to fire.

G. High Intensity Logging Is Correlated with Higher Fire Severity.

The recent best available science on this issue has found that higher fire severity is correlated with higher intensity logging. Recent studies have found that "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)."[256] This finding is well supported: "Other recent research indicates that forests with less environmental protection and more tree removal tend to burn more severely."[257] This body of research was the basis for the Ninth Circuit's recent ruling in *Bark v. U.S. Forest Service* that overturned an agency decision to conduct "fuel reduction" commercial heavy thinning of mature forests on the east-side of Mt. Hood because the claim by the agency that it would have beneficial fire impacts was contradicted by a "substantial body of research."[258] Numerous studies attached to these comments support this contention that higher intensity logging is correlated with higher fire severity. Please incorporate these studies into your EIS analysis.

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https://doi.org/10.1071/WF01045; Richard C. Rothermel, How to Predict the Spread and Intensity of Forest and Range Fires, U.S. Forest Service, General Technical Report INT-143 (June 1983).

[255] 2016 RMP FEIS, Vol. 3 at 1321.

[256] Chad T. Hanson, Is "Fuel Reduction" Justified as Fire Management in Spotted Owl Habitat?, *Birds*, vol. 2 (2021), doi:10.3390/birds2040029.

[257] *Id.*

[258] *Bark v. United States Forest Serv.*, 958 F.3d 865, 871 (9th Cir. 2020) (USFS decision not to prepare an EIS was arbitrary); *see also* Hanson (2021) ("In 1996, a large team of university and agency scientists, commissioned by the U.S. Congress, released the conclusions of the Sierra Nevada Ecosystem Project Report, finding the following: 'Timber harvest, through its effects on forest structure, local microclimate, and fuel accumulation, has increased fire severity more than any other recent human activity'").

H. BLM Must Account for the Constant, Continual Maintenance Cost Associated with Forest Canopy Openings that Spur Rapid Understory Growth.

Logging that removes canopy will spur rapid understory growth. This undergrowth response will require maintenance to eliminate increasing fire severity risks posed by the undergrowth. BLM in prior projects has concluded that maintenance will not be needed for up to 10 years and that this conclusion is based on unspecified locally collected data, but the studies BLM cites in this section indicate understory response will be quicker.[259] In any case, fuel treatments have a limited time window of effectiveness because of this regrowth, and usually this regrowth makes fire issues worse. This reality needs to be accounted for in any EIS analysis.

I. Studies Call for Increasing Reserve Size Given Recent Fires.

New analysis of recent wildfires for forest management on federal lands in the Pacific Northwest in the Cova et al. 2025 study concluded that "[w]here entire LSR units have been impacted by high severity fire, management strategies could consider adjusting reserve boundaries to emphasize existing LSOG patches on surrounding Matrix lands (Halsey, 2024) or alternatively promote old forest habitat by ensuring greater protection of LSOG forest patches within Matrix designations, independent of reserve boundaries."[260] The Cova et al. 2025 study essentially calls for creation of more and larger LSRs given that LSR loss to protect against future LSR loss in intense wildfires and to preserve the values these forests provide for climate, communities, etc. The authors emphasized that dry forest management should emphasize: "Protection of large, old trees can serve as anchors in a landscape of dynamically shifting burned and unburned areas (Hessburg et al., 2015, Hessburg et al., 2019, Hessburg et al., 2016)."[261] While the study discussed the benefits of "restoration" to abate future fire risks, this restoration referenced was small diameter thinning and prescribed fire, not the heavy canopy thinning proposed by BLM.

IV. CLIMATE CHANGE AND CARBON ACCOUNTING

BLM must consider the impacts of climate change in its RMP assessment and environmental review. While BLM has asserted that this RMP revision will seek a return to "maximum" logging that "aligns with historically higher levels," there is no going back. To manage for the multiple uses that both the O&C Lands Act and FLPMA direct BLM to support, BLM must chart a course that integrates timber production with protecting watersheds, regulating streamflow, and

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[259] *See* Rebecca B. Wayman and Malcom North, Initial response of a mixed-conifer understory plant community to burning and thinning restoration treatments, Forest Ecology Management, 239:32-44 (2007), doi:10.1016/j.foreco.2006.11.011 (study which analyzed understory response over a four-year period); James K. Agee et al, The use of shaded fuelbreaks in landscape fire management, Forest Ecology and Management, vol. 127 (2000) (study cited for BLM for that understory growth will take from 10 to 30 years, but the study actually says that even the planting of grass seedlings across logged areas only reduced the invasion of scrubs and conifers for 5 years).

[260] Gina R. Cova, et al. "Implications of recent wildfires for forest management on federal lands in the Pacific Northwest, USA" Forest Ecology and Management, Vol. 598 (Dec. 15, 2025).

[261] *Id.*

managing for wildlife habitat and recreation. This cannot be achieved without acknowledging and preparing for Oregon's changing climate and the importance of forest management on the local and global carbon cycle.

A. The Global Climate Is Changing.

As the Intergovernmental Panel on Climate Change ("IPCC") recently stressed in its Sixth Assessment Report, addressing the most up-to-date physical understanding on climate systems and climate change, it is unequivocal that human influence is warming the climate at an unprecedented rate.[262] Global temperatures have increased 1.1 degrees Celsius over the last century due, in large part, to unsustainable energy use and land use patterns, including forestry. In 2019, atmospheric CO2 concentrations were higher than at any time in the past two-million years, with these historic highs undoubtedly caused by greenhouse gas emissions from human activities. "U.S. net greenhouse gas emissions remain substantial and would have to decline by more than 6% per year on average, reaching net-zero emissions around midcentury, to meet current national mitigation targets and international temperature goals; by comparison, US greenhouse gas emissions decreased by less than 1% per year on average between 2005 and 2019."[263]

This rapid change in global temperature has ushered in unprecedented weather and climate extremes in every region across the globe, which has led to devastating impacts to both people and ecological communities. The following is a list of just a few highlighted in the IPCC's report:

- "In all regions increases in extreme heat events have resulted in human mortality and morbidity;"
- "Climate change has reduced food security and affected water security;"
- "Economic damages from climate change have been detected in climate-exposed sectors, such as agriculture, forestry, fishery, energy, and tourism. Individual livelihoods have been affected through, for example, destruction of homes and infrastructure, and loss of property and income, human health and food security;"
- "Hot extremes have intensified in cities. Urban infrastructure, including transportation, water, sanitation and energy systems have been compromised by extreme and slow-onset events;" and
- "Climate change has caused substantial damages, and increasingly irreversible losses, in terrestrial, freshwater, cryospheric, and coastal and open ocean ecosystems. Hundreds of local losses of species have been driven by increases in the magnitude of heat extremes

[262] IPCC, *IPCC Sixth Assessment Report Summary for Policymaker* (2023).

[263] U.S. Global Change Research Program, *Fifth National Climate Assessment* (2023).

with mass mortality events recorded on land and in the ocean. Impacts on some ecosystems are approaching irreversibility."[264]

These impacts will not abate absent swift, decisive action to address this crisis. While some future changes are unavoidable and/or irreversible due to the already significant accumulation of CO2 in the atmosphere and associated warming, rapid and sustained greenhouse gas emissions reductions are necessary to circumvent the worst potential climate change impacts. With approximately 3.3 to 3.6 billion people living in regions highly vulnerable to climate change and climatic hazards, and the United States already experiencing a billion-dollar weather or climate disaster every three weeks, rapid action is imperative.

B. Global Climate Change Has Local Impacts Affecting Oregon's Forests.

Future climate projections show increases in temperature that may occur faster than plant populations can adapt or move through migration or dispersal. For example, in Oregon, the annual average temperature has already increased by 2.2 °F since 1895. If greenhouse gas emissions are not reduced, the average temperature in Oregon could increase by 5 °F by 2050.[265] Depending on the amount of future emissions, Oregon's annual average temperature is expected to keep increasing by 4.6–5.9°F by 2074, and 5.9–9.1°F by 2100.[266]

This shift is already having an impact in Oregon. The average temperature in Oregon was warmer than normal in 21 of the last 24 water years, which contributed to higher rates of evapotranspiration and more-frequent drought. During 18 of the 24 water years from 1999 through 2023, Oregon's water year precipitation was below average. Research found that drought risk likely will increase over the twenty-first century on the western slopes of the Cascade Range and the southern Coast Range.[267]

Given the importance of the forests to Oregon's economy and ecology, the Oregon State University Extension Service recently released the report, *Forests in a changing climate: How much will the climate change in Oregon, and how fast?*[268] The researchers found that Oregon's climate is already changing, and the changes will affect vegetation across the state. Acknowledging that there is overwhelming scientific consensus that temperatures will continue

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[264] *See also* Ripple et al., *World Scientists' Warning of a Climate Emergency*, 72 BioScience 149 (2022); Ripple et al., *The 2024 State of the Climate Report: Perilous Times on Planet Earth*, 74 BioScience 812 (2024).

[265] U.S. Dep't of Agric., Climate Hubs, Northwest Reforestation, Planting to Suit Current and Future Climates (accessed Mar. 18, 2026), https://www.climatehubs.usda.gov/hubs/northwest/topic/northwest-reforestation-planting-suit-current-and-future-climates.

[266] Fleishman, E., editor. Seventh Oregon climate assessment. Oregon Climate Change Research Institute, Oregon State University, Corvallis, Oregon. https://doi.org/10.5399/osu/1181 (2025).

[267] *Id.* at 17.

[268] Fleishman, E. and Stephen Fitzgerald, Forests in a changing climate: How much will the climate change in Oregon, and how fast?, OSU Extension Service (2025).

to rise, which will increase water demand and water stress on trees and other vegetation, they found that some forests will decline or change as species' habitats shift across the landscape.

The following bullet points from the OSU report highlight the projected changes to Oregon's climate and provide an overview of several impacts from those changes. Climate measurements over time reveal changing patterns in Oregon's future:

- Annual average temperature has increased by about 2.2°F (1.2˚C) per century since 1895.
- Over the past 20 years, the incidence, extent and severity of drought in the Northwest increased. Low precipitation contributed to most droughts, but high temperatures and a shift from snow to rain also affected drought occurrence and severity.
- As warming continues and mountain snowpack decreases, the frequency of droughts will increase.
- Precipitation will increase during winter and decrease during summer.
- The amount of precipitation that falls in the strongest winter storms will increase.
- The proportion of precipitation falling as rain rather than snow will continue to increase.

Impacts to Oregon's forests from these climatic changes:

1. Increase in frequency, duration and magnitude of extreme heat
    - Increased water stress to some species of trees, depending on their ecological tolerances
    - Shift in location and amount of habitat of some trees and other plant and animal species
    - Potential for rise in pathogens and localized increases in populations of some insects, such as bark beetles

2. Shift from snow to rain — reduced amount and duration of snowpack
    - Loss of natural water storage and reduced late-season streamflows
    - Reduced amount of habitat for some cold-water fish species during warm seasons

3. Increase in duration and magnitude of drought
    - Increased water stress to some trees
    - Shift in location and amount of habitat of some trees and other plant and animal species
    - Reduced water availability for agricultural, domestic and municipal use

4. Increases in wildfire frequency and size
    - Increased tree mortality
    - Potential reduction in water quality
    - Potential obstacles to tree regeneration

- Local shifts from tree-dominated to shrub-dominated ecosystems
- Loss of timber
- Temporary reduction in surface water quality

The OSU report concludes by advising land managers to remember that trees are long-lived and the management decisions made today may increase the resilience of forests to these projected changes in climate. We ask that BLM do the same. BLM cannot rely on historical volume amounts to determine what would truly ensure "permanent forest production" and a sustained yield in our hotter, drier future. As detailed below, Oregon's environment has already changed significantly and is on a trajectory to change even more rapidly over the next twenty years.

To take a hard look at the impact of this changing climate on forests in SW Oregon, BLM should review the comprehensive report, *Climate change vulnerability and adaptation in southwest Oregon*[269]*,* and incorporate its findings into the environmental analysis for the proposed RMP.[270] The vulnerability assessment shows that the effects of climate change on hydrology in southwest Oregon will be significant. Decreased snowpack and earlier snowmelt will shift the timing and magnitude of streamflow; peak flows will be higher, and summer low flows will be lower. Projected changes in climate and hydrology will affect aquatic and terrestrial ecosystems, especially with the increased frequency of extreme climate events (drought, low snowpack) and ecological disturbances (streamflow, wildfire, insect outbreaks). The following is information excerpted from this Climate Vulnerability report:

> Southwest Oregon is projected to permanently depart from its historical (1895 to 2008) climate regime by the 2040s. The Climate Vulnerability report found that higher air temperature, through its influence on soil moisture, is expected to cause gradual changes in the distribution and abundance of plant species, with drought-tolerant species becoming more dominant. Increased frequency and extent of wildfire will be the primary facilitator of vegetation change, in some cases leading to altered structure and function of ecosystems, including more forest area in younger age classes and some low-elevation forests being displaced by other tree and shrub species, which will then change the habitat available to certain species.
>
> Different species respond in different ways to climate, affecting both the spatial distribution of species and interactions among species. Climate also influences the disturbance processes that shape vegetation structure and composition and altered

[269] Halofsky, Jessica E.; Peterson, David L.; Gravenmier, Rebecca A., eds. 2022. Climate change vulnerability and adaptation in southwest Oregon. Gen. Tech. Rep. PNW-GTR-995. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 445 p. (2022).

[270] While this comment focuses on SW Oregon, as that is the area where the bulk of BLM-managed lands are located and is particularly vulnerable to impacts from the changing climate, BLM should also incorporate the Seventh Oregon climate assessment into its analysis regarding the impact of climate change on forests across Oregon. Fleishman, E., editor. Oregon Climate Change Research Institute, Oregon State University, (2025).

> disturbance regimes will likely be the most important catalyst for vegetation change in a warming climate. Increased drought severity and frequency are likely to make forests more vulnerable owing to both direct (reduced growth and mortality) and indirect (insect outbreaks, pathogens and wildfire) mechanisms.
>
> Several scientific studies have examined the effects of climatic changes over the past several decades with shifts in vegetation composition and structure in southwest Oregon. For example, scientific studies have documented the effects of warming climate and land management on herbaceous communities at 185 sites in the Siskiyou Mountains) between 1950 and 2008. Damschen et al. (2010) tested the sensitivity of vegetation on serpentine and diorite soils to climate change by resampling vegetation in the Siskiyou Mountains of southern Oregon and northern California. They documented significant decreases in cover of herbs and abundance of endemic species, suggesting that species with a narrow ecological range (i.e., habitat specialists and endemics) may be at risk. Species composition shifted to more closely resemble that of warm, south-facing slopes.[271]

C. Forest Management Has an Important Role in Regulating the Carbon Cycle.

Forests play a critical role in combating climate change by capturing carbon dioxide and storing carbon within soils and forest biomass. Forests account for 92 percent of all terrestrial biomass globally and store approximately 400 gigatons of carbon, or 45 percent of the total organic carbon on land, in their biomass and soils.[272] On average, forests remove the equivalent of about 30 percent of the carbon dioxide emitted through fossil fuel emissions.[273] Temperate forests play an inordinately important role in moderating climate change, with 44 percent of annual forest carbon dioxide capture attributed to temperate forests.[274] Temperate forests of the United States are the largest category of land sinks in the country, consistently offsetting about 14 percent of the nation's CO2 emissions.[275]

Forests in the Pacific Northwest, including the areas managed under the BLM RMPs, are globally unique in their capacity to capture and store immense amounts of carbon. The Forest Service recently acknowledged these forests' importance for mitigating climate change, noting in the Draft Environmental Impact Statement for the Northwest Forest Plan amendment that

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[271] Halofsky, Jessica E.; Peterson, David L.; Gravenmier, Rebecca A., eds. 2022. Climate change vulnerability and adaptation in southwest Oregon. Gen. Tech. Rep. PNW-GTR-995. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 445 p. (2022).

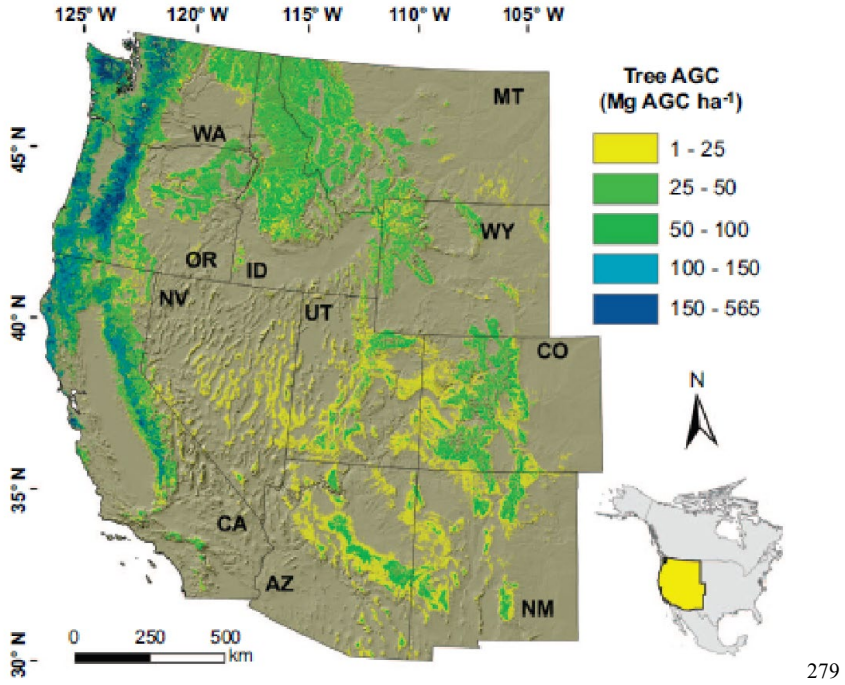
[272] Law et al., *Creating Strategic Reserves to Protect Forest Carbon*, 11 Land 721 (2022) ("Law et al. (2022a)").

