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March 17, 2025

Comments on proposed NWFP amendment
R6 – Pacific Northwest Region All Units
333 SW 1st Avenue
PO Box 3623
Portland, OR 97208-3623

Re: Northwest Forest Plan Amendment Draft Environmental Impact Statement

Regional Forester Buchanan and Regional Forester Eberlien:

WildEarth Guardians (Guardians) and Oregon Wild (collectively, Commenters) submit these comments regarding the U.S. Forest Service's Draft Environmental Impact Statement (DEIS) for the Northwest Forest Plan (NWFP) amendment. Guardians is a nonprofit conservation organization with offices in Washington, Oregon, and five other states. Guardians has nearly 200,000 members and supporters across the United States and works to protect and restore wildlife, wild places, wild rivers, and the health of the American West. Guardians and its members have specific interests in the health and resilience of public lands and waterways.

Oregon Wild has more than 20,000 members and supporters and its mission is to protect and restore Oregon's wild lands, wildlife, and waters as an enduring legacy for future generations. Oregon Wild has been involved in the management of Oregon's national forests since the organization's inception in 1974 as the Oregon Wilderness Association. Oregon Wild's advocacy continued through the 1980s, 1990s, and early 2000s as the Oregon Natural Resources Council. Throughout its existence, Oregon Wild has advocated for and defended strong habitat protections and ecologically appropriate management of Oregon's forests and streams.

COMMENTS

I. The DEIS fails to disclose that the proposed NWFP amendment is part of a much broader agenda to increase logging nationwide, with a specific focus on the Pacific Northwest.[1]

The proposed amendment of the NWFP is not occurring in a vacuum. Rather, it is part of a broader plan to dramatically increase the volume of trees that are sold and cut down on national forest lands across the country. This fact is never disclosed in the DEIS, a glaring omission considering that the Forest Service has identified the Pacific Northwest Region as one of the regions that "should have the greatest increase in total timber volume sold." Amending the NWFP is central to that ill-conceived Forest Service goal.

A. Timber Target Report

In April 2022, the Forest Service issued a report outlining how it could "achieve and sustain" a higher timber target.[2] At the outset, the agency explained that it had already increased timber volume output to an average of 3.08 BBF over a 5-year period ending in FY21, "higher than any period in the previous few decades."[3] The Forest Service did this by "substantially increasing the use of the new stewardship and [Good Neighbor Agreement] authorities provided in the FY 2018 Omnibus Appropriation's bill and 2018 Farm Bill," which the agency says are "helping us increase vegetation treatments on National Forest System lands."[4] The Forest Service said it had "increased training on the use of the new authorities" in order to "continue the expansion of the timber program[.]"[5]

According to the Forest Service, by the end of FY21, the recent increase in timber volume output to a 5-year average of 3.08 BBF had already "outpaced the agency's ability to prepare enough project areas and has exhausted most of the agency's available NEPA-approved projects."[6] And with "additional increases planned for the upcoming years," the Forest Service said it was "increasing [its] effort in preparatory work to achieve and sustain this higher volume sold output."[7] In order to "develop, implement, and administer more timber sales to attain an increased target," the Forest Service stated that "a reallocation of agency support staff for administrative, human resources, finance, information technology, and related functions must also be prioritized to support this effort.[8]

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[1] Much of what is discussed in this section is also provided in this StoryMap: Getting the Cut Out: How the Forest Service Is Cutting Forest Protections to Boost Logging in the Pacific Northwest (Mar. 11, 2025), https://storymaps.arcgis.com/stories/95e01949e33341a993f977c57cbf3c20.
[2] Timber Target Report, 1 (Ex. 1).
[3] *Id*.
[4] *Id*.
[5] *Id*.
[6] *Id*.
[7] *Id*.
[8] *Id*. at 2.