[273] Mildrexler et al., *Protect Large Trees for Climate Mitigation, Biodiversity, and Forest Resilience*, Conservation Science and Practice (2023); Law et al. (2022a).

[274] Mildrexler et al. (2023).

[275] Mildrexler et al., *Large Trees Dominate Carbon Storage in Forests East of the Cascade Crest in the United States Pacific Northwest*, 3 Frontiers in Forests and Global Climate Change (2020).

"[f]orests in the Pacific Northwest can affect the rate of global climate change through the uptake and storage of carbon in living and dead materials, aboveground biomass, and soils."[276] The region's unique combination of long-lived tree species, such as Douglas-fir, western hemlock, and western redcedar, and climate, with mild fall and winter conditions following by long, dry summers, facilitates the development of forests characterized by big trees and complex forest conditions that support large amounts of biomass—an ideal combination for the capture and storage of large amounts of carbon.[277] It is not surprising, then, that the five National Forests with the highest mean tree carbon density in the United States are all in the Pacific Northwest.[278]



[279]

Managing forests on BLM-managed lands in Oregon to preserve and encourage carbon storage is imperative considering their national and global role in addressing the climate crisis. Intensive timber harvest, particularly harvest focused on large, high-biomass trees in late-successional forests, in the twentieth century contributed to a negative net carbon balance on these forests. It was only with the development and implementation of the Northwest Forest Plan that these

[276] U.S. Forest Serv., Northwest Forest Plan Amendment, Draft Environmental Impact Statement, Vol. 1 at 3-86 (Nov. 2024).

[277] Smithwick et al., *Potential Upper Bounds of Carbon Stores in Forests of the Pacific Northwest*, 12(5) Ecological Applications 1301 (2002).

[278] Law et al., *Southern Alaska's Forest Landscape Integrity, Habitat, and Carbon Are Critical for Meeting Climate and Conservation Goals*, Advancing Earth and Space Sciences (2023).

[279] Berner et al., *Tree Mortality from Fires, Bark Beetles, and Timber Harvest During a Hot and Dry Decade in the Western United States (2003-2012)*, 12 Environmental Research Letters (2017) (depicting above ground carbon stores).

forests returned to being a net carbon sink—with carbon uptake from the atmosphere exceeding emissions from harvest, wood product use and decomposition, and wildfire.[280] As Krankina 2012, analyzing the Northwest Forest Plan's impacts at a time it still governed BLM-managed lands in Oregon, documents, "the NWFP has led to a considerable increase in [carbon] stores on federal forest lands within the first decade of plan implementation and this trend can be expected to continue for several decades into the future"—that is, "*if the limits on timber harvest set under the NWFP are maintained*."

D. BLM Must Analyze the Impacts of the Changing Climate on Forest Management.

The O&C Lands Act's commitment to "conservation and scientific management" makes it critically important for BLM to honestly acknowledge that the climate is changing and future forest management will necessarily be different in the future than it was in the past.

Not only are the vast old growth forests that once provided billions of board feet of timber gone and will not be replaced in our lifetime, the climatic conditions that grew those trees are also gone. Planning for "permanent forest production" in Western Oregon's future forests means planning for a hotter drier climate, one with far fewer Douglas-fir trees, more drought tolerant species, and possibly less forest cover, especially in SW Oregon. The changing climate also directly impacts BLM's ability to protect watersheds and regulate stream flow.

BLM must account for significant recent changes regarding climate change, both on the land and in scientific research, in its analysis and include accurate climate models in the RMP EIS and truly grapple with the impacts of these changes on timber and water production. As detailed below, BLM must center any planning effort within the overall context of climate change to meet its statutory obligations under the O&C Lands Act, NEPA, the ESA, and other federal laws.

E. BLM Must Analyze the Many Climate-Induced Factors that Influence Permanent Timber Supply, Streamflow Regulation, and Watershed Protection.

1. Douglas fir die-off in southwest Oregon

One of the most significant changes to the forest vegetation in Western Oregon is the dramatic increase in Douglas-fir mortality in Jackson, Josephine, and Douglas counties. This is a serious and growing issue with an estimated 260,000 trees killed and nearly 150,000 acres affected from 2016 to 2019. A publication from the OSU Extension Service, *Trees on the edge; Understanding*

[280] Krankina et al., *Carbon Balance on Federal Forest Lands of Western Oregon and Washington: The Impact of the Northwest Forest Plan*, 286 Forest Ecology and Management 171 (2012); Krankina et al., *High-Biomass Forests of the Pacific Northwest: Who Manages Them and How Much Is Protected?*, Environmental Management (2014); Law & Waring, *Carbon Implications of Current and Future Effects of Drought, Fire and Management on Pacific Northwest Forests*, Forest Ecology and Management (2015); Hudiburg et al., *Meeting GHG Reduction Targets Requires Accounting for All Forest Sector Emissions*, 14 Environmental Research Letters (2019).

Douglas-fir decline and mortality in Southwest Oregon,[281] focuses on Douglas-fir decline and mortality in southwest Oregon and is a must-read for BLM when planning a new RMP.

The Medford BLM District consists largely of dry Douglas-fir-dominated forests (approximately 50 percent), with a mesic white fir and Douglas-fir forest component (approximately 30 percent), and some oak woodlands (approximately 5 percent).[282] The Roseburg BLM District is composed of moist western hemlock and Douglas-fir forest (approximately 35 percent), dry Douglas-fir forests (approximately 30 percent), and mesic Douglas-fir and white fir forests (approximately 25 percent).[283]

Stemming from the interactions of harsh site conditions, hotter drought and insects (primarily the flatheaded fir borer), Douglas-fir are dying primarily on hot, dry, relatively low- to mid-elevation sites in the interior Rogue and Umpqua valleys. Several other factors are also contributing to Douglas-fir mortality, including root diseases, excessive shading, dwarf mistletoe infection and infestations of the Douglas-fir beetle following blowdown events or wildfire, or damage from wildfire alone. While the report focuses on southwest Oregon, the combination of drought and flatheaded fir borer attack has resulted in Douglas-fir mortality in other parts of Oregon, such as the Willamette Valley.

In southwest Oregon, Douglas-fir is declining in a wide range of locations. But decline is most common and severe on hot, dry sites on the margins of the Rogue, Applegate, and Umpqua valleys. In particular, areas with less than 35 inches of average annual rainfall and under 3,500 feet in elevation are at highest risk. Locations with more than 60 inches of average annual rainfall have suffered little mortality, but recent observations suggest that Douglas-fir mortality in southwest Oregon is both intensifying and spreading.[284]

Evidence shows that Douglas-fir has expanded into many valley and lower-elevation sites during the last century. Formerly, many of these sites were ponderosa pine forests or oak woodlands maintained by frequent, low-severity fires. While Douglas-fir was historically present, fire exclusion led to the abundance we see today. Climate also plays a role: Douglas-fir was able to survive and reproduce on more marginal sites in the climate of the 20th century but it is having a harder time in the hotter climate of the 21st.

In a water-limited future, Douglas-fir may be able to survive as small trees, perhaps sheltered by other vegetation as small trees require less water than mature trees. However, full regeneration by Douglas-firs is far from certain, and the report cautions that initial regrowth doesn't mean they will be able to grow into and survive as dominant canopy trees, especially on harsher sites.

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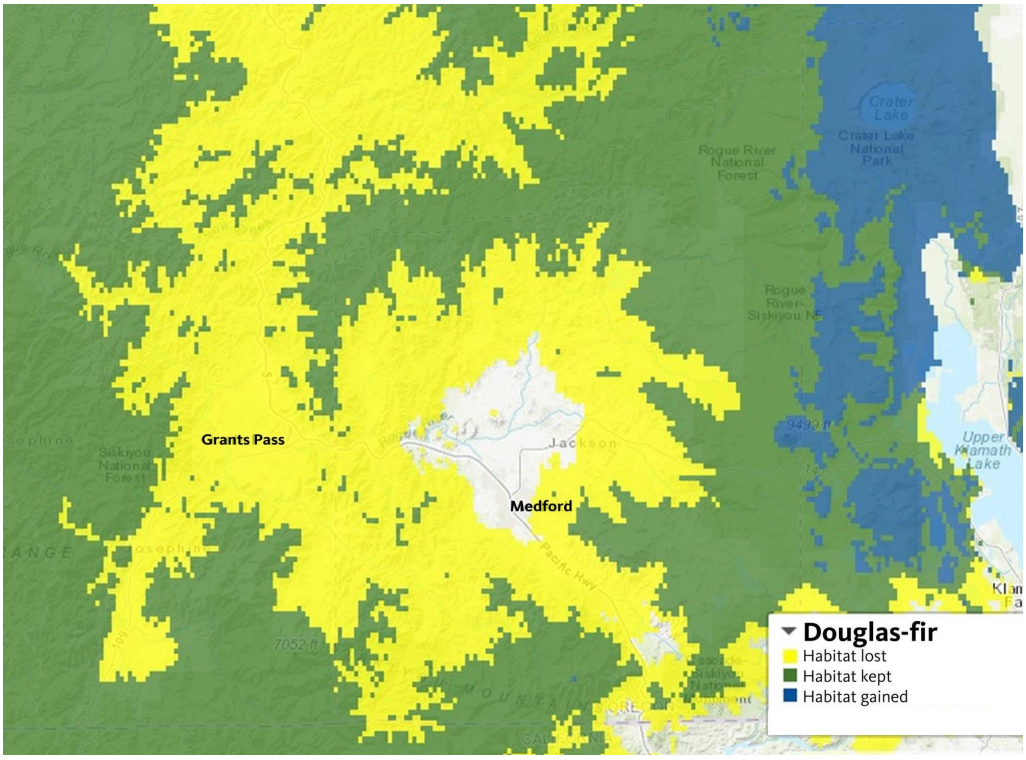
[281] Max Bennett and Christopher Adlam, Trees on the edge; Understanding Douglas-fir decline and mortality in Southwest Oregon, EM 9406, OSU Extension Service (2023).

[282] Halofsky, Jessica E.; Peterson, David L.; Gravenmier, Rebecca A., eds. 2022. Climate change vulnerability and adaptation in southwest Oregon. Gen. Tech. Rep. PNW-GTR-995. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 445 p. (2022).

[283] *Id.*

[284] Bennet (2023).

Until recently, Douglas-fir trees growing on north-facing slopes, in riparian areas and in other sheltered locations have generally experienced less mortality. Temperatures are cooler and soils are deeper in these areas. However, as hot drought has intensified, and as flatheaded fir borer populations have built up, mortality has increased, even on these more favorable sites. What was initially confined to a few trees on the harshest sites has expanded to trees on more favorable sites, including on north slopes and in riparian zones. Given expected climate changes, Douglas-fir decline and mortality will likely continue. The area of suitable habitat for Douglas-fir at low to moderate elevations in interior southwest Oregon is likely to contract.



This map shows projected changes in Douglas-fir habitat in southwest Oregon from 1960–91 baseline to 2071–2100 under a high baseline emissions scenario (RCP 8.5).
Source: Species Habitat Tool.[285]

2. Increasing fire frequency

A warming climate in future decades will also have profound effects on fire frequency and extent in southwest Oregon. Increased temperatures, decreased snowpack, and declining summer precipitation will probably lead to longer fire seasons, lower fuel moisture, higher likelihood of large fires, and greater area burned by wildfire. Interactions between fire and other disturbance agents (e.g., drought, insect outbreaks) will likely drive ecosystem changes in a warming climate. Increased moisture stress in trees and interacting effects of drought will likely contribute to increasing area burned. Climatic changes and associated stressors will interact with vegetation conditions, as affected by historical land uses such as tree harvest and fire suppression, to affect

[285] *Id.*

fire regimes and forest conditions in the future.[286]

Empirical models developed for the PNW suggested that area burned will **increase 300 to 500 percent** in SW Oregon using a very hopeful 1.2 °C increase in temperature, which is a small fraction of the approximately 5 °C increase projected under most recent modeling. Under a warming climate, the increased frequency and extent of fire leads to an increased likelihood of reburns, highlighting the need to understand how earlier fires affect subsequent overlapping fires and how forests respond to multiple fires. Areas burned in short-interval, stand-replacing fires may be particularly vulnerable to lasting compound disturbance effects; short-interval reburns can produce compound effects on tree regeneration, altering species composition, and in some cases, leading to shifts to nonforest vegetation. Again, as BLM is statutorily required to manage O&C lands for permanent forest production, any revised RMP must account for the factors that may lead to ecotype conversions and ensure they are considered in the planning.[287]

3. Climate change and insects

Fire is but one of the many natural disturbances that shape a forest's trajectory that will be impacted by climate change. Another major factor is the population and type of insects. Temperature is a major driver of physiological processes in insects, and as such, all insect species will be affected in some way by climate change. Warmer temperatures increase insect consumption, growth, movement, and dispersal, and also affect phenology and species interactions. Enhanced winter survival and shortened generation times owing to warming may facilitate larger populations of insects, particularly those with multiple generations per year. Those species with necessary sequences of life cycle events, such as mountain pine beetle (*Dendroctonus pondero-sae Hopkins*) and other bark beetles, have experienced increased population success and recent range expansion owing to warmer climatic conditions lifting life cycle constraints.[288]

Insect populations limited by cold during the growing seasons are anticipated to benefit from climate change through more rapid life cycle completion and increased survival. Insect mortality may decline with warmer winter temperatures, thereby leading to higher elevation and poleward range expansions. Indeed, an increase in the frequency and severity of insect-mediated disturbances is expected in the Western United States as a result of increased temperatures and more frequent and intense drought stress, although this expectation is derived from a limited number of species in conifer forests.

4. Climate change and invasive species

An invasive species is a nonnative species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Invasive plants tend to have characteristics that differ from native species and allow for rapid expansion with changes in

[286] Halofsky (2022).

[287] *Id.*

[288] *Id.*

environmental conditions.[289] Plant invasions can be influenced by warmer temperatures, drier or wetter conditions, seasonal temperature and precipitation changes such as earlier springs and earlier snowmelt, reduced snowpack, as well as changes in fire regimes, elevated nitrogen deposition, and elevated CO2 concentrations. Climate change is expected to alter the distribution and spread of invasive plants, and new invasive species will likely establish with changing climatic conditions.

Invasive plants are most often found in disturbed areas (e.g., along roads, streams, or trails, or in areas disturbed by timber harvest, windthrow, land-slide, or fire), and some of these disturbances may increase in a warming climate. BLM must take this into account when assessing the impact of invasive species on long term forest productivity and habitat, especially under scenarios that would increase the amount of logging infrastructure, such as roads, landings and yarding corridors, into areas that do not currently have invasive plants.

5. Reforestation in a changing climate

Across the Northwest and worldwide, projected increases in temperature will result in forest stands that are no longer adapted to local climate conditions. This presents natural resource managers, forest landowners, and the timber industry with a significant challenge in making decisions about which trees to plant during reforestation projects.[290]

Climate change requires increasing attention to methods that improve survival and growth of new saplings under conditions of heat, drought, and high moisture demand. Matching species and seed source to site conditions is more important and challenging than ever. Researchers are exploring the question of how to replant after timber harvest or natural disturbance for future forests that may change significantly from the forests of Oregon's past.[291] Particularly in southern Oregon, the risk of regeneration failure is high on many postfire sites due to heat, drought, and other harsh environmental conditions. More and more, methods developed for hot, dry regions are becoming more relevant in historically cooler, moister regions.

As noted above, insect and disease agents interacting with drought and heat are causing significant tree mortality in Oregon. Reforestation needs will continue to increase due to insect-infested areas with true firs (fir engraver beetle), pines (ips and mountain pine beetle), Oregon ash (emerald ash borer), and Douglas-fir (flatheaded fir borer).[292] Suitable replacement species

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[289] Halofsky, Jessica E.; Peterson, David L.; Gravenmier, Rebecca A., eds. 2022. Climate change vulnerability and adaptation in southwest Oregon. Gen. Tech. Rep. PNW-GTR-995. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 445 p. (2022).

[290] U.S. Dep't of Agric., Climate Hubs, Northwest Reforestation, Planting to Suit Current and Future Climates (accessed Mar. 18, 2026), https://www.climatehubs.usda.gov/hubs/northwest/topic/northwest-reforestation-planting-suit-current-and-future-climates.

[291] Alicia Christiansen, Jacob D. Putney, Max Bennett, and Glenn Ahrens. Reforestation in Oregon, Tree Planters Notes, Volume 66, Number 2 (2023).

[292] *Id.*

need to be chosen that are less susceptible to specific insects or diseases. In the RMP, BLM needs a plan to provide those species and stock types in a timely fashion following insect or disease outbreaks.

Drought will also likely affect forest regeneration and development, particularly when drought conditions follow fire events. On southwest Oregon and northwest California sites that burned between 1985 and 2015, low soil water reduced conifer regeneration but apparently increased shrub biomass. The lower the soil moisture, the higher the propagule pressure (smaller high-severity patches with more live seed trees) needed to achieve a given level of regeneration. When there are high levels of drought, as are expected to be more common, even small high-severity burn patches are at risk for low regeneration. Successive fires could further limit local seed sources for reforestation.

Assisted migration, the human-assisted movement of plants or animals to a new habitat, is also receiving increasing attention as a reforestation option. Assisted migration can be used to reduce negative impacts of climate change because it involves planting trees that are adapted to current and future climates.[293] Any revised RMP should include plans for BLM to study and implement assisted migration of species to ensure permanent forest production on O&C Lands into the future.

Given the changing climate, BLM needs to be active in helping the forests it manages become more climate resilient, using techniques such as diversified plantings, seed source selection, and even new seedling stock types that will succeed under a range of (likely harsher) conditions into the future. In general, regeneration in the driest topographic locations may be slower in a warming climate than in the past. Some areas are likely to convert from forest to nonforest vegetation, particularly at lower elevations. Managers may need to consider where they will try to forestall change and where they may need to allow conversions to occur.[294] As the Reforestation in Oregon report concluded, "[f]orest managers have the opportunity to adopt programs and lessons learned to adapt reforestation approaches for hotter, drier summers and increased frequency and severity of disturbances. The forests we plant today will likely look different than those that Oregon's foresters and citizens have been accustomed to for the past century."[295]

6. Streamflow and watershed protection

The O&C Lands act requires BLM to manage the lands for "protecting watersheds [and] regulating stream flow" both of which will be highly affected by our changing climate. As noted above, all future models show Oregon receiving less snow and more rain in the future, which

[293] U.S. Dep't of Agric., Climate Hubs, Northwest Reforestation, Planting to Suit Current and Future Climates (accessed Mar. 18, 2026), https://www.climatehubs.usda.gov/hubs/northwest/topic/northwest-reforestation-planting-suit-current-and-future-climates.

[294] *See* Rother, M. T., T. T. Veblen, and L. G. Furman. 2015. A field experiment informs expected patterns of conifer regeneration after disturbance under changing climate conditions. Canadian Journal of Forest Research 45: 1607–1616.

[295] Christiansen, et al. Reforestation in Oregon, Tree Planters Notes (2023).

will have large implications for water production and stream flow. Snow acts as a large, natural reservoir of water that accumulates during winter and is released slowly during spring and summer. Lack of snow in winter increases the likelihood of hydrological or agricultural drought during the following spring and summer.[296] Due to climate change, by mid-century, snowfall across much of the state is projected to decrease by 10–25 percent during winter, and 5–20 percent annually.[297]

The amount of precipitation falling, as either snow or rain, is only one factor used to determine the amount of available water necessary to regulate streamflows. Along with climate change, natural disturbances and human activities have raised concerns about both the short- and long-term effects on water supplies originating from forests. Widespread forest disturbance may alter forested headwater watersheds, whose structure, composition, and health influence water supplies for aquatic ecosystems and for downstream uses. However, few studies have sufficient data to reveal long-term effects of forest harvest and plantations on summer low flows. In a recent analysis of 60 years of daily streamflow data from eight paired water-sheds in the Cascade Range, Oregon, USA, summer streamflow fell below pre-treatment levels within 15 years after old-growth forest harvest.[298]

The recent global expansion of industrial plantation forestry has raised concerns about the long-term hydrologic effects of forest plantations. Experimental watershed studies have provided evidence that low flows may increase in the first decade following harvest of mature or old-growth forest (with and without riparian buffers), but low flows may decline in subsequent decades, as vegetation regenerates.

A new long-term streamflow response study in the Alsea watershed of the Oregon Coast Range suggests that the effects of vegetation on evapotranspiration strongly influence summer low flows.[299] Streamflow from a 40- to 53-yr-old Douglas-fir plantation in the Alsea watershed in the Coast Range of Oregon was 25 percent lower on average and 50 percent lower during the summer (June 1 to September 15), relative to the reference watershed containing mature/old forest. Persistent deficits in summer low flows related to plantation forestry have the potential to impact water quality and aquatic ecosystem health.[300]

While this study did not directly address climate change, it did conclude that streamflow responses to clearcutting of old-growth and establishment of Douglas-fir plantations varied significantly between dry and wet periods. The hotter, drier climate conditions in 2015 to 2017

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[296] Fleishman, E., editor. Seventh Oregon climate assessment. Oregon Climate Change Research Institute, Oregon State University, Corvallis, Oregon. https://doi.org/10.5399/osu/1181 (2025).

[297] *Id.* at 67.

[298] Summer streamflow deficits from regenerating Douglas-fir forest in the Pacific Northwest, USA. Perry, T.D., Jones, J.A., *Ecohydrology*, doi: 10.1002/eco.1790 (2016).

[299] Segura, C., Bladon, K.D., Hatten, J.A., Jones, J.A., Hale, V.C. and Ice, G.G., Long-term effects of forest harvesting on summer low flow deficits in the Coast Range of Oregon, *Journal of Hydrology*, p.124749 (2020).

[300] *Id.*

may have intensified evapotranspiration in the remaining vegetation, overwhelming any increases in moisture after logging.[301] Further work is needed to examine how intensively managed plantation forests and expected warmer, drier future conditions may influence summer low streamflow and aquatic ecosystems.

In western Oregon, where human population is concentrated and projected to continue growing rapidly, communities depend on drinking water from both private and federal forestlands. While there is concern about the impacts of wildfire on drinking water sources, forestlands tend to be adapted to these periodic disturbances and recover with minimal interventions. However, repeated harvesting, road networks and application of pesticides can expose aquatic systems to chronic stressors that continuously reduce water quantity and degrade water quality (e.g., soil erosion, sediment load, higher stream temperature).[302] As warming increases, mountain snowpack is expected to melt earlier in spring, which reduces drinking water supplies. The Cascade Mountains are expected to be among the most vulnerable mountain ranges because of their mild climate where even small temperature increases will result in precipitation falling as rain rather than snow, further reducing snowpack accumulation and increasing melt. Protecting clean drinking water sources from extractions (mining, logging) is cost effective and essential, as loss of forest cover or conversion to plantations has been shown to reduce water supplies by up to 50 percent as compared to mature forests.[303]

In the drier Klamath Mountain ecoregion, dependence of water supplies on sufficient accumulated winter snowpack is amplified due to less rainfall. The mountains serve as crucial water collection sources for these areas. Mountains receive far more moisture than the lower elevation valleys and canyons that they eventually supply with water. As snow melts, it recharges soil water to support ecosystems through seasonally dry summers. The slow transfer of water sustains water supplies and maintains summer stream flows that in turn support high levels of biodiversity in aquatic and riparian systems. In these seasonally dry forests, protecting forested watersheds will be crucial to the long-term water security of the region.[304]

The most important action Oregon can take to mitigate climate change, reduce biodiversity losses, and protect watersheds for drinking water is to set aside existing forests for non-extractive purposes. Reforestation or afforestation can be done too, but it takes decades for young trees to mature into net carbon sinks. Planting young trees will not result in much additional storage within the time forest carbon stocks need to increase in order to contribute to emission reduction and global warming targets.

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[301] *Id.*

[302] Law BE, Berner LT, Mildrexler DJ, Bloemers RO and Ripple WJ, Strategic reserves in Oregon's forests for biodiversity, water, and carbon to mitigate and adapt to climate change. Front. For. Glob. Change 5:102840 (2022).

[303] *Id.*

[304] *Id.*

F. BLM Must Consider the Climate and Carbon Impacts of the RMPs.

Evaluating a project's impacts on climate change is required by statute and caselaw.[305] Notably, NEPA expressly calls on agencies to provide for intergenerational equity, stating that it is intended to "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations."[306] Because climate change poses long-term, intergenerational impacts, agencies applying NEPA must account for both how climate change might alter a project's environmental consequences and how the proposed project might exacerbate or mitigate climate change.[307]

BLM must evaluate the effects any RMP revisions would have on carbon stores, and particular the effects of increased logging. This analysis must take into consideration the substantial body of scientific literature on carbon emissions from wildfire versus logging. Recent advances in the scientific understanding of wildfire demonstrates that the percentage of a stand combusted in a wildfire—of both low and high severity fires—is significantly less than previously assumed.[308] This, along with an evolved understanding of the dynamics of carbon release from timber harvest, demonstrates that timber harvest reduces natural forest carbon sinks significantly more than wildfire.

Campbell et al. (2012), for example, evaluates how fuel treatments, wildfire, and their interactions affect forest carbon stocks across a wide range of spatial and temporal scales. The authors were interested in how fuel-reduction treatments affect carbon stocks, and particularly in investigating the common assumption that short-term losses in forest biomass associated with fuel-reduction treatments are more than made up for by reducing future wildfire emissions. The

[305] 42 U.S.C. § 4332; *Center for Biological Diversity v. U.S. Forest Service*, 687 F. Supp. 3d 1053, 1073 (D. Mont. 2023).

[306] 42 U.S.C. § 4331(b)(1).

[307] *See, e.g., Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 550 (8th Cir. 2003).

[308] Campbell et al., *Can Fuel-Reduction Treatments Really Increase Forest Carbon Storage in the Western US By Reducing Future Fire Emissions?*, 10(2) Front Ecol Environ 83 (2012); Gray et al., *Carbon Stocks and Changes on Pacific Northwest National Forests and the Role of Disturbance, Management, and Growth*, 328 Forest Ecology and Management 167 (2014); Stenzel et al., *Fixing a Snag in Carbon Emissions Estimates from Wildfires*, 25 Glob Change Biol. 3985 (2019); Bartowitz et al., *Forest Carbon Emission Sources Are Not Equal: Putting Fire, Harvest, and Fossil Fuel Emissions in Context*, 5 Frontiers in Forests and Global Change (2022); DelaSalla et al., *Mature and Old-Growth Forests Contribute to Large-Scale Conservation Targets in the Conterminous United States*, Frontiers in Forests an Global Change (2022); Harmon et al., *Combustion of Aboveground Wood from Live Trees in Megafires, CA, USA*, 13 Forests 391 (2022); Law et al., *Strategic Reserves in Oregon's Forests for Biodiversity, Water, and Carbon to Mitigate and Adapt to Climate Change*, Frontiers in Forests and Global Change (2022) ("Law 2022b"); Moomaw et al., *A Call to Reduce the Carbon Costs of Forest Harvest*, 620 Nature 44 (2023); Lindenmayer et al., *Ecological Trade-Offs of Mechanical Thinning in Temperate Forests*, 316 Biological Conservation 1117 (2026).

authors ultimately concluded that, across a range of treatment intensities, protecting one unit of carbon from wildfire combustion came at the cost of removing approximately three units of carbon in treatments. These results were based on simulations of fires in Oregon semiarid ponderosa pine forests, such as the dry forests in the RMP areas.

One of the reasons for this is that Campbell et al. (2012) and other have shown that forests do not "burn to the ground"—with affected stands fully combusted—during wildfires, a previously widely held assumption. The reality is only a small portion of fuels in any given stand combust in wildfires—low, medium, and severe intensity fires.[309] Rather than entire stands burning to the ground, it is only fine surface fuels and surface char that releases carbon immediately during fires.[310] As Campbell et al. (2012) notes, "[e]ven under the most extreme fuel-moisture conditions, the water content of live wood frequently prohibits combustion beyond surface char; this is evident in retention of even the smallest canopy branches after high-severity burns." This is captured in the following image from Stenzel et al. (2019):

FIGURE 2 Post-fire forest landscapes following different, varying severity fires in Oregon. (a) Ponderosa pine—low severity patch 4 years after the 2003 B&B Complex mixed severity fire (28,640 ha; photo by G. Meigs), (b) Mixed conifer—moderate severity patch 4 years after the 2003 B&B complex (photo by G. Meigs), (c) Ponderosa pine—high-severity patch 2 years after the 2002 Eyerly mixed severity fire (photo by T. Hudiburg) and (d) Ponderosa pine—high-severity patch 5 years after the 2002 Eyerly fire (photo by B.E. Law) [Colour figure can be viewed at wileyonlinelibrary.com]

Stenzel et al. (2019) highlights that even for trees that do suffer mortality during wildfires, it is wrong to equate mortality with combustion, as dead snags and downed wood release carbon over decades to centuries, not immediately. Law et al. (2022a), summing up some of this research on wildfire carbon emissions, notes:

> While moderate to high severity fire can kill trees, most of the carbon remains in the forest as dead wood that will take decades to centuries to decompose. Less than 10% of ecosystem carbon enters the atmosphere as carbon dioxide in PNW forest fires. Recent field studies of combustion rates in California's large megafires show that carbon emissions were very low at the landscape-level (0.6 to 1.8%) because larger trees with low combustion rates were the majority of

[309] Campbell et al. (2012); Stenzel et al. (2019); Bartowitz et al. (2022); Harmon et al. (2022); Law et al. (2022a).

[310] Campbell et al. (2012); Stenzel et al. (2019); Harmon et al. (2022).

> biomass, and high severity fire patches were less than half of the burn area. These findings are consistent with field studies on Oregon's East Cascades wildfires and the large Biscuit Fire in southern Oregon.[311]

While wildfire emissions have been overestimated, the opposite is true for carbon emissions associated with timber harvest.[312] Many past studies have erroneously assumed harvest fuel treatments benefit natural carbon sinks—that harvested wood is saved from fire and stored in long-term wood products, which only release carbon over decades to centuries as these products decay.

In reality, much of the carbon from harvesting is released almost immediately or within a short period, with very little stored in long-term wood products. Wood harvest results in immediate (burning residue on-site or mill residue), fast (short-lived products like paper), decadal (long-lived products like wood), and long-term (buildings/land fill) carbon release.[313] Law et al. (2022a) describes the carbon dynamics of harvest as follows:

> Approximately half of the aboveground carbon is removed and taken to the mills (as wood) while the other half remains behind in slash piles (leaves, bark, branches, etc.) and in the dead belowground roots. The slash is burned on-site and the carbon is immediately emitted to the atmosphere. The roots decompose over the next few decades, emitting carbon to the atmosphere. The carbon taken to the mill as wood is processed into short- and long-term wood products (red line), that decay over years to centuries, eventually returning the carbon to the atmosphere. Estimates comparing carbon benefits of wood products to alternative materials have been found to overestimate the benefit by factors of between 2- and 100-fold by not counting the full life cycle carbon and the shorter durability of wood relative to alternative materials.[314]

The following chart captures this dynamic:

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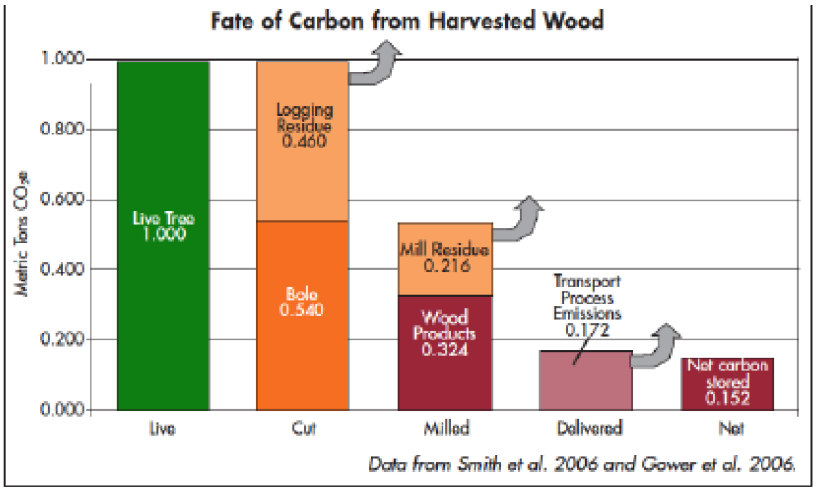
[311] Law et al. (2022a) (discussing Campbell et al. (2012)); Law & Waring (2015); Stenzel et al. (2019); Harmon et al. (2022)).

[312] Harmon, *Have Product Substitution Carbon Benefits Been Overestimated? A Sensitivity Analysis of Key Assumptions*, 14 Environmental Research Letters (2019).

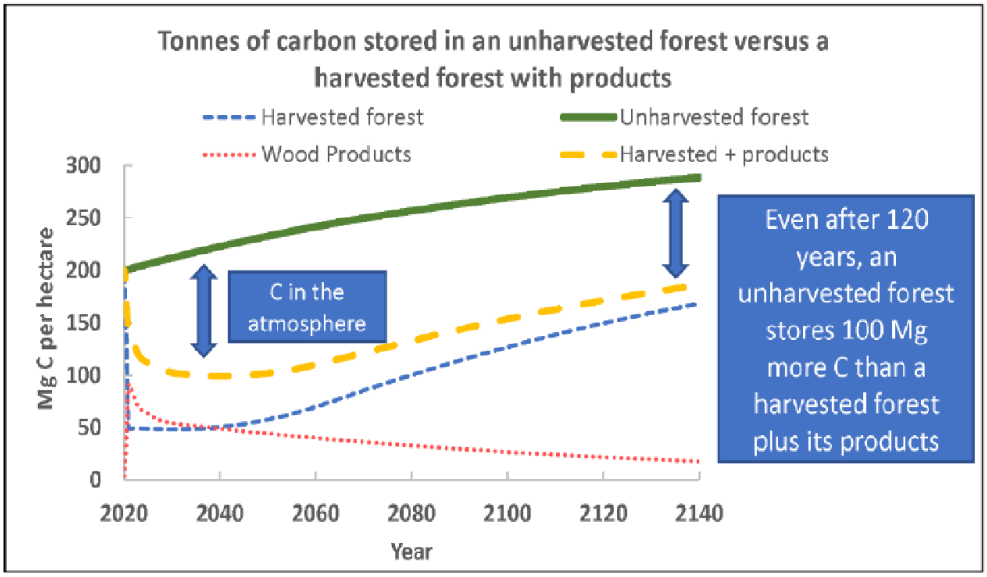
[313] Hudiburg et al., *Meeting GHG Reduction Targets Requires Accounting for All Forest Sector Emissions* (2019).

[314] Law et al. (2022a) (US Strategic Reserves, not the Oregon-specific study); *see also* Hudiburg et al. (2019).



In other words, the majority of a harvested trees' stored carbon is lost immediately or within a short time after harvest, with only a small percentage stored in long-term wood products. This is particularly true for forest thinning for wildfire risk reduction, which is usually focused on removing smaller-diameter trees.

It has also been assumed that any carbon loss from harvest and wood product decay is balanced out by carbon sequestration by new growth, at least over a couple decades. Yet that has also been shown to be incorrect. Not only is there a short-term carbon loss, but a long-term one as well, as the following chart from Law et al. (2022a) shows:



Based on the above, there is little question that any increase in harvest will have detrimental impacts to carbon stores. As one district court recently found, "logging causes immediate carbon

losses, while re-sequestration happens slowly over time, time that the planet may not have."[315] BLM must take a hard look at this tradeoff.