Indeed, staffing issues is one of the "barriers" the Forest Service said prevented it from further increasing timber volume outputs.[9] Other so-called barriers the Forest Service claimed prevented it from increasing timber volume outputs included old-growth protections in Alaska, inadequate funding for roads, and litigation.[10] Regarding the latter, the Forest Service expressed its desire to limit the public's participation in land management decisions, stating that Congress should enact "a Cottonwood fix and other legislative fixes to address the challenges created by litigation on timber sales[.]"[11] Such "fixes," the Forest Service said, would "help increase timber volume sold."[12]

Regarding the location of further timber volume increases, the Forest Service said "the Pacific Northwest, Eastern, and Southern Regions should have the greatest increase in total volume sold."[13] In order to do that, the Forest Service said it continues to "actively pursue updating land management plans" (like the NWFP) and to "promote areas where there has been limited harvesting opportunities."[14]

B. Pushing the Pacific Northwest Region to "have the greatest increase in total volume sold."

Four months after the Timber Target Report was issued and the Pacific Northwest identified as one of the regions that "should have the greatest increase in total volume sold," the Regional Forester at the time sent a letter to all forest supervisors in Region 6 outlining a "5-Year Strategy to ensure consistent and predictable timber production and hazardous fuels reduction activities."[15] According to the letter, wildfires and litigation had recently "impacted our ability as a Region to deliver on expectations" and that future "success" would be "contingent upon a robust and expanding forest products and service industry."[16] "Moving forward," the Regional Forester continued, "I have made the decision to establish an active management strategy for each Forest and the Region as a whole."[17] This strategy required each national forest in the Pacific Northwest Region to "maintain at least 3 years of NEPA shelf stock and one year of prep shelf stock or '3+1' strategy for commercial timber production at the designated FY26 achievement level," between 630 – 700 MMBF timber volume sold.[18]

Two months later, in October 2022, the Forest Service attended a meeting with the Federal Timber Purchasers Committee (FTPC), the "principal point of communication between the Forest Service and the timber industry[.]"[19] According to FTPC, one of its primary roles is to

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[9] *Id*.
[10] *Id*.
[11] *Id*.
[12] *Id*.
[13] *Id*.
[14] *Id*.
[15] Glenn Casamassa letter to Forest Supervisors (Aug. 25, 2022) (Ex. 2) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[16] *Id*.
[17] *Id*.
[18] *Id*.
[19] FTPC Meetings, PDF p. 49 (Oct. 27, 2022) (Ex 3) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).

"provide support to federal agencies to **maximize their ability to meet forest plan timber production goals**."[20] The FTPC meets twice a year and the Forest Service and Bureau of Land Management (BLM) are invited to attend and also hold their own "parallel, independent meetings involving their timber program staff leaders from both the National office and each Forest Service region."[21] After the independent meetings, the industry and agencies "hold a joint meeting to find common ground an[d] pursue solutions."[22]

One of the "top issues" of discussion at October 2022 meeting concerned FTPC's demand that the Forest Service increase its "timber program outputs" on national forest lands and consider how forest plans are potentially limiting those outputs:

> Forest planning must take a hard look at suitable acres, standards and guidelines, desired future conditions, resource objectives, budget limitations, and social and economic sustainability, and must not unnecessarily limit forest management strategies and timber outputs. "Support existing infrastructure" should be in the Purpose and Need of all forest management NEPA documents.[23]

The FTPC told the Forest Service to "use timber harvest, implemented using streamlined authorities . . . which will contribute to increased 'pace and scale', efficiencies, and outputs."[24]

Four months after the October 2022 FTPC meeting, in February 2023, the Forest Service Chief increased the national timber target to 4 BBF annually "starting with an incremental increase in FY23 to 3.45 [BBF]."[25] The Chief expected the Pacific Northwest Region's share of the national target to increase from 575 MMBF in FY23 to 653 MMBF in FY24.[26]

The same month that the Chief increased the national timber target to 4 BBF, the Pacific Northwest Region drafted an internal article about the 3+1 Strategy and its intent to "expedite the pace and scale of vegetation management" and "produce a predictable and consistent amount of timber" through FY26.[27] Although initial implementation of the 3+1 Strategy meant a "temporary scaling back of timber volume" in order to build the "shelf stock" required to "increase out-year volume expectations," the Forest Service explained that "if industry is able to weather the storm for the next couple of years and all the forests are delivering . . . [t]hen the industry is fully onboard" and [i]t is our intention to make sure we get there."[28] The Forest

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[20] *Id*. at 50 (emphasis added).
[21] *Id*. at 51.
[22] *Id*.
[23] *Id*. at 52.
[24] *Id*. These "streamlined" authorities include Designation by Prescription (DxP), Designation by Description (DxD), fire liability in Integrated Resource Service Contracts, Good Neighbor Authority, Insect & Disease Treatment Acres, Hazardous Fuels CE, and virtual boundaries. *Id*.
[25] David Lytle email re FY2023 timber target assignments and GNA/TFPA funding update (Feb. 23, 2023) (Ex. 4) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[26] *Id*. at 4.
[27] '3+1 Model' to equate to stable timber volumes (Feb. 2023) (Ex. 5) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[28] *Id*.