G. BLM Must Account for Critical Factors Affecting Carbon Storage.

BLM must specifically analyze the impact any increased harvest of older trees will have on carbon storage. Numerous studies show that large trees—those over 80 years old—play an inordinately large role in removing carbon from the atmosphere and storing it in biomass. While large trees comprise a small fraction of trees, they store most of the carbon found in aboveground biomass both globally and across the western United States specifically.[316] As Mildrexler et al. (2023) notes, "studies have found that about half the aboveground carbon is concentrated in" one to five percent of all trees, namely large, older trees.

Mildrexler et al. (2020) specifically evaluated carbon content of large trees on the east side of the Cascades, in the type of dry forest which is analogous to the mature stands in SW Oregon. The study found that while trees over 20 inches in diameter at breast height (DBH), which equates to around 80 years old, comprised just 2 to 3.7 percent of all trees in the study areas, they held 33 to 46 percent of all aboveground carbon. Not only that; the study also found that "[o]nce trees attain large stature, each additional DBH increment results in a significant addition to the tree's total carbon stores, whereas small-diameter trees must effectively ramp up to size before the relationship between DBH and [above ground carbon] results in significant carbon gain."[317] Large trees are not only important carbon stores in life, but also in death, provided they remain on the landscape, as they create large-diameter snags and downed wood that continues to store carbon for decades.[318]

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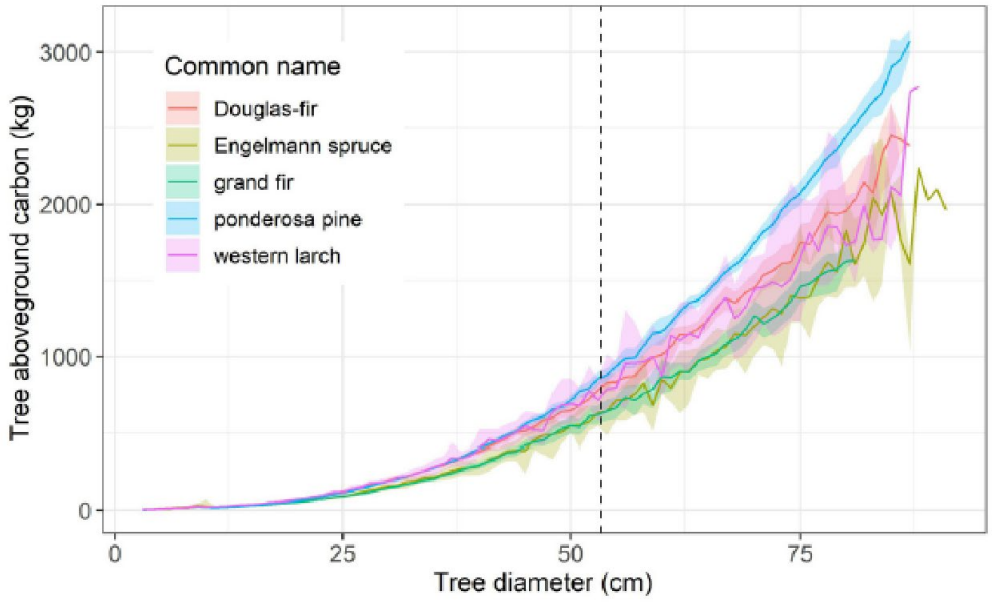
[315] *Ctr. for Biological Diversity v. U.S. Forest Serv.*, 687 F. Supp. 3d 1053, 1076 (D. Mont. 2023), reversed in part on other grounds by *Ctr. for Biological Diversity v. U.S. Forest Service*, No. 23-2882, 2025 WL 586358 (9th Cir. Feb. 24, 2025).

[316] Besnard et al., *Quantifying the Effect of Forest Age in Annual Net Forest Carbon Balance*, 13 Environmental Research Letters (2018); Birdsey et al., *Assessing Carbon Stocks and Accumulation Potential of Mature Forests and Larger Trees in U.S. Federal Lands*, Frontiers in Forests and Global Change (2023); Buotte et al., *Carbon Sequestration and Biodiversity Co-Benefits of Preserving Forests in the Western United States*, 30(2) Ecological Applications (2020); Lutz et al., *Global Importance of Large-Diameter Trees*, Global Ecology and Biogeography (2018); Stenzel et al. (2019); Mildrexler et al. (2020); Mildrexler et al. (2023).

[317] Mildrexler et al. (2020).

[318] Mildrexler et al. (2023).



Opening LSR stands to logging has significant implications for forest carbon stores.[319] As Mildrexler et al. (2023) states:

> Thinning also has an inherent carbon cost that increases as larger trees are harvested, thereby putting thinning of larger trees in conflict with carbon goals because it takes so long to replace the harvested biomass (James et al., 2018; Law & Harmon, 2011). The underlying principle for these losses is the negative relationship between harvest intensity and forest carbon stocks whereby as harvest intensity increases, forest carbon stocks decrease and emissions increase (Hudiburg et al., 2009; Mitchell et al., 2009; Simard et al., 2020). Claims that carbon stores will be "stabilized" by increasing harvest of large-diameter trees that store and accumulate the most carbon (Johnston et al., 2021) are inconsistent with basic science on thinning (Zhou et al., 2013) and the carbon cycle (Campbell et al., 2012; Law et al., 2018). These claims ignore the large amounts of CO2 rapidly released to the atmosphere following harvest (Hudiburg et al., 2019), and that large trees cannot be replaced in short timeframes. It can take centuries to reaccumulate forest carbon stocks reduced by harvest of large trees (Birdsey et al., 2006).[320]

BLM must account for this.

BLM must also analyze the impact of road construction on carbon stores. BLM's Notice of Intent indicates it intends to significantly increase timber harvest through the RMP revisions. While BLM will be able to use some existing roads to meet this goal, there is little doubt new roads will need to be constructed to accommodate the significant increase in forest treatments BLM seems to be contemplating. Additionally, if BLM's increased harvest opens previously

[319] Bartowitz et al. (2022).

[320] Mildrexler et al. (2023).

untreated stands, or stands that have not recently been treated, road construction will be required to access and conduct treatments in these newly opened stands.

BLM must evaluate the impacts of salvage logging on carbon stores. As discussed at length above, only a small portion of forest carbon is emitted during wildfires, with the majority remaining on-site in live trees, dead snags, and downed trees. Even carbon from dead snags and downed trees is emitted over decades to centuries, not immediately. As a result, salvage logging significantly impacts carbon stores, removing post-fire carbon and expediting its release. BLM must analyze how any changes to how it approaches salvage logging will impact carbon stores.

Finally, BLM must analyze the full suite of carbon emissions that would result from changes to the RMPs. These include carbon emission from a) running heavy equipment to expand the road network, b) heavy machinery and equipment to harvest and thin stands, c) transporting harvested trees to mills, and d) milling the wood into a product for distribution.

H. BLM Must Account for Impacts to Biodiversity.

Carbon-rich forests provide substantial co-benefits to biodiversity. These forests provide a wide variety of ecosystem services, including climate regulation and refugia, and support rich, biodiverse ecological communities. Dr. Beverly Law, in testimony before Congress, stated that "[f]orests with medium and high carbon per acre also have medium and high biodiversity, promoting ecosystem resilience to climate change."[321] This is further supported by the best available science.[322] BLM must consider how any changes to the RMPs would impact forest ecosystem services and biodiversity.

I. BLM Must Use Science-Based Methodology to Evaluate the Significance of Carbon Impacts.

BLM must draw on the best available science on emissions from timber harvest and wildfire outlined above to take a hard look at the project's impacts on carbon stores. This must include a life-cycle assessment of forest sector emissions that accounts for forest-to-landfill forest sector emissions.[323] BLM must utilize this or an equivalent methodology for analyzing the project's impacts on carbon stores.

Once BLM has fulfilled this lowest common denominator of quantifying the project's emissions and comparing emissions between alternatives, it must meaningfully analyze the project's

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[321] Law. B.E. 2021. Wildfire in a warming world: Opportunities to improve community collaboration, climate resilience, and workforce capacity. Statement of Dr. Beverly Law, Professor Emeritus Oregon State University before the U.S. House of Representatives subcommittee on national parks, forests, and public lands. 6 pp.

[322] Law et al., *Strategic Forest Reserves Can Protect Biodiversity in the Western United States and Mitigate Climate Change*, Communications Earth & Environment (2021); Law (2021a); Law (2022b); Ellison et al., *Trees, Forests and Water: Cool Insights for a Hot World*, 43 Global Environmental Change 51 (2017).

[323] Hudiburg et al. *Meeting GHG Reduction Targets Requires Accounting for All Forest Sector Emissions* (2019).

climate change impacts. This requires assessing the project's contribution to global warming in light of remaining national and global carbon budgets and applying tools such as the Social Cost of Greenhouse Gases to describe the actual economic, ecologic, and human costs of the project at national and global scales.

While this administration recently rescinded CEQ's Guidance on consideration of greenhouse gases, including the Social Cost of Greenhouse Gases, this decision is arbitrary and capricious and contrary to law and the best available science. The decision was based on Trump's Executive Order 14154, *Unleashing American Energy*, which states "[t]he calculation of the 'social cost of carbon' is marked by logical deficiencies, a poor basis in empirical science, politicization, and the absence of a foundation in legislation …"[324] This assertion is baseless. Agencies are wise to follow the law and the best available science instead of unfounded assertions. The administration cannot do away with an agencies' legal obligations.

V. SOCIOECONOMICS/COMMUNITY ECONOMICS

BLM's proposed revision does not reflect current timber economics, BLM's administrative capacity, or significant multiple-use costs. Increased logging does not simply generate revenue; instead, increased logging has significant costs to broader economic and social values. Attachment B is a summary of some of the anticipated costs from Ernie Niemi, Natural Resource Economics; Mr. Niemi has also submitted independent comments elaborating on these costs.

A. BLM's Proposed Revision Does Not Reflect Current Timber Economics or Long-Term Community Sustainability and Stability.

BLM's proposed revision is out of touch with reality. Timber economics have changed significantly since historic peaks, mills are less able to process large timber, and a large influx of timber to the market will drop its value.

First, BLM's sustained yield calculations do not align. Logging levels have been around 4 billion board feet per year in Oregon since the turn of the century.[325] While BLM inventories its timber and calculates its sustained yield of timber production using cubic feet measure, it sells timber using board feet measure. BLM should analyze and explain how as BLM forestlands contain larger numbers of small trees in the future, that there will be less board feet in the forest and available for sale.[326]

Second, BLM's proposal to quadruple timber sale levels from the current levels will result in a large increase in log supply not only in terms of timber volume but also average log diameter. To achieve a quadrupling, BLM will have sell large amounts of old-growth forest but many

[324] Executive Order 14154, Unleashing American Energy, 90 Fed. Reg. 8353 (Jan. 20, 2025).

[325] Oregon Forest Research Institute, Forestry & Wood Products in Oregon (2023), https://oregonforests.org/sites/default/files/2024-11/2023-County-Economic-FactSheets-OFRI-update.pdf.

[326] Verrill, Steve P.; Herian, Victoria L.; Spelter, Henry N. 2004. Estimating the board foot to cubic foot ratio. Res. Pap. FPL-RP-616. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory.

northwest mills no longer have the capacity for such large trees. Cutting and selling old-growth forests is also not sustainable. BLM has far fewer old-growth forests than during these historic peaks and it cannot afford to decimate the remaining old-growth stands that provide critical value to communities.

Since the historic peak of BLM logging levels in 1988, milling capacity has changed dramatically. Many mills that required large-diameter logs closed. Other mills retooled mostly to efficiently process small-diameter logs. A few companies retooled to use modern machinery to efficiently process very large logs. Using lasers, computers, and other technology, these new old-growth mills are analogous to a state-of-the-art whaling station. All possible value is gained from utilizing absolutely all of the input to the factory.

The issue of whether a landowner could even find a local mill willing to process large (36+ inches at large end) resulted in the Oregon Forest Industry Directory distinguishing mills that would take large logs. A recent survey of the database found 57 processing facilities would, while 122 would not.[327] BLM needs to analyze the milling capacity available to take the projected increase in volume and log diameters, and the potential consequences to the environment if milling capacity is not available. For example, does BLM anticipate that new old growth milling capacity coming online in response to its quadrupling of the cut? Will the large logs be hauled to out-of-state mills that can still process large logs? BLM should explain in the EIS.

Third, BLM quadrupling its timber output would result in a flooded timber market and conflict with the O&C Act. The O&C Act says:

> *That timber from said lands in an amount not less than one-half billion feet board measure, or not less than the annual sustained yield capacity when the same has been determined and declared, shall be sold annually,* ***or so much thereof as can be sold at reasonable prices on a normal market****.* [emphasis added][328]

The O&C Lands Act further directs that the provision of timber "contrib[ute] to the economic stability of local communities and industries."[329] Contrary to these provisions, quadrupling log sales from western Oregon BLM lands will result in a drop in log prices to the detriment of other timberland owners and will lead to an abnormal market.

B. BLM Must Evaluate the Value of Lost Multiple Use Values.

Under FLPMA, BLM must manage its lands for multiple use, the uses of which are defined by Congress as "including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values."[330] Quadrupling the cut will have detrimental effects on recreation, watershed, wildlife and fish, and natural scenic, scientific and historical values. Just as BLM is quantifying, both in dollars and board feet, anticipated

[327] Oregon Wood Innovation Center, Oregon Forest Industry Directory (2026).

[328] 43 U.S.C. § 2601.

[329] *Id*.

[330] 43 U.S.C. § 1702.

increases in timber production, BLM must quantify the anticipated losses in these other multiple use values.

The value of forestlands to the nation as a whole are several-fold higher than any commodity value to the landowner.[331] In this case, BLM is merely the stewards of these lands that are owned by all Americans. BLM needs to consider and disclose, by comparing and contrasting, the economic values gained and lost by quadrupling the cut. The fact that timber is a commodity with a well-established market and the multiple uses that will be harmed are not traded in a market doesn't excuse BLM of its obligations. Notably, a working paper from Portland State University on the economic values of ecosystem services from Oregon ecosystems found that the total estimated annual value of ecosystem services for Oregon is $136.1 billion USD per year, primarily from cultural services (including recreation, tourism, and existence values).[332] Almost 39 percent of this total annual value, or $52 billion/year, is attributable to Oregon's coniferous forests.

BLM also needs to disclose the social cost of carbon emitted by quadrupling the cut. Despite the Trump Administration's unsupported mandate for the social cost of carbon, which is a measure of the economic impact of climate change, to be $0,[333] the fact remains that the actual social cost of carbon is not zero and far from it.[334]

C. BLM Lacks Administrative Capacity to Implement the Proposed Revision.

Given staffing and funding reductions at BLM, the agency needs to consider and frankly disclose its ability to produce the quadrupled timber output. BLM must explain the staffing levels necessary to implement any revised RMPs and whether those staff will be qualified to ensure the necessary protections for old growth, wildlife, clean water, and community safety. BLM must also fully disclose the costs of preparing and administering a quadrupled timber output for sale and managing these lands after sale, including the costs of increased post-logging fire danger and water quality protections. BLM must also explain how it will monitor the plans' effectiveness and whether it will need to increase staffing and funding to do so.

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[331] Costanza et al, The value of the world's ecosystem services and natural capital. *Nature*, *387*(6630), 253–260 (1997), https://doi.org/10.1038/387253a0.

[332] *See* Kathryn Liebrecht, Sahan Dissanayake, & Luis Ruedas, Portland State University, Departments of Biology and Economics, "Money in the Bank: A Detailed Exploration of Ecosystem Service Values of Urban and Rural Oregon" (Poster). The authors used the Institute for Natural Resources' Oregon statewide habitat map, the Ecosystem Services Valuation Database (EVSD), and value transfer methodology for their calculations.

[333] Lisa Friedman, "What's the Cost to Society of Pollution? Trump Says Zero", *New York Times* (May 10, 2025), http://nytimes.com/2025/05/10/climate/social-cost-carbon-trump.html.

[334] Tol, Richard S. J. 2022. Estimates of social cost of carbon have increased over time. *Nature Climate Change*. 13, pages 532–36 (2023).

VI. GRAZING

A. Cattle Grazing Causes Significant Impacts on Riparian Areas.

Riparian areas are among the most sensitive and ecologically important features on BLM lands. Impacts from cattle grazing such as streambank trampling, loss of vegetation, increased sedimentation, and reduced stream shade directly impair riparian function, water quality and aquatic habitat, resulting in unnecessary and undue degradation. BLM's grazing management practices are not consistent with the conservation mandates found in FLPMA.

The O&C Act requires BLM to "protect watersheds" and "regulat[e] stream flow."[335] The Secretary of the Interior is specifically "authorized to formulate rules and regulations for the use, protection, improvement, and rehabilitation of such grazing lands."[336] Grazing practices on O&C lands that degrade riparian areas or destabilize streambanks undermine these responsibilities.

The Taylor Grazing Act does not establish grazing as a dominant use of public lands. Where grazing results in harm to riparian areas, the Taylor Grazing Act supports the reduction, modification, or removal of grazing pressures to "preserve the land and its resources from destruction or unnecessary injury."[337] Indeed, as the Medford District BLM acknowledged in the Conde Creek Rangeland Health Assessment grazing in riparian areas is not consistent with aquatic health and conservation.

The EIS for the revised RMP must analyze and disclose the direct and cumulative effects of the riparian grazing impacts acknowledged above in conjunction with BLM's stated intend to shrink the size of forest riparian reserves and dramatically increase the amount of logging, yarding, road construction, and timber haul that occurs in and adjacent to riparian areas.