Service concluded that "[w]ith a need to see acres treated and volume produced, **all hands are on deck to do what is needed to move the machine forward**."[29]

C. Moving the machine forward to higher timber targets means weakening core NWFP protections for wildlife.

Two months later, in April 2023, the Forest Service drafted a briefing paper for Rep. Derek Kilmer explaining how it was "working to provide a more consistent supply of timber in alignment with the Region's '3+1 strategy' and is making substantial investments in additional road work to increase the attractiveness of future timber sales."[30] The Forest Service also stated that "[c]ontinued investments are being made in planning and timber sale prep to ensure the Olympic National Forest rebuilds its timber program more in alignment with historic production levels."[31]

However, the Forest Service explained to Rep. Kilmer that habitat protections in the NWFP threatened the Forest Service's ability to return to those "historic production levels." Specifically, the Forest Service said that although the "availability of forest stands that can be thinned are currently increasing," they "will drop below current levels after 2040 and continue to decline under current Northwest Forest Plan restrictions" thereafter.[32] The implication was clear – by 2040, enough LSR stands would exceed 80 years of age, triggering restrictions on logging. The Forest Service considered those logging restrictions as an impediment to its ability to "rebuild" the Olympic National Forest's timber program.

Similar sentiments about restrictions on logging in LSRs were expressed in a 2018 email about the timber program on the Okanogan-Wenatchee National Forest. In the email, the Forest Silviculturist discussed the status of a NEPA analysis on the FY18 timber program. The Forest Silviculturist pointedly stated that "the LSR stuff is what is keeping us from ever developing any kind of shelf stock and making us live hand-to-mouth every year."[33]

This antipathy toward habitat protections in the NWFP was also expressed by the timber industry. In 2018, the Associated Oregon Loggers (AOL) wrote to the Forest Service with a list of so-called "regional improvement initiatives" for national forests in Oregon. The letter criticized the Forest Service because the Forest Service, according to AOL, had "wandered toward ecological preeminence since 1990[.]"[34] AOL blamed this "ecological preeminence" for the Forest Service's "inefficiencies and failures at delivering effective forest management outcomes" (i.e., logging).[35] AOL characterized this "ecological preeminence" as a "deficiency"

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[29] *Id*. (emphasis added).
[30] Briefing Paper for Rep. Derek Kilmer (Ex. 6) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[31] *Id*.
[32] *Id*.
[33] February 2018 email about Okanogan-Wenatchee National Forest timber program, 1 (Ex. 7) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[34] Associated Oregon Loggers Letter, 3 (Apr. 2, 2018) (Ex. 8) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[35] *Id*.

and "barrier" that "trammel" its economic interests in logging national forest lands.[36] AOL recommended that instead of focusing on "ecological preeminence," the Forest Service should "[a]uthorize and reward effective tradeoff" between environmental and economic interests.[37]

Another "deficiency" and "barrier" that AOL identified were "outdated Oregon forest plans," including the NWFP, which AOL described as "politically-drawn."[38] AOL recommended that new plans be should "supersede prior amendments/revisions/settlement" with new procedures that "integrate socio-economic & environment."[39] AOL said the "best" forest plans are those with "fewer standards and guides."[40]

More recently, the Forest Service again identified the NWFP as a problem for its timber program. In a 2024 document, the Regional Office provided a list of things it said are impacting its timber program, one of which was the "NWFP amendment."[41] This almost certainly does not refer to the current amendment process, which is intended to increase the amount of land available for logging, but rather the original NWFP, which was itself an amendment to existing forest plans at the time.[42]

D. A weakened NWFP paired with existing authorities to expedite environmental review will result in more logging to meet higher timber targets.