BLM must ensure any RMP revisions protect riparian health and comply with the CWA.[338] Timber and grazing activities in riparian areas are not consistent with protecting water quality. As a designated management agency, BLM is responsible for implementation of temperature Total Maximum Daily Loads (TMDLs) developed under the CWA.[339] The Medford District BLM manages nearly a third of the Rogue Basin streamside area and is "central to achieving load allocations," according to the Oregon Department of Environmental Quality. Any revised RMPs must comply with pertinent Water Quality Management Plans.

Further, BLM must comply with ESA requirements to prevent the extirpation of imperiled salmon, including threatened Coho, from forested watersheds managed by BLM. Many of the riparian areas (streams, wet meadows, moist meadows and wetlands) on BLM lands managed in Western Oregon are in unsatisfactory condition due to the impacts of livestock grazing.

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[335] 43 U.S.C. § 2601.

[336] *Id.* § 2603.

[337] *Id.* § 315a.

[338] 33 U.S.C. § 1251 *et. seq*.

[339] *See id*. § 1313.

Widespread grazing has impaired stream banks and vegetation near streams, which increases water temperatures and causes erosion, harmful to salmon.

Restoring—or even maintaining—the physical integrity of the aquatic ecosystems on BLM managed forestlands requires livestock to be excluded from riparian areas. Although management practices may be implemented to reduce grazing-induced damage, many of the streams and waterbodies managed by BLM are already CWA-listed for non-point source pollution for sediment, turbidity, nutrients and temperature. Most of these streams are subject to TMDL allocations that BLM is responsible for implementing through BLM-designed Water Quality Restoration Plans. However, BLM often ignores its own implementation plans during timber sale planning—resulting in *additional* sediment, turbidity, nutrient and temperature pollution in water quality limited streams from BLM logging and grazing activities.

Grazing within riparian areas damages the physical structure of the water bodies of the allotments. Stream banks are damaged within the allotments due to grazing damage. Damaged banks result in increased erosion and increased sediment inputs to streams. Within these allotments, stream habitat has been degraded by sediment added from livestock trampling. An increase in sediment input will continue as damaged banks continue to erode even in the absence of future grazing. Appropriate management practices may diminish the rate of sediment input, but maintenance and restoration of the sediment regime require the aquatic ecosystems within BLM allotments to be protected from grazing.

A 2022 scientific literature review by Krall et al. of 95 peer-reviewed North American studies found that grazing reduction "decreased channel width, width-to-depth ratio, bank erosion, soil bulk density, bare ground, water temperature, nitrogen, and phosphorus and increased riparian vegetation (cover, height, productivity, biomass, and abundance), riparian bird abundance, and young-of-the-year fishes." [340] The peer-reviewed results "highlight the need for watershed-scale approaches to excluding livestock from broad areas."[341]

B. BLM's Grazing Practices Undermine Public Land and Watershed Health.

An analysis of BLM rangeland health assessments from 1997 to 2023 by the Public Employees for Environmental Responsibility found livestock grazing directly contributed to 37 million acres of BLM public land not meeting the agency's health standards. In Oregon, 23 percent of BLM managed public lands on which grazing occurs were not meeting land health conditions due to livestock impacts.[342] The proposed RMP revisions threaten to further significant harm to public

[340] Michelle Krall, Philip Roni, Effects of Livestock Exclusion on Stream Habitat and Aquatic Biota: A Review and Recommendations for Implementation and Monitoring, *North American Journal of Fisheries Management*, Volume 43, Issue 2, April 2023, Pages 476–504, https://doi.org/10.1002/nafm.10863.

[341] *Id*.

[342] Public Employees for Environmental Responsibility, REPORT: Evaluating Trends in Rangeland Health on Bureau of Land Management Lands (May 14, 2024), https://peer.org/report-evaluating-trends-rangeland-health-bureau-of-land-management-lands-pdf/.

lands through a myopic obsession with resource extraction at the expense of the health of public lands and watersheds.

C. BLM Must Take a "Hard Look" at Flow Characteristics.

Livestock grazing has substantially and detrimentally impacted the health of aquatic resources throughout BLM-managed watersheds. Continuing to allow grazing will neither maintain the current conditions nor restore conditions of the aquatic resources. Compliance with the CWA, ESA, and FLPMA may require that livestock be excluded from meadows and riparian areas to eliminate future injury, and to heal from past damage, and to prevent ongoing undue degradation.

Adjusting management practices on BLM lands may reduce the rate at which livestock detrimentally impact flow characteristics, but protection of natural stream flow characteristics requires that meadows be protected from grazing. Meadows within BLM grazing allotments have changed substantially as a result of years of livestock grazing. The ability of meadows to absorb water has decreased due to soil compaction by livestock. The inability of meadows to absorb rainfall and snowmelt has led to higher peak flows to streams and wetlands.

Among other things, BLM's EIS must take a "hard look" at recent research by Derlet *et al*., documenting the impacts of grazing on water quality. The abstract is included below:

"Reducing the impact of summer cattle grazing on water quality in the Sierra Nevada Mountains of California: a proposal by Robert W. Derlet, Charles R. Goldman and Michael J. Connon"

> The Sierra Nevada Mountain range serves as an important source of drinking water for the State of California. However, summer cattle grazing on federal lands affects the overall water quality yield from this essential watershed as cattle manure is washed into the lakes and streams or directly deposited into these bodies of water. This organic pollution introduces harmful microorganisms and also provides nutrients such as nitrogen and phosphorus which increase algae growth causing eutrophication of otherwise naturally oligotrophic mountain lakes and streams. Disinfection and filtration of this water by municipal water districts after it flows downstream will become increasingly costly. This will be compounded by increasing surface water temperatures and the potential for toxins release by cyanobacteria blooms. With increasing demands for clean water for a state population approaching 40 million, steps need to be implemented to mitigate the impact of cattle on the Sierra Nevada watershed. Compared to lower elevations, high elevation grazing has the greatest impact on the watershed because of fragile unforgiving ecosystems. The societal costs from non-point pollution exceed the benefit achieved through grazing of relatively few cattle at the higher elevations. We propose limiting summer cattle grazing on public lands to lower elevations, with a final goal of allowing summer grazing on public lands only below 1,500m elevation in the Central and Northern Sierra and 2,000m elevation in the Southern Sierra. [343]

[343] Derlet, R. W., Richards, J. R., Tanaka, L. L., Hayden, C., Ger, K. A., & Goldman, C. R. (2012). Impact of summer cattle grazing on the Sierra Nevada watershed: aquatic algae and

This research is directly relevant to the effects analysis related to waters quality, and to the cumulative impacts associated with grazing and increased logging in lands formerly identified by BLM as riparian reserves.

D. BLM Must Consider the Cumulative Effects of Grazing and Timber Production and Evaluate Reasonable Alternatives that Reduce Risks from these Activities.

As described in more detail below,[344] grazing has significantly adverse impacts on plants, animals, soils, recreation and watershed values in this RMP revision planning area. BLM must consider the impacts of future activities on the watersheds, Lands with Wilderness Characteristics, ACECs, and fish habitat. By BLM's own models and parameters, the impacts of existing grazing allotments are significant when added to the impacts of past, present and greatly increased logging and road construction activities occurring in and around grazing allotments.

Woody riparian vegetation (willows), stream channel condition (headcutting, gullying, erosion, streambank stability, proper functioning condition), conifer encroachment, and wildlife habitat (e.g. elk, neotropical migrants, willow flycatcher, and wolf) must be identified as "issues" warranting a restoration-oriented alternative for the RMP revision. The poor and deteriorating watershed and wildlife habitat conditions found in the planning area demonstrate clear conflicts with authorized livestock grazing and a lack of compliance with Resource Management Plan standards and guidelines. An alternative that focuses on substantive riparian improvement to stream channels would complement ongoing public/private restoration efforts.

VII. AREAS OF CRITICAL ENVIRONMENTAL CONCERN

A. BLM Should Retain and Designate New Areas of Critical Environmental Concern.

FLPMA establishes BLM's overarching mandate to manage public lands "on the basis of multiple use and sustained yield … in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values."[345] To carry out its mandate under FLPMA, BLM must develop, maintain, and when appropriate, revise RMPs for the use of public lands.[346] FLPMA expressly directs BLM to "*give priority* to the designation and protection of areas of critical environmental concern" when developing, revising or maintaining land use plans.[347] Congress's direction to the agency was clear: BLM is obliged to proactively identify and prioritize the conservation of lands where special management is needed to protect important historical, cultural, natural, scenic resources,

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bacteria. *Journal of environmental and public health*, *2012*, 760108. https://doi.org/10.1155/2012/760108

[344] *See infra* Part VII. Biodiversity.

[345] 43 U.S.C. § 1701(a)(7), (8).

[346] *Id.* § 1712(a).

[347] *Id.* § 1712(c)(3) (emphasis added).

fish and wildlife and other values. In fact, ACECs are the only land use planning category that FLPMA explicitly requires BLM to prioritize as a central component of land use planning, not as an afterthought to be considered later.[348] BLM thus is required in this RMP revision process to identify potential ACECs and consider publicly nominated ACECs that may meet the relevance and importance criteria within the planning area. FLPMA also directs BLM to manage the public lands to prevent "unnecessary or undue degradation," which includes restricting or denying uses that would degrade identified ACEC values.[349] Should BLM propose to de-designate any existing special management areas, like ACECs, it must follow specific procedures.

In administering the principle of multiple use and sustained yield, BLM must ensure that conservation is afforded equal consideration alongside other uses in its resource management planning.[350] BLM regulations confirm that ACECs are the principal administrative designation for public lands where special management is required to protect and prevent irreparable damage to important historic, cultural or scenic values, fish or wildlife resources, or natural systems or processes, or to protect life and safety from natural hazards[351] and that ACEC nominations must be considered during planning scoping.[352] "During a planning process, the planning documents *must* analyze in detail any proposed ACEC that has relevant and important values."[353] BLM regulation makes clear that BLM must give significant attention to any area nominated for ACEC status. Authorized officers are required to identify, evaluate, and give priority to areas that have potential for ACEC designation, and BLM must consider nominations from the public, states, Tribes, and other federal agencies during planning scoping.[354]

Just as important, Section 1610.7—2(k) of BLM's regulations authorize the State Director to remove an ACEC designation in a land use planning process *only when* special management attention is not needed because another legally enforceable mechanism provides an equal or greater level of protection, or when the relevant important values are no longer present, cannot be recovered, or have recovered to the point where special management is no longer necessary.[355] Such findings *must be supported by data or documented changes on the ground*.[356] To remove designation without providing such data would be unjustified.

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[348] *See id*.

[349] *Id.* § 1732(b).

[350] *Id*.

[351] 43 C.F.R. § 1610.7-2(a).

[352] *Id*. § 1610.7-2(c)(3).

[353] *Id*. § 1610.7-2(g) (emphasis added).

[354] *Id*. § 1610.7-2(c)(3).

[355] *Id*. § 1610.7-2(k).

[356] *Id.* § 1610.7-2(k)(2) (emphasis added).

B. Nothing in the O&C Act Conflicts with the Designation of ACECs Under FLPMA.

As noted above, nothing in the O&C Act precludes the designation of ACECs under FLPMA. Courts have repeatedly found that the Secretary of Interior has considerable discretion regarding the classification and reclassification of O&C lands, and that making management decisions that balance conservation and timber production fall within that valid discretion.[357] Accordingly, BLM may administer certain O&C lands for conservation and establish designations such as ACECs, late-successional, or riparian reserves. When the 2016 RMP established such areas, it effectively reclassified lands that may previously have been considered "timberlands" under the O&C Lands Act, making them no longer subject to the Act's requirement that timberlands "shall be managed" for permanent forest production. Therefore, nothing in the O&C Act bars the designation of ACECs under FLPMA, and O&C lands identified for ACEC designation may be managed for uses other than timber production.

C. BLM Should Retain ACECs and Research Natural Areas Established in 2016 and Prior Years.

At a minimum, BLM must retain all of the ACEC designations because finding otherwise would be clearly arbitrary. An ACEC can only be removed when special management attention is no longer needed because another legally enforceable mechanism provides adequate protection for the relevant and important values, or the values are no longer present or require special management.[358]

Since the RMP was finalized in 2016, no new enforceable protections have been established for the designated ACEC areas, and furthermore, the same relevant and important values identified by BLM remain present and continue to require protection. Any finding to the contrary must be supported by data or documented changes on the ground.[359] BLM cannot offer any defensible justification for removing protections that were included in the 2016 RMPs.

Additionally, the values these areas were designated for still require special management because the threats facing them have only increased since the 2016 RMPs were finalized. Many of these areas were designated to protect old growth and other forest ecosystem values. Because the stated purpose and need of this proposed plan revision is to increase timber harvest levels, removing these protections to expand logging would cause irreparable harm to the very values for which many of the ACECs in this planning area were designated.

D. BLM Should Designate Areas It Found Worthy of ACEC Protection in 2016 but Did Not Establish.

BLM's erroneous readings of the O&C Act and FLPMA resulted in the agency identifying lands that met the relevance and importance criteria, but were not designated, or only partially

[357] *Murphy Co.*, 65 F.4th 1122; *AFRC*, 77 F.4th 787.

[358] 43 CFR § 1610.7-2(k).

[359] *Id*.

designated, because of an alleged conflict with the O&C Act.[360] As discussed above, however, the O&C Act does not bar the designation of ACECs under FLPMA, and O&C lands identified for ACEC designation may be managed for uses other than timber production. BLM must revisit the ACECs discussed in Table F-1 of the 2016 FEIS, and reanalyze and designate those that were improperly excluded because of alleged conflict with the O&C Act, this includes areas denoted as "Yes_a"[361] where boundaries were adjusted for this stated rationale and areas denoted as "No_a"[362] where areas were flatly rejected for this rationale. Furthermore, BLM must reanalyze these areas applying the presumption that all areas found to require special management attention will be designated.[363]

E. BLM Must Strengthen Existing ACEC Management.

Once designated, an ACEC must be administered to "conserve, protect, and enhance the relevant and important values and only allow casual use or uses that will ensure the protection of the relevant and important values."[364] The designated ACECs should include uniform management direction that makes clear that these areas are unsuitable for commercial timber harvest as they were designated to protect important resources and unique scenic landscapes. The existing vegetation management direction that allows for "forest management for maintenance and restoration of R&Is" allows for too broad of discretion and should be further constrained. For example, in the IBLA appeal of the Nails Creek project in October, 2019, appellants pointed out the problems in the EA, which failed to take an adequate hard look at the effects of the proposed action on the natural processes associated with oak woodlands (the stated relevant and important value for the Nails Creek ACEC), among other issues. As a result, more than 250 acres of regeneration harvest occurred in stands that included habitat for northern spotted owls and negatively impacted the "natural processes" supposedly valued in this ACEC. Any revised RMPs must protect against such adverse impacts to ACECs.

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[360] *See Proposed Resource Management Plan/Final Environmental Impact Statement: Western Oregon*, Vol. 3, App'x F (2016). (Table F-1 distinguishes between areas where BLM partially designated an ACEC but removed certain portions due to potential conflicts with the O&C Act (denoted "Yes_a"), and areas that were not designated because of such potential conflicts (denoted "No_a")).

[361] The areas in which boundaries were adjusted, potentially based on this improper rationale, are as follows: Upper Rock Creek, Grassy Mountain, McGowan Meadow, Upper Willamette Valley Margin, Willamette Valley Prairie Oak and Pine Area, Tunnel Creek, Upper Klamath River, Upper Klamath River Addition, Dukubetede, East Fork Whiskey Creek RNA, Moon Prairie, North Bank, and Wilhoit Springs.

[362] The primary area in which BLM previously cited this rationale is Williams Lake, located within the Salem Field Office.

[363] 43 C.F.R. § 1610.7-2(j)(1)(i).

[364] *Id.* § 1610.7-2(j)(3).

F. BLM Should Consider Additional ACEC Nominations.

To be eligible for designation as an ACEC, an area must meet the relevance and importance criteria and require special management attention.[365] An area meets the relevance criteria if it contains a significant fish or wildlife resource or other natural system or process, among other things. An area meets the importance criteria if the relevant value has qualities of special worth, consequence, meaning, distinctiveness, or cause for concern; national or more than local importance, subsistence value, or regional contribution of a resource, value, system, or process; or contributes to ecosystem resilience, landscape intactness, or habitat connectivity.[366] Additionally, an area requires special management attention to protect and prevent irreparable damage to the relevant and important values, where harm would substantially diminish the ability to restore those values to their prior relevance or importance and special management is needed where action would not be necessary if the relevant and important values were not present.[367] BLM must adopt a presumption in the planning process that all areas found to require special management attention will be designated.[368] If BLM does not designate the nominated areas, BLM must include a clear justification and rationale for why the ACEC was not designated in the forthcoming environmental impact statement.[369]

Many of our groups and organization members previously submitted ACEC nominations that met the relevance and importance criteria for designation and we are aware of additional nominations, both resubmissions and wholly new submissions, that have been submitted during this scoping process. These areas are worthy of designation and BLM must fully analyze all areas being nominated in the subsequent environmental impact statements and designate the areas with relevant and important values that need special management attention. As BLM knows, *anyone* may nominate an ACEC, including individual members of the public, and such nominations must be accepted and thoroughly evaluated by BLM.[370]

VIII. BIODIVERSITY

A. BLM Must Consider Effects to BLM Sensitive Species.

BLM must conserve and protect Bureau Sensitive Species.[371] These species include federally protected species under the ESA as well as a host of other species that are subject to or at risk of downward population trends such that the viability of the species or a distinct population

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[365] *Id.* § 1610.7-2 (d).

[366] *Id.* § 1610.7-2 (d)(2).

[367] *Id.* § 1610.7-2(d)(3).

[368] *Id.* § 1610.7-2(j)(1)(i).

[369] *Id.* § 1610.7-2(j)(2).

[370] *See* https://www.blm.gov/programs/planning-and-nepa/planning-101/special-planning-designations/acec-s; 43 CFR 1610.7-2(c); BLM Manual MS-1613 at 3.2.