In addition to weakening habitat protections in the NWFP, the Forest Service and timber industry have identified a slew of "tools" to increase logging once those protections are weakened.[43] On April 19, 2023, the Regional Office and FTPC had a discussion in preparation for their "breakout session" at their upcoming May 2023 meeting. The Forest Service told FTPC that it is "seeking efficiencies with NEPA documents and guide development," which includes "streamlining authorities like CE's and Emergency Authorizations."[44] The Forest Service also assured the timber industry that it would be "as aggressive as possible" in meeting that year's timber target.[45]

At the May 2023 meeting, FTPC took credit for getting some of these "efficiencies." In a PowerPoint presentation at its May 2023 meeting, FTPC explained how it had successfully lobbied for "16 New Authorities for expedited management on the National Forests."[46] That

[36] *Id*. at 5.
[37] *Id*.
[38] *Id*. at 10.
[39] *Id*.
[40] *Id*.
[41] Impacts to USFS timber program (Ex. 9) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[42] *See* U.S. Forest Serv., *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl*, S-5 (Feb. 1994) ("The action will amend the management direction established in all existing Forest Service and BLM land management plans for the areas and resources covered by the SEIS.").
[43] *See, e.g.*, *supra* note 24.
[44] Ex. 3 at PDF p. 255.
[45] *Id*. at PDF p. 257.
[46] Id. at PDF p. 127.

included "Expedited NEPA (CE's or Streamlined EA's) available for over 74 million acres of the NFS" and "Expanded Good Neighbor Authority."[47]

Despite the Forest Service telling the industry that it will be "as aggressive as possible" in getting more timber sales approved, FTPC was unsatisfied with the Forest Service's "inadequate use" of these new authorities.[48] That is because the Forest Service "only approved 8 fuel breaks using new authority, with only 5 more in the works."[49] FTPC told the Forest Service that this was not "aggressive enough" and that it needed to further "[e]xpand use of expedited authorities" like the Fuel Break CE and Emergency Actions Authority.[50]

On May 3, 2023, the Forest Service met with FTPC in Denver and discussed the direction of the timber program in conjunction with recent federal funding increases. According to Deputy Chief Chris French, although much of that funding "came in the form of fuels reduction," the Forest Service has been "creative in doing fuels reduction that produces volume and forest products."[51] Later in the meeting, an FTPC representative expressed "concern that non-commercial treatments will pull resources that are focused on commercial treatments[.]"[52] Deputy Chief French responded "[o]ffer the projects up with commercial treatments and we will figure out the utilization of the products."[53] Another Forest Service official explained that "Fuels and Veg management are symbiotic in nature."[54] This exposes how the Forest Service exploits the threat of fire as a pretext in order to "produce volume and forest products."[55]

That exploitation is demonstrated by another "tool" that the DEIS utterly fails to discuss in any detail whatsoever: potential operational delineations (PODs) and potential control locations (PCLs). PODs are "spatial units or containers defined by potential control features, such as roads and ridge tops, within which relevant information on forest conditions, ecology, and fire potential can be summarized."[56] PODs are intended to help land managers "develop a common understanding of risks, management opportunities, and desired outcomes to determine fire management objectives."[57] In other words, PODs and PCLs are quintessential "forest planning" topics that must be discussed in the context of this amendment.

However, PODs and PCLs are mentioned just once in the DEIS as an example of a "potential management approach" to "inform prioritization, planning, and implementation of fuels

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[47] *Id*.
[48] *Id*. at PDF p. 161.
[49] *Id*.
[50] *Id*. at PDF p. 162.
[51] *Id*. at PDF p. 31.
[52] *Id*. at PDF p. 32.
[53] *Id*.
[54] *Id*.
[55] *See also*, Nathan Gilles, EXCLUSIVE: The Forest Service is using the threat of wildfire to meet timber targets (Feb. 6, 2025), https://columbiainsight.org/exclusive-the-forest-service-is-using-the-threat-of-wildlfires-to-meet-timber-targets/.
[56] USFS-Rocky Mountain Research Station, *Potential Operational Delineations (PODs)*, https://research.fs.usda.gov/rmrs/projects/pods. Note that "potential control features" is used interchangeably with "potential control locations" or "potential control lines."
[57] *Id*.

treatments in areas with overlapping social and ecological benefits."[58] Such "fuels treatments" would be prioritized "in areas affecting community and infrastructure that are at risk to wildfires, within Late-Successional Reserves, Matrix, Adaptive Management Areas, and Riparian Reserves."[59] PODs and PCLs are essentially a new land use allocation that will overlay much of the NWFP area but their development, use, and efficacy are not being discussed at all in the context of this amendment, a fundamental flaw.