[371] *See* BLM, 6840- Special Status Species Management Manual (Nov. 2025), https://www.blm.gov/sites/default/files/docs/2025-12/MS%206840%20Rel.%206-125_0.pdf.

segment of the species is at risk across all or a significant portion of the species range or depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.[372]

"In compliance with existing laws, including the BLM multiple use mission as specified in the FLPMA, the BLM shall designate Bureau sensitive species and implement measures to conserve these species and their habitats, including ESA proposed critical habitat, to promote their conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA."[373] Thus, BLM responsibilities to manage and conserve Bureau Sensitive Species has previously been interpreted by the agency as mandatory for FLPMA and ESA compliance. If BLM changes course on this determination, a full explanation and analysis of departing from this direction is warranted in the EIS.

Bureau Sensitive Species are required to be addressed during planning:

> When BLM engages in the planning process, it shall address Bureau sensitive species and their habitats in land use plans and associated NEPA documents (as per BLM 1610 Planning Manual and Handbook, Appendix C). When appropriate, land use plans shall be sufficiently detailed to identify and resolve significant land use conflicts with Bureau sensitive species without deferring conflict resolution to implementation-level planning. Implementation-level planning should consider all site-specific methods and procedures needed to bring species and their habitats to the condition under which management under the Bureau sensitive species policies would no longer be necessary.[374]

Further during timber sale implementation, BLM "shall manage Bureau sensitive species and their habitats to minimize or eliminate threats affecting the status of the species or to improve the condition of the species habitat."[375]

In the 2016 RMPs, BLM necessarily "analyz[ed] effects on Bureau Sensitive, Bureau Strategic, and the suite of focal landbird species by grouping species with habitat needs that are roughly the same and evaluating the amount of habitat in which these species are found." Courts have found that this level of coarse-scale analysis alone is insufficient to meet the requirements for Bureau Sensitive Species analysis articulated by the Ninth Circuit.[376] Courts have found that "site-

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[372] *Id.*

[373] *Id.*

[374] *Id.*

[375] *Id.*

[376] *Anderson v. Evans*, 314 F.3d 1006, 1019 (9th Cir. 2002) (the focus is on whether the action may significantly affect the environment in the local area).

specific analysis of impacts on special status species was required in either the 2016 RMP FEIS or the [implementing timber sale]."[377]

In the upcoming EIS, BLM needs to either conduct a rigorous analysis of effects to Bureau Sensitive Species as specified by the agency's manual or explicitly require such analysis for implementing timber sale decisions.

B. Specific Species Considerations

In addition to those species discussed above, BLM must provide thorough consideration to adverse impacts to all ESA-listed species and to other sensitive species. Among others, these species should be assessed in detail in the EIS any revised RMPs must protect these species and their habitat.

1. Salmonids

BLM's RMP analysis must acknowledge the ecological, economic, and cultural values that salmon provide to Oregon and how cumulative logging and grazing impacts, as well as others, will harm these imperiled species. The proposed RMP logging agenda is designed to exacerbate the already considerable impacts of grazing, logging, yarding and road construction on coho and other salmonid habitat. The cumulative impacts of continued grazing and increased logging in forest serving as riparian reserves adjacent to salmon habitat will result in harm to coho salmon in contravention of the requirements of the ESA.

For example, and as noted above, the forthcoming RMP revisions threaten to undermine the SONCC Recovery Plan and the efforts of private, state and federal land managers to recover iconic salmon to Oregon waterways. On page 1-5 of the Final SONCC Recovery Plan[378] the federal government acknowledges that the "major activities responsible for the decline of coho salmon" included, among other things, logging, road building, grazing activities, stream channelization, and wetland loss.[379] Consistent with this finding, Firman et al (2011) found that adult coho abundances were higher in areas with lower grazing intensity, explaining that livestock "grazing affects riparian zones by compacting soil, removing vegetation, preventing woody seeding growth, and physically impacting stream morphology by breaking down banks, often resulting in wide, shallow channels."[380] These conditions are already present on streams throughout the RMP planning area and are exacerbated in the relatively dry forests of southwest

[377] *Cascadia Wildlands v. BLM,* 779 F.Supp.3d 1213, 1230 (D. Or. 2025).

[378] Nat'l Marine Fisheries Serv., Final Recovery Plan for the Southern Oregon/Northern California Coast Evolutionarily Significant Unit of Coho Salmon (Oncorhynchus kisutch) (2014).

[379] Nat'l Marine Fisheries Serv., Threatened Status for SONC Coho ESU, 62 Fed. Reg. 24,588, 24,592 (May 6, 1997).

[380] Firman, J.C., Steel, E.A., Jensen, D.W., Burnett, K.M., Christiansen, K., Feist, B.E., Larsen, D.P., and Anlauf, K.J. 2011. Landscape models of adult coho salmon density examined at four spatial extents. Trans. Am. Fish. Soc. 140(2): 440-455. doi:10.1080/00028487.2011.567854.

Oregon in which cattle tend to congregate and linger in riparian zones. Throughout the range of coho, BLM has made little effort to exclude harmful grazing practices from either essential fish habitat or designated critical habitat. Any revised RMP process must thoroughly evaluate adverse impacts to Oregon's critical and imperiled salmonid populations.

2. Serpentine wetland species

Any revised RMPs must continue to uphold and implement the 2018 Interagency Conservation Strategy for Serpentine Darlingtonia Wetlands of Southwest Oregon and Northwest California.[381] This strategy provides important guidance for conserving rare plant species associated with these wetlands, including *Epilobium oreganum*, *Gentiana setigera*, *Hastingsia bracteosa* var. *bracteosa*, *H. bracteosa* var. *atropurpurea*, and *Viola primulifolia* ssp. *occidentalis*. Maintaining commitments under this interagency strategy would help protect the hydrologic integrity of serpentine Darlingtonia wetlands and support the long-term viability of these sensitive species, reducing the likelihood that they will require protection under the ESA.

3. Siskiyou Mountain Salamander

Any revised RMPs must incorporate the findings of the 2007 Conservation Assessment for the Siskiyou Mountains Salamander (*Plethodon stormi*) developed by the U.S. Forest Service, BLM and U.S. Fish and Wildlife Service.[382] This species occurs in a limited range within the Siskiyou Mountains of southwest Oregon and northwest California and is closely associated with late-successional forest habitats and specific microclimates. Management that increases timber harvest, road construction, or other ground-disturbing activities may alter canopy cover, talus moisture, and temperature regimes critical to the species' persistence. Any revised RMPs should ensure that the conservation measures identified in the assessment are integrated into planning decisions to support the long-term viability of this species.

4. Coastal Marten

Any revised RMPs must consider potential impacts to the threatened coastal marten (*Martes caurina humboldtensis*).[383] This subspecies was listed under the ESA in 2020 due to its small population size and ongoing habitat loss. Coastal martens rely on structurally complex coastal forests with dense shrub cover, woody debris, and late-successional characteristics. These habitats can be degraded or fragmented by increased timber harvest, road development, and associated management activities. A substantial portion of the known suitable habitat occurs on

[381] U.S. Dep't of the Interior, Bureau of Land Mgmt. & U.S. Dep't of Agric., Forest Serv., Conservation Strategy for *Epilobium oreganum*, *Gentiana setigera*, *Hastingsia bracteosa* var. *bracteosa*, *Hastingsia bracteosa* var. *atropurpurea*, and *Viola primulifolia* ssp. *occidentalis* in Serpentine *Darlingtonia* Wetlands of Southwest Oregon and Northwest California (2018).

[382] Bureau of Land Mgmt. and U.S. Fish & Wildlife Serv., Conservation Agreement for the Siskiyou Mountains Salamander (*Plethodon stormi*) in Jackson and Josephine Counties of Southwest Oregon (2007).

[383] U.S. Fish & Wildlife Serv., Recovery Outline for the Coastal Distinct Population Segment of the Pacific Marten (*Martes caurina*) (2021), https://www.fws.gov/node/68677.

lands managed by BLM along the southern Oregon coast, the RMP revision should evaluate potential effects to marten habitat and incorporate measures to conserve and restore habitat connectivity and structural complexity needed to support the species' recovery.

5. Pacific Fisher

The revised RMPs must evaluate potential impacts to the Northern California–Southern Oregon population of the Pacific fisher (*Pekania pennanti*). In a recent decision, U.S. Fish and Wildlife Service determined that this population did not warrant listing under the ESA, based in part on existing regulatory mechanisms and ongoing conservation efforts. However, increased habitat modification proposed under the RMP could reduce or fragment the structurally complex, late-successional forests that fisher rely on for denning, resting, and foraging. The RMP revision should consider whether changes could undermine the recent listing decision and ensure that adequate habitat protections and connectivity are maintained to support the long-term persistence of this fisher population.

6. Gentner's Fritillary

Any revised RMPs must evaluate potential impacts to the endangered plant Gentner's fritillary (*Fritillaria gentneri*). Gentner's fritillary is a rare, endangered, and endemic flowering plant found in southwest Oregon. It was federally listed as endangered under the ESA in 1999 and is threatened by habitat loss due to invasive plant infestations, road construction, and grazing. The U.S. Fish and Wildlife Service's 2003 Recovery Plan for Getner's fritillary identifies grazing a significant risk to the imperiled species.[384] This species occurs in a very limited range in southwestern Oregon, primarily in oak woodlands, chaparral, and grassland habitats managed by BLM.

Management actions associated with increased timber production, such as road construction, vegetation treatments, or ground-disturbing activities, could damage populations or alter habitats. The RMP revision should ensure that known occurrences and suitable habitats are identified and protected according to the recovery plan, and that management actions support the recovery and long-term viability of this species.[385]

BLM should also consider the cumulative impacts from existing grazing and increased timber production. Prior BLM analysis (for the Crowfoot Grazing Allotment in the Medford District) discussed "possible trampling" from cattle of "accessible" and "vulnerable" fritillary sites. We are concerned that the forthcoming RMP revisions will encourage the continued turnout of cattle near known fritillary sites that renders listed species "vulnerable" to "trampling." Reliance on monitoring as a surrogate for avoiding harm to the species, or disclosing the risks involved, is misplaced. Monitoring can only reveal damage that has already occurred and it does not, in and of itself, prevent harm to the listed species. Rather than wait for damage to "vulnerable" fritillary populations to occur and then documenting that harm via monitoring, *prior* to authorizing cattle

[384] U.S. Fish & Wildlife Serv., Recovery Plan for Fritillaria gentneri (Genter's fritillary) (Jul. 21, 2003), https://ecos.fws.gov/docs/recovery_plan/030828.pdf.

[385] *Id.*

release that involves "possible trampling" of the species BLM must thoroughly analyze and disclose the risks and tradeoffs associated with grazing in fritillary habitat.

It appears that BLM is not meeting the terms of its programmatic consultation with the US Fish and Wildlife Service for Gentner's fritillary. BLM has repeatedly failed to implement appropriate Project Design Criteria concerning the protection of known fritillary sites. Indeed, there are no substantive protections for "vulnerable" and "accessible" plant sites impacted by BLM grazing practices. Hence, BLM has failed to fully implement the Project Design Criteria necessary to ensure ESA coverage through the existing programmatic consultation. Both the Gentner's fritillary Recovery Plan and BLM/FWS programmatic consultation require protection of known sites in addition to surveys and monitoring. These deficiencies must be corrected in any RMP revisions.

7. Oregon Spotted Frog

Any revised RMPs must evaluate potential impacts to the Oregon spotted frog (*Rana pretiosa*), which is listed as threatened under the ESA. This species occurs in limited areas of the Pacific Northwest, including parts of southwest Oregon, and is associated with shallow wetlands, marshes, ponds, and slow-moving streams that support emergent aquatic vegetation. Some of these habitats occur on lands managed by BLM. Management actions associated with this RMP revision could degrade wetland habitats, alter hydrology, or disturb breeding and overwintering sites. The revision should ensure that known occurrences and suitable habitats are identified and protected consistent with the Recovery Plan for the Oregon Spotted Frog,[386] and that management actions support the recovery and long-term viability of this species.

8. Cook's Lomatium

The revised RMPs must evaluate potential impacts to Cook's lomatium (*Lomatium cookii*), which is listed as endangered under the ESA.[387] This species occurs in a very limited range in southwest Oregon, primarily in seasonally wet meadow habitats within vernal pool–mounded prairie systems, many of which are managed by BLM. Management actions including increased timber production or land management activities, vegetation treatments, grazing, or other ground-disturbing activities, could damage populations, alter hydrology, or impact habitats required by this species. The RMP should ensure that known occurrences and suitable habitats are identified and protected consistent with the Recovery Plan for *Lomatium cookii*, and that management actions support the recovery of this narrow endemic.

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[386] U.S. Fish & Wildlife Serv., Recovery Plan for the Oregon Spotted Frog (*Rana pretiosa*) (2024), https://ecos.fws.gov/docs/recovery_plan/SIGNED_Oregon_Spotted_Frog_FinalRP_20240719.pdf.

[387] U.S. Fish & Wildlife Serv., Recovery Plan for the Rogue Valley Vernal Pool and Illinois Valley Wet Meadow Ecosystems (2013) (addressing recovery of *Lomatium cookii* and related species).

C. BLM Must Consider Impacts to Species that Depend on Late-Successional Habitat.

These forests also provide important habitat for numerous other late-successional species, including the Northern Goshawk (*Accipiter gentilis*), Great Gray Owl (*Strix nebulosa*), and Red Tree Vole (*Arborimus longicaudus*), all of which depend on mature or structurally complex forests.[388] Reductions in interior forest habitat and reserve connectivity would therefore have cascading effects across the late-successional species assemblage. Many of these species are designated as BLM Sensitive Species, and BLM policy requires management actions to avoid contributing to the need to list additional species under the ESA. Consequently, the EIS must evaluate whether proposed management alternatives would reduce habitat availability or connectivity to levels that increase extinction risk for spotted owls or other late-successional species, or that could contribute to future federal listings.[389]

With respect to the great gray owl, BLM must thoroughly consider cumulative adverse impacts from timber production and grazing. Livestock grazing is known to negatively impact great gray owl habitat by degrading meadows and decreasing prey populations.[390] Increased logging will exacerbate these harms and must be considered against this backdrop. As cattle graze in great gray owl meadow habitat, they crush soils, collapsing prey tunnels and reducing prey availability for the great gray owl.[391] Prey abundance is of utmost importance to great gray owl in selecting nesting and foraging habitats.

BLM has repeatedly failed to implement even minor Best Management Practices and Project Design Features to protect the great gray owl from deleterious grazing practices. For example, the great gray owl population in the vicinity of Howard Prairie on the Ashland Resource Area is

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[388] Huff, M.H., Holthausen, R.S., & Aubry, K.B. "Habitat management for red tree voles in Douglas fir forests." USDA Forest Service PNW GTR 302 (1992).

[389] U.S. Fish and Wildlife Service, "Revised Recovery Plan for the Northern Spotted Owl (Strix occidentalis caurina)" (2011), https://ecos.fws.gov/docs/recovery_plan/NSO_Revised_Recovery_Plan.pdf; Dugger et al, "The effects of habitat, climate, and Barred Owls on long-term demography of Northern Spotted Owls," The Condor: Ornithological Applications (2016) 118(1):57–116. https://doi.org/10.1650/CONDOR-15-129.1; Davis et al, "Northwest Forest Plan—The First 20 Years (1994–2013): Status and Trends of Northern Spotted Owl Habitats." General Technical Report PNW-GTR-929, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station (2016), https://doi.org/10.2737/PNW-GTR-929; Endangered and Threatened Wildlife and Plants; 12 Month Finding for the Northern Spotted Owl, 85 Fed. Reg. 81144 (Dec. 16, 2020); U.S. Bureau of Land Management, "Manual 6840 – Special Status Species Management," (2008).

[390] Williams, E. J., Conservation Assessment for Great Gray Owl (Strix nebulosa), U.S. Forest Service Region 6 and Bureau of Land Management (2012); Peter J. Thiemann & Harry Fuller, *Great Grey Owl in California, Oregon, and Washington,* (2015) p. 168.

[391] Horncastle, V.J. et al., Grazing and Wildfire Effects on Small Mammals Inhabiting Montane Meadows, The Journal of Wildlife Management 83(3) (2019).

a regionally crucial source population that is essential to the continued existence of the species. But under the 2016 RMPs, BLM has proposed harmful logging in these areas. Any revised RMPs must protect great gray owls from the combined harms of grazing and logging.

IX. INVASIVE SPECIES AND NOXIOUS WEEDS

BLM Districts all have data documenting locations of large noxious weed and invasive weed infestations. Native plant communities are severely degraded by the spread of non-native species.[392] Non-native plant species alter ecosystems by "increasing fire frequency, reducing wildlife habitat, disrupting nutrient cycling and hydrology, increasing topsoil loss, and altering soil microclimate."[393] Noxious weed infestations on the BLM lands subject to this revision regularly include the quarries which BLM use to facilitate new road construction for logging. Infestations of invasive species and noxious weeds can prevent the growth of replanted trees in BLM logging units. The Coast Range is dominated by areas infested as a result of past BLM timber harvest. Given the O&C Act's focus on sustainable harvest levels, the risk of spread of invasive species must thoroughly be analyzed and considered in this new RMP FEIS.

In the 2016 RMP FEIS, BLM did not analyze the quantitative risk of invasive and noxious weed spread but instead summarized qualitatively the relative cumulative risk. BLM has since conducted widespread noxious weeds surveys, and we ask that that data be incorporated into this revised RMP analysis. Additionally, subsequent BLM botanist reports have indicated that thinning as opposed to regeneration harvest would reduce negative effects associated with noxious and invasive weed spread.

BLM's 2016 RMP FEIS did not elaborate upon how differing logging alternatives could and would influence noxious weed spread as conceded by its specialists. This should be analyzed and incorporated into the new analysis. Also, given that the 2016 RMP was predicted to moderately increase the overall risk of introduction and spread of invasive plant species, it can be assumed that a plan that would drastically increase the proposed levels of regeneration harvest and road construction necessary to facilitate that harvest would increase that "moderate risk." This issue should be given particular attention because BLM districts in our region have repeatedly admitted that they do not have the resources to implement the mitigation measures listed in the 2016 RMP. Please include specific discussion in the EIS on resources and capacity for controlling invasive and noxious weed spread and consider alternatives that would minimize the spread of invasive weeds which has cumulative effects on surrounding private timber lands and communities.

Invasive weeds are generally highly flammable as well. Acknowledgement of this reality and analysis of how this issue interacts with fire hazard resulting from timber harvest should be analyzed as well given the proposed need for the change in RMP. BLM's timber production

[392] Belsky, J., Gelbard, J., Livestock grazing and weed invasions in the arid West. A Scientific Report Published By The Oregon Natural Desert Association (2000).

[393] *Id.*

goals are undermined by the resulting increased fire frequency, reduced wildlife habitat, disrupted nutrient cycling, and topsoil loss.

BLM's EIS also must thoroughly evaluate the impacts of grazing and timber on the spread of noxious weeds. Livestock increase the ability of non-native plants to invade native plant communities by disturbing vegetation and soils and transporting non-native seeds in their hair, digestive tracts, and hoofs.

X. SOILS

The RMPs require BLM to "[l]imit detrimental soil disturbance from forest management operations to a total of < 20 percent of the harvest unit area." This requirement was included because soil quality is necessary "to sustain plant and animal productivity" and "ecosystem health."[394] Thus, these standards around detrimental soil disturbance were deemed necessary to avoid "unnecessary erosion levels, organic matter loss, soil compaction, soil displacement, severe hearing to seeds or microbes, or a combination of these due to the implementation of management actions."[395] Given that sustainable timber harvest depends on soil quality, these standards need to be continued in the new RMP and analyzed in the new EIS.

Also, the 2016 RMP requires the levels of soil disturbance to be analyzed at the timber sale unit level. BLM must again include this requirement in any revised RMPs given BLM admissions that "all harvest activities increase detrimental soil disturbance above existing levels; however, the magnitude of that increase is highly dependent on treatment method and site-specific factors," and "the extent and effectiveness of such mitigation or amelioration depends heavily on site-specific and project-specific factors."[396] Any relaxation of these standards would be inappropriate in light of BLM's proposal to increase the intensity and scale of harvest which will increase detrimental soil effects. Also any attempt to bypass subsequent requirement for site-specific amelioration of negative soil effects cannot be justified in light of BLM admissions that this factor is heavily site-specific.

XI. BLM'S OTHER IDENTIFIED RESOURCES AND OBLIGATIONS

To comply with its obligations under the ESA, NEPA, and FLPMA, BLM must consider impacts to recreation, rare plants and fungi, and energy and minerals.

Additionally, to comply with the requirements of the Wild and Scenic Rivers Act,[397] BLM should identify streams being considered by Congress for inclusion in the national wild and scenic rivers system and identify any currently listed wild and scenic rivers impacted by a revision to the RMPs. These streams and adjacent one-quarter mile must be reserved from timber

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[394] 2016 RMP FEIS at 745.

[395] *Id.*

[396] *See* 2016 RMP FEIS at 572.

[397] 16 U.S.C. § 1271 *et. seq*.

harvest modeling and any management actions that would damage the outstanding remarkable values of the stream.

CONCLUSION

Thank you for your consideration of these comments.

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Attachment A

Aquatic Comments on the Department of Interior, Bureau of Land Management Notice of Intent to Revise the Western Oregon Resource Management Plans and to Prepare an Environmental Impact Statement

Prepared by
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on behalf of Oregon Wild,
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Introduction

Since passage of the Northwest Forest Plan (NWFP), the western Oregon RMP framework has treated aquatic conservation as a watershed-process issue, not simply a narrow stream-edge issue. That approach recognizes that protection of fish and aquatic habitat depends on the condition and function of whole watersheds, including hydrology, sediment delivery, stream temperature, channel complexity, floodplain interaction, riparian recruitment, and the cumulative effects of roads, harvest, fuels treatments, and other disturbances over time. Riparian zones are a central part of that framework, but they are not the framework itself.

The Federal Register notice initiating scoping for revisions to the Northwestern and Coastal Oregon Resource Management Plan and Southwestern Oregon Resource Management Plan (hereafter, the RMPs) appears to move away from that broader watershed-process approach. The notice frames the revision primarily around increasing timber production, forest treatments, wildfire response, and county revenue, while describing stream protection in the preliminary action alternative mainly in terms of streamside buffers ranging from 25 to 100 feet "to comply with the Clean Water Act." It also summarizes expected impacts in terms of timber harvest, fire hazard, and wildlife habitat, even though fisheries and hydrology are listed among the preliminary issues for analysis. Those features of the notice suggest that aquatic resources may be treated as secondary constraints rather than as a co-equal planning objective (91 Fed. Reg. 8017, 8019 (Feb. 19, 2026)).

The Bureau of Land Management (BLM) is proposing to step back from a broader aquatic-conservation framework in a landscape where Endangered Species Act (ESA) listed fish still depend on habitat conditions that are sensitive to riparian and watershed management. The National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (FWS) continue to identify habitat degradation, inadequate instream flows, poor water quality, barriers to passage, floodplain loss, and climate-related stress as central problems for protected fish in and downstream of the lands administered under the RMPs (NMFS 2022a,b; NMFS 2024a,b; FWS 2024). That means a shift toward narrower, CWA-framed stream buffers is not just a different management style. It raises the risk that the revised plan will be less protective of the very habitat processes that ESA recovery efforts still depend on.

The habitat concerns that contributed to the listing of these species—temperature, sediment, altered flows, floodplain simplification, degraded riparian condition, blocked access, and loss of habitat complexity—are not historical relics. They remain central recovery problems today.

BLM must address more than riparian buffer width alone. In addition to riparian zones, the notice raises broader concerns about the purpose and need, the expected impact framework, wildfire and salvage logging, cumulative watershed effects, including peak flows and summer low flows, the use of Clean Water Act compliance as a benchmark, the range of alternatives, ESA-related aquatic obligations, and the treatment of ACECs and other special protective

designations. The sections below identify eleven topics that warrant thorough consideration and analysis.

1. The Purpose and Need Is Too Narrow and Too Timber-Centric

The notice frames the purpose of the revision largely in terms of increasing sustained-yield timber harvest, increasing county revenue, and improving BLM's ability to conduct forest treatments and salvage logging. That framing is important because the purpose-and-need statement drives the alternatives and shapes the EIS from the outset. The purpose and need must also expressly include maintaining and restoring aquatic ecosystem function. That should include watershed processes, streamflow integrity, sediment control, temperature protection, large wood recruitment, floodplain and riparian function, water quality, and habitat conditions for native fish and other aquatic species. Without that explicit direction, the EIS risks treating aquatic resources as secondary sideboards rather than core planning values.

This point is especially important on the O&C lands. The O&C Act directs management for permanent forest production and sustained yield, but it also expressly refers to watershed protection and streamflow regulation. Courts have described timber production as the dominant use of O&C timberlands, yet recent decisions also reinforce that sustained yield is not a command to maximize output at all times. In practical terms, BLM retains planning discretion to structure western Oregon plans so timber production remains tied to protection of watershed function and other statutory values. (43 U.S.C. § 2601; *Headwaters, Inc. v. BLM*, 914 F.2d 1174 (9th Cir. 1990); *Murphy Co. v. Biden*, 65 F.4th 1122 (9th Cir. 2023); *Am. Forest Res. Council v. United States*, 77 F.4th 787 (D.C. Cir. 2023).)

For scoping purposes, the implication is straightforward: BLM should not frame aquatic protections as mere constraints on a timber-driven plan. On these lands, watershed protection and streamflow regulation are part of the governing management framework. The Draft RMP/EIS should therefore carry those aquatic purposes into the front end of the analysis, not bolt them on later.

2. BLM Cannot Rely on 2008 and 2016 Analyses as a Substitute for Fresh Analysis of the Current Proposal

The 2026 planning criteria state that BLM intends to rely heavily on analytical conclusions drawn from the 2008 and 2016 western Oregon RMP/EIS documents (BLM 2026b). Reliance on prior analyses may be appropriate for unchanged background information. But it is not an adequate substitute for analyzing the environmental consequences of the current proposal. The key scoping issue is not whether BLM may cite earlier documents at all. It is whether BLM is attempting to reuse prior conclusions even though the current proposal appears to adopt a materially different riparian and aquatic framework.

That concern is real here. The prior western Oregon RMP/EIS documents did not analyze one interchangeable riparian concept. They analyzed multiple, materially different frameworks, with different widths, inner no-harvest or no-thinning zones, treatment allowances, watershed

classifications, and assumptions about aquatic risk. In 2008, the Proposed RMP incorporated Riparian Management Area widths from one alternative while also adding no-thinning strips within 60 feet of perennial and intermittent fish-bearing streams and within 35 feet of intermittent streams. In 2016, the Proposed RMP used a different Riparian Reserve design tied to subwatershed class, critical habitat, and site-potential tree height, and BLM explained that those modifications were intended to reduce risk to ESA-listed fish and water quality relative to Alternative B. The hydrology and fisheries analyses in those documents were tied to those specific designs.

The 2026 NOI instead describes streamside buffers of 25 to 100 feet. That concept appears to move away from the current 2016 riparian reserve framework and back toward a narrower buffer-based approach more similar to portions of the 2008 analysis, but it is not identical to either. BLM therefore should not treat the environmental consequences of the 2026 proposal as though they were already analyzed. The Draft RMP/EIS should identify which portions of the earlier affected-environment discussion remain valid, which assumptions no longer hold, and what new analysis is required for aquatic resources, water quality, stream processes, ESA-listed fish, and critical habitat.

At minimum, the Draft RMP/EIS must:

1) compare the 2008, 2016, and 2026 riparian frameworks side by side;
2) identify where the 2026 proposal differs in width, inner-zone protection, treatment allowances, and treatment of intermittent and headwater streams;
3) distinguish between background information that may be reused and environmental-consequences analysis that must be updated; and
4) provide fresh analysis for large wood recruitment, shade and stream temperature, sediment delivery, peak flows, floodplain and channel processes, and effects on ESA-listed fish and critical habitat.

3. BLM Must Clearly Explain the Aquatic-Conservation Framework in Each Alternative

The EIS must clearly identify, for each alternative, whether BLM is retaining, modifying, or eliminating the aquatic-conservation framework adopted in the 2016 western Oregon Proposed RMP/FEIS, and should describe how each alternative compares both to the 2016 framework and to the Northwest Forest Plan Aquatic Conservation Strategy baseline. In the 2016 western Oregon Proposed RMP/FEIS, BLM stated that none of the action alternatives retained the Northwest Forest Plan Aquatic Conservation Strategy in its entirety, that the No Action alternative reflected the ACS as constituted in the NWFP, and that the Proposed RMP instead addressed the four ACS components in modified form. BLM further explained that the 2016 framework modified riparian reserves, replaced Key Watersheds with subwatershed classes, and did not direct a specific watershed-analysis procedure.

In this plan revision, BLM should not rely on generalized statements about protecting aquatic resources. Instead, the EIS should identify for each alternative which parts of the 2016 aquatic-

conservation framework are retained, modified, or eliminated; how each alternative compares to both the 2016 framework and the NWFP ACS baseline; and what those differences mean for fish habitat, water quality, stream temperature, sediment, hydrologic function, and ESA-listed aquatic species. At a minimum, BLM should provide a side-by-side table showing the aquatic-conservation elements of each alternative.

4. BLM's Proposed 25 to 100-Foot Buffers Are Too Narrow, Too Generic, and Not Supported by Best Available Science

The NOI frames aquatic protection primarily in terms of fixed streamside buffers ranging from 25 to 100 feet. This approach is too narrow and too generic to serve as the primary riparian protection framework for western Oregon. The problem is not simply that the proposed buffers are narrower than the protections reflected in prior western Oregon planning frameworks. The larger problem is that they appear to substitute a simplified, one-size-fits-all buffer scheme for a function-based approach grounded in the ecological processes that actually maintain aquatic habitat.

Best available science does not support treating a generic 25 to 100-foot buffer as sufficient for the full range of riparian and aquatic functions across this landscape. Pacific Northwest riparian science and management frameworks have long recognized that important functions such as large wood recruitment, shade, bank stability, sediment moderation, floodplain interaction, and habitat connectivity operate over different distances and vary by stream type, topography, geomorphology, and disturbance regime. That is why FEMAT and the Northwest Forest Plan relied on site-potential tree height and geomorphic features as key reference points, rather than a simple fixed strip measured in a few narrow width classes.

Recent NWFP reports point in the opposite direction from the NOI's proposed 25 to 100-foot buffer scheme. The 2018 NWFP science synthesis concluded that federal lands remain essential to the conservation and recovery of ESA-listed fish, and its review of the Aquatic Conservation Strategy after 23 years described key riparian functions—such as bank stability, litterfall, shading, coarse wood recruitment, and moderation of sediment delivery—at the scale of site-potential tree height, not as narrow generic strips (Reeves et al. 2018). The 2016 evaluation of potential riparian reserve options likewise did not treat 25 to 100-foot buffers as an adequate benchmark for aquatic protection (Reeves et al. 2016). Even the options developed to explore greater management flexibility extended aquatic conservation one site-potential tree-height along all streams, with an inner zone devoted solely to ACS goals, and compared fixed-width and context-dependent approaches within that broader framework. More recently, the NWFP's 25-year watershed condition report found widespread and incremental improvements associated with management of forests, roads, and stream crossings as envisioned by the Aquatic Conservation Strategy, while also noting the growing influence of climate change on watershed conditions (Dunham et al. 2023). Taken together, these more recent NWFP reports do not

support retreating to narrow, generic streamside buffers. They support riparian protections grounded in broader ecological function, watershed context, and long-term aquatic resilience.

BLM should therefore explain the scientific basis for each proposed buffer class, identify which aquatic functions each width is expected to protect, and disclose where those widths are likely to be insufficient. The Draft RMP/EIS should not assume that generic 25 to 100-foot buffers are ecologically adequate across the planning area without directly analyzing their likely effects on stream temperature, shade, large wood recruitment, sediment delivery, bank and slope stability, floodplain and channel processes, headwater function, and habitat conditions for listed fish and other aquatic species.

At minimum, BLM must:

1) identify the scientific basis for each proposed buffer width;
2) explain what aquatic functions each width is intended to protect;
3) analyze whether fixed-width buffers are adequate across different stream types, headwaters, intermittent channels, and geomorphic settings; and
4) compare the expected aquatic performance of the proposed 25 to 100-foot buffers against wider, function-based riparian frameworks previously analyzed in western Oregon.

A narrow focus on buffers alone fails to address how forest management affects aquatic habitat conditions and watershed function across the planning area.

5. Climate Change and Aquatic Habitat Must Be Analyzed Using Current Science

BLM addressed climate change in the 2008 and 2016 western Oregon planning documents, but those discussions do not eliminate the need for new analysis. The 2008 FEIS acknowledged that climate change could affect vegetation, streamflow, and salmon habitat, yet it expressly stated that future climate conditions were not incorporated into vegetation modeling because the regional details were considered too uncertain. The 2016 Proposed RMP/Final EIS included a more developed climate section and recognized hotter droughts, reduced summer streamflows, and vulnerability of cold-water fish and aquatic organisms. But that analysis is now dated and was developed before more recent climate assessments and observed changes in Northwest hydrology and stream temperature.

For scoping, BLM should not treat climate change as a background issue already covered by prior RMP/EIS documents. The Draft RMP/EIS should analyze how the proposed riparian and upland framework would function under warmer air temperatures, reduced snowpack, lower summer flows, greater drought stress, more severe wildfire, and increased risk of post-fire sediment delivery and channel disturbance. It should also evaluate whether fixed streamside buffers of 25 to 100 feet would remain adequate under those conditions, identify where cold-water refugia and climate-resilient aquatic habitats occur, and disclose whether the current proposal would maintain, reduce, or improve aquatic resilience relative to the 2016 framework.

At minimum, BLM must:

1) analyze climate effects on stream temperature, summer low flows, peak-flow timing, sediment delivery, large wood recruitment, and habitat connectivity;
2) identify climate-vulnerable cold-water fish habitats, headwater systems, and potential refugia; and
3) compare the climate resilience of the 2008, 2016, and 2026 riparian frameworks using current science rather than relying on older assumptions.

To be clear, this is not a greenhouse-gas analysis. BLM should frame its analysis in terms of effects on aquatic habitat and plan durability.

6. Wildfire, Fuels Treatment, and Salvage Logging Raise Major Aquatic Concerns

The notice repeatedly ties the revision to wildfire, forest health threats, fuels treatment, and salvage of timber killed by wildfire, drought, and other disturbances. Those issues have substantial aquatic implications well beyond buffer widths. They can have major consequences for aquatic habitat and watershed processes, especially when they occur in or near riparian areas, headwater systems, unstable slopes, roads, and stream crossings. The Draft RMP/EIS should not treat these activities as categorically beneficial to aquatic resources simply because they are framed as reducing fire risk. Their effects depend on where they occur, how they are carried out, and how they interact with existing watershed conditions.

This issue is especially important because fire can affect aquatic systems in more than one way. Severe wildfire can increase erosion, sediment delivery, peak flows, channel instability, and stream temperature, particularly where riparian cover is reduced or slopes and road systems are vulnerable. At the same time, fuels treatments and salvage logging can also affect aquatic conditions by removing shade, reducing future large wood recruitment, disturbing soils, increasing road use, and extending management activity into watersheds that are already stressed. In some settings, those management actions may reduce one type of risk while increasing another. The analysis should address that tradeoff directly rather than assuming that more treatment necessarily results in better aquatic outcomes.

The Draft RMP/EIS also should recognize that wildfire is now occurring in a warmer, drier climate in which post-fire aquatic risks may be more severe and recovery more difficult. That makes it even more important to evaluate where riparian protection, road management, and restraint on salvage logging may be necessary to protect cold-water habitat, headwater function, and downstream fish habitat. Narrow streamside buffers alone may not be enough to address post-fire sediment pulses, loss of wood recruitment, altered hydrology, or repeated disturbance across a watershed.

At minimum, BLM must:

1) analyze the aquatic effects of wildfire, fuels treatments, and post-fire salvage logging together, rather than as separate and unrelated issues;

2) evaluate effects on stream temperature, shade, sediment delivery, hydrology, large wood recruitment, channel stability, floodplain function, and aquatic connectivity;
3) identify where riparian areas, headwaters, unstable slopes, roads, and stream crossings create elevated post-fire aquatic risk; and
4) compare alternatives to determine whether the proposed plan would increase or reduce aquatic resilience under future fire and climate conditions.

7. Watershed-Scale Cumulative Effects Must Be Central to the Analysis

BLM should not evaluate the proposed plan primarily at the scale of individual stream segments or individual management actions. The Draft RMP/EIS should treat watershed-scale cumulative effects as a central aquatic issue. Aquatic habitat conditions are shaped by the combined effects of riparian management, upland harvest, fuels treatments, salvage logging, roads, stream crossings, altered hydrology, wildfire, and climate change. Forest harvest and subsequent stand development can alter watershed hydrology in ways not captured by buffer width alone, including reduced summer low flows and, in some settings, increased runoff and peak-flow sensitivity (Jones & Perkins 2010; Perry and Jones 2017; Segura et al. 2020). Even where the effects of a single action may appear limited, the combined effects across an entire watershed can be substantial.

This point is especially important because the planning area includes many watersheds that are already affected by roads, legacy harvest, simplified riparian conditions, elevated stream temperatures, altered sediment delivery, reduced wood recruitment, and habitat fragmentation. For listed fish and other aquatic species, the relevant question is not whether any one project or one buffer strip appears acceptable in isolation. The relevant question is whether the combined pattern of management across federal lands is likely to maintain, degrade, or restore watershed processes over time.

The Draft RMP/EIS therefore should evaluate cumulative effects at scales that are meaningful for aquatic systems, including watersheds, subwatersheds, stream networks, and connected downstream habitats. It should analyze how the proposed riparian framework interacts with upland management, road systems, disturbance regimes, and climate stressors, rather than assuming that streamside buffers alone are sufficient to protect aquatic resources. It also should recognize that cumulative effects may be especially important in headwater systems and intermittent streams, where repeated small disturbances can propagate downstream through changes in flow, sediment, temperature, and wood delivery.

At minimum, BLM must:

1) analyze cumulative effects at the watershed and stream-network scale, not just at the stand or stream-reach scale;
2) evaluate the combined effects of riparian management, timber harvest, fuels treatments, salvage logging, roads, and wildfire on stream temperature, sediment delivery,

hydrology, large wood recruitment, channel and floodplain processes, and habitat connectivity;

3) identify watersheds and subwatersheds that are already impaired, simplified, or climate-vulnerable and assess whether the proposed plan would increase or reduce aquatic risk in those places; and
4) evaluate cumulative effects not only within the planning area, but also in downstream waters and habitats used by ESA-listed fish and other aquatic species.

8. Clean Water Act Compliance Is a Floor, Not the Benchmark

The notice states that streamside buffers would be used "to comply with the Clean Water Act." Clean Water Act compliance is not the same as maintaining or restoring functioning aquatic ecosystems. Compliance with water-quality requirements may be relevant, but it does not resolve whether the revised plan is adequate to protect watershed processes, fish habitat, riparian recruitment, floodplain function, or ESA-listed aquatic species. A plan may satisfy minimum water-quality framing yet still be inadequate to protect the habitat-forming processes and recovery conditions required by native fish and other aquatic species. Aquatic plan components should be judged against ecological function: cold-water habitat, temperature buffering, sediment control, large wood recruitment, channel complexity, floodplain connectivity, and habitat conditions for native fish and other aquatic species. The EIS should distinguish clearly between minimum Clean Water Act compliance and maintaining/restoring functioning aquatic systems.

9. BLM Must Include an Aquatic-Protective Action Alternative Based on Two Site-Potential Tree Heights

The notice identifies the 2016 RMPs as the no-action alternative and describes a preliminary action alternative that would rely on fixed streamside buffers of 25 to 100 feet. That does not provide a sufficient range of alternatives for evaluating aquatic issues. If the no-action alternative is the only option that retains the current riparian and aquatic protections, while the action alternatives move toward a narrower buffer-based model, then the Draft RMP/EIS will not provide a meaningful comparison among action alternatives from an aquatic standpoint.

BLM should carry forward at least one clearly aquatic-protective action alternative based on a two-site-potential-tree-height riparian framework. A two-site-potential-tree-height approach has long been recognized in Pacific Northwest forest planning as a more protective riparian framework for maintaining the ecological processes that support aquatic habitat, including shade, large wood recruitment, bank stability, sediment moderation, hydrologic function, and habitat complexity. It would provide a meaningful comparison to the preliminary action alternative's fixed 25 to 100-foot buffers and allow the agency and the public to evaluate whether a broader riparian framework would better maintain watershed processes and habitat conditions for listed fish and other aquatic species.

Because the 2016 framework appears only as the no-action alternative, BLM should not limit the action alternatives to options that are uniformly less protective of aquatic resources. The Draft

RMP/EIS should include at least one action alternative that evaluates whether a two-site-potential-tree-height riparian framework would better protect aquatic habitat, watershed resilience, and recovery conditions for listed fish than the preliminary action alternative.

10. ESA-Related Aquatic Obligations Must Be Addressed Explicitly

These concerns are longstanding. For decades, the scientific and management literature has recognized that forest and rangeland practices can degrade salmonid habitat through riparian disturbance, sediment delivery, altered hydrology, reduced wood recruitment, elevated temperature, and simplified channel structure (Meehan 1991). Those concerns remain directly relevant here because none of the affected listed fish has been delisted and habitat remains one of the limiting factors for recovery (NMFS 2021; NMFS 2022a,b,c; NMFS 2024a,b; NMFS 2025; FWS 2024).

The NOI discusses the ESA mainly as a historical source of reduced timber harvest and county revenue after listings such as northern spotted owl and marbled murrelet. It later mentions ESA procedural requirements, but it does not clearly identify listed aquatic species or critical habitat that could be affected by changes in riparian protection, timber harvest, fuels treatment, salvage logging, roads, and related land use allocations. (91 Fed. Reg. 8017-19.)

This issue is not abstract. Western Oregon BLM lands overlap or drain to watersheds and estuaries used by multiple ESA-listed fish, including Lower Columbia River Chinook/Coho/Steelhead, Upper Willamette River Chinook and Steelhead, Oregon Coast coho, Southern Oregon/Northern California Coast coho, and bull trout. All of these species have designated critical habitat in or downstream of the planning area, and recent NOAA and FWS reviews show that they remain listed and continue to face substantial habitat-related constraints (NMFS 2022a,b,c; NMFS 2024a,b; FWS 2024).

The habitat concerns that led to these listings are also directly relevant to this RMP revision. Federal recovery and status materials continue to emphasize the importance of cold, clean water, adequate instream flows, passage to historical habitat, floodplain habitat, and protection from habitat degradation, fragmentation, sediment, and poor water quality. Those are not side issues. They are the same habitat-forming processes potentially affected by changes in riparian protections, timber harvest, fuels treatments, salvage logging, roads, and cumulative watershed disturbance. BLM should therefore analyze the revised plan not simply as a timber-and-buffer proposal, but as a plan that may either support or undermine recovery conditions for listed fish.

BLM must identify listed aquatic species and designated critical habitat in the planning area, explain how each alternative could affect habitat-forming processes such as temperature, large wood recruitment, sediment regime, bank stability, and headwater connectivity, and describe how plan-level section 7 consultation will address those effects. Buffers framed primarily around Clean Water Act compliance are not the same as ESA compliance, and the Draft RMP/EIS should make that distinction explicit.

11. BLM Must Evaluate Whether Certain Aquatic and Riparian Areas Warrant ACEC Designation or Other Special Management Attention

Plan-wide riparian protections and streamside buffers may not be sufficient for all aquatic resources. In addition to plan-wide riparian protections, BLM should evaluate whether certain aquatic and riparian areas warrant ACEC designation or other forms of special management attention where ordinary plan-wide protections may be inadequate.

This issue is especially important where aquatic values are unusually important, unusually vulnerable, or likely to become more important under climate change. Areas that may warrant this type of evaluation include:

1) spawning and rearing habitat for ESA-listed salmon, steelhead, and bull trout
2) cold-water refugia and spring-fed stream systems important to ESA-listed fish and other cold-water species;
3) intact headwater networks with strong downstream influence on flow, sediment, temperature, and wood delivery;
4) aquatic climate refugia expected to remain relatively cool and resilient under future warming;
5) high-value fish strongholds or reaches with especially important spawning, rearing, or migration functions;
6) special wetlands, fens, floodplain complexes, or unique aquatic and riparian landforms; and
7) river corridors already recognized for special fish, scenic, hydrologic, or natural-process values where additional management attention may be warranted.

The Draft RMP/EIS should explain whether these types of areas are present in the planning area, whether existing land use allocations are sufficient to protect them, and whether ACEC designation or other place-based protections should be considered. At a minimum, BLM should not assume that plan-wide riparian measures are adequate for all aquatic resources without first evaluating whether certain places require more specific protection.

Author Credentials

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Attachment B

Natural Resource Economics

Summary of Some Anticipated Economic Costs from Increased Logging on BLM Lands

Prepared by Ernie Niemi **18 March 2026**

1. **Logging will kill jobs.** The outdoor recreation industry generates far more jobs than the timber industry, especially in rural counties. Converting healthy forests to stumps will kill these jobs.
   - The forestry and logging industry—which includes timber tract operations, forest nurseries and gathering of forest products, and logging—*"was in decline between 2005 and 2009 and has since leveled off"* at about 8,000 jobs statewide, and wages are below the state's average for all industries."[a]
   - Jobs in Oregon's primary forest products (veneer, plywood and engineered wood + sawmills and wood preservation + paper and pulp manufacturing) = 19,518.[b]

[a] Rooney, B. 2026. Oregon's Forestry and Logging Industry: From Planting to Harvest. Southern Oregon Business. Website.
[b] Oregon Forest Resources Institute. 2025. Oregon Forest Facts: 2015-2026 Edition. Website.

2. Logging will hurt taxpayers. BLM has a long record of taxpayer-subsidized timber sales; in recent years the agency's costs to execute timber sales and clean up the mess exceed receipts by 50 percent. Transferring 75 percent of receipts to local counties will reduce return to the Treasury to about one-sixth of the agency's expenditures.

[a] Talberth, J., and E. Niemi. 2019. Environmentally Harmful Subsidies in the U.S.: The Federal Logging Program. Center for Sustainable Economy.

3. Logging will hurt Oregonians. Logging BLM lands will depress incomes and economic activity, increase poverty, increase air pollution, degrade streams.

[a] Lower wages, higher poverty: Talberth, J., 2017. Modernizing State Forest Practices Laws to Halt and Reverse Deforestation. West Linn, OR: Center for Sustainable Economy; Air pollution: Aurell, J., and others. 2017. Emissions from Prescribed Burning of Timber Slash Piles in Oregon. Atmospheric Environment; Degrade streams: Green Oregon. 2021. Drinking Water – OPB – Oregon – Pro Publica. https://greenoregon.org/2021/01/22/drinking-water-opb-Oregon-pro-publica/; and Perry, Timothy P., and Julia A. Jones. 2017. Summer Streamflow Deficits from Regenerating Douglas-fir Forest in the Pacific Northwest.

4. Logging will hurt water users (recreation, urban, agriculture). Clear cuts reduce streamflows by 50%, and raise water temperatures in summer, and increase runoff in winter.[a] Intermediate logging will have similar impacts: higher risks of winter flooding, higher risks of water shortages and poor water quality in summer.

[a] Perry, Timothy P., and Julia A. Jones. 2017. Summer Streamflow Deficits from Regenerating Douglas-fir Forest in the Pacific Northwest; Atiyeh, B. 2023. How Intense Logging Degraded Water at a Popular Oregon Coast Town. Columbia Insight. Website; and Harr, D.R. 1986. Effects of Clearcutting on Rain-on-Snow Runoff in Western Oregon: A New Look at Old Studies. Water Resources Research.

5. Logging will reduce total value of goods and services. Value of lost ecosystem services will far outweigh value of logs.[a]

[a] BLM. 2016. Proposed Resource Management Plan/Final Environmental Impact Statement: Western Oregon. p. 657; HM Treasury. 2021. The Economics of Biodiversity: The Dasgupta Review; United Nations Environment Programme, and others. 2025. Global Environment Outlook Seventh edition-2025; and Krug, D., 2007. Preliminary Economic Analysis: Forest Practices Rulemaking Affecting Northern Spotted Owl Conservation. Olympia, WA: Department of Natural Resources.

6. Logging will intensify a carbon catastrophe. The timber industry has been Oregon's #1 source of CO2 emissions.[a] CO2 emissions cause heatwaves, wildfires, other extreme events. Logging on BLM lands will increase CO2 emissions and intensify extreme events.[1]

[a] Segerstrom, C. 2018. Timber is Oregon's Biggest Carbon Polluter. High Country News. Website; Law, B.E. and others. 2018. Land Use Strategies to Mitigate Climate Change in Carbon Dense Temperate Forests. PNAS; Hudiberg, T.W., and others. 2019. Meeting GHG Reduction Targets Requires Accounting for All Forest Sector Emissions . Environmental Research Letters; and Talberth, J., and E. Carlson. 2024. Forest Carbon Tax and Reward: Regulating Greenhouse Gas Emissions from Industrial Logging and Deforestation in the US. Environment, Development and Sustainability.
[b] BLM. 2016. Proposed Resource Management Plan/Final Environmental Impact Statement: Western Oregon. p. 657.

7. Logging BLM lands is not the best way to protect Oregonians from wildfire. Instead, protect people, homes, businesses, and infrastructure.[a]

[a] Keller, I. 2024. Headwaters Report: Time to Rethink Wildfire Management. Bozeman Chronicle. Website.

8. Logging must occur only with best available science. Extensive science and economics tell us logging these lands will harm ecosystems, water, Oregonians.[a]

[a] BLM. 2016. Proposed Resource Management Plan/Final Environmental Impact Statement: Western Oregon. p. 657; HM Treasury. 2021. The Economics of Biodiversity: The Dasgupta Review; United Nations Environment Programme, and others. 2025. Global Environment Outlook Seventh edition-2025; and Krug, D., 2007. Preliminary Economic Analysis: Forest Practices Rulemaking Affecting Northern Spotted Owl Conservation. Olympia, WA: Department of Natural Resources.

[1] BLM. 2016. Proposed Resource Management Plan/Final Environmental Impact Statement: Western Oregon. p. 657.

Attachment C

Date: March 23, 2026
NEPA Number: DOI-BLM-ORWA-0000-2026-0001-RMP-EIS
Project Name: Northwestern and Coastal Oregon and Southwestern Oregon Resource Management Plan Revision
Attachment C to Earthjustice et al. Comments

	A
1	**Document**
2	2025 National Post-Fire Recovery Environmental Assessment [EA] – Pre-scoping
3	64 Fed. Reg. 24049 (May 5, 1999), Designated Critical Habitat; Central California Coast and Southern Oregon/Northern California Coasts Coho Salmon
4	77 Fed. Reg. 32483 (June 1, 2012), Revised Critical Habitat for Northern Spotted Owl
5	85 Fed. Reg. 81144 (Dec. 15, 2020), Endangered and Threatened Wildlife and Plants; 12- Month Finding for the Northern Spotted Owl
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23	Beiler, Simard & Durall, Topology of tree–mycorrhizal fungus interaction networks in xeric and mesic Douglas-fir forests (2015)
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26	Bendix & Commons, Distribution and frequency of wildfire in California riparian ecosystems (2017)
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30	Besnard et al., Quantifying the effect of forest age in annual net forest carbon Balance. Environmental Research Letters, 13, 124018 (2018)
31	Bestelmeyer et al., Chapter 9: State and Transition Models: Theory, Applications, and Challenges (2017)
32	Betts et al., Squeezed by a habitat split:Warm ocean conditions and old-forest loss interact to reduce long term occupancy of a threatened seabird (2020)
33	Bevacqua et al., A year above 1.5 °C signals that Earth is most probably within the 20-year period that will reach the Paris Agreement limit (2025)
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57	BLM, FEIS for Revision of RMPs for Western Oregon Vol. 1 (2008)_Part 09
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59	BLM, FEIS for Revision of RMPs for Western Oregon Vol. 2 (2008)_Part 2
60	BLM, FEIS for Revision of RMPs for Western Oregon Vol. 2 (2008) Part 3
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65	BLM, FEIS for Revision of RMPs for Western Oregon Vol. 3 (2008)
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108	Cannon, Piovesan & Bosch, Old and ancient trees are life history lottery winners and vital evolutionary resources for long-term adaptive capacity (2022)
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116	Christiansen et al., Reforestation in Oregon. Tree Planters' Notes, 66 (2), pp. 4–27 (2023)
117	Clark et al., Good Fire II: Current Barriers to the Expansion of Cultural Burning and Prescribed Fire Use in the United States and Recommended Solutions (2024)
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136	Davis et al., Northwest Forest Plan—The First 25 Years (1994–2018): Status and Trends of Late-Successional and Old-Growth Forests (2022)
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146	Donnegan et al., Oregon's Forest Resources, 2001–2005: Five-Year Forest Inventory and Analysis Report (2008)
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