Use of PODs and PCLs are already under use in multiple Forest Service Regions, including Region 6, and their use is only expected to increase. According to the Forest Service during a meeting with FTPC, Region 2 "has been incorporating fuels objectives into timber contracts since 2018" and "[t]he new PODs work integration further with multi-year planning and implementation dollars available for the project."[60] Later in the meeting, FTPC asked the Forest Service what kind of "emergency actions" it was using and cited "GMUG example NEPA for PODS."[61] In response, the Forest Service said it had submitted at least "4 requests tied to POD funding" for emergency approval.[62] FTPC followed up to "[r]equest for public review projects with no objection or review process" and to not "set commercial acres aside in PODS with no appeal or objection process."[63] The Forest Service assured FTPC, "[i]f you are under emergency designation, WO process moves through [the emergency action] portal to solution and take action."[64]

Similarly, in Region 4, FTPC told the Forest Service to "[r]equest as many projects as FS can on BIL CE Authority," to which the Forest Service responded: "working in PODS to align and plan use of the NEPA emergency authorities."[65] These meetings demonstrate a remarkable degree of cooperation between the Forest Service and the timber industry to exclude the public as much as possible from decisions affecting national forest lands. And PODs and PCLs are now being used in the Pacific Northwest Region.

In FY23, the Willamette National Forest launched a POD/PCL pilot project in partnership with the timber industry.[66] In FY24, funding for this pilot project resulted in:

- 5,221 acres of proposed logging (commercial and non-commercial)
- 303 miles of road maintenance for access
- 31,681 acres of surveys for phased implementation on an additional 163 miles of roads.[67]

At a meeting with the American Forest Resource Council (AFRC), the Forest Service provided a handout that included information on this pilot project on the Willamette National Forest.

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[58] DEIS 2-22; *see also* App. A1-27.
[59] DEIS App. A1-26.
[60] Ex. 3 at PDF p. 191.
[61] *Id*. at PDF p. 192.
[62] *Id*.
[63] *Id*.
[64] *Id*.
[65] *Id*. at PDF p. 203.
[66] *Id*. at PDF p. 45.
[67] *Id*.

According to the handout, the Forest Service is "work[ing] with industry and [mak[ing] strategic investments in active management building off potential operational delineations (PODs)."[68] The Forest Service said the work on PODs "builds from strong working relationships between the Forest Service and industry" and the Forest Service "seek[s] to lean on innovative ideas through industry to accelerated establishment of PODs."[69]

This "accelerated establishment of PODs" is moving forward without any kind of programmatic analysis. In July 2024, the Gifford Pinchot National Forest proposed a POD/PCL project called the Forest Wide Thinning & Potential Control Line Treatments Project.[70] Within the PODs, the Forest Service proposes 3,000 acres of thinning in plantation stands per year while it proposes 1,000 acres thinning along major roads (up to 500 feet on each side) per year for approximately the next 60 years.[71] While this project is focused on current plantation stands (under 80 years old), it is not too difficult to imagine a revised scoping notice increasing the age to 120 years old if the proposed NWFP amendment is approved in its current form.

Through intense lobbying by the timber industry, the Forest Service has a slew of expedited and emergency authorities to approve timber sale projects faster, with less detailed environmental review and less public participation. Now, the Forest Service plans to make even more forest in the NWFP area available for logging. And the DEIS fails to consider in any detail the "accelerated establishment of PODs" that are certain to increase the pace and scale of logging even more. On this latter point, the Forest Service should revise or supplement the DEIS to disclose the full scope of planned PODS and PCLs so that the public has an opportunity to comment on them at a programmatic scale.

E. Constant pressure to meet timber targets combined with weakened NWFP protections will significantly affect habitat for wildlife and fish.

The constant push to meet timber targets puts Forest Service staff under immense pressure. On June 16, 2017, the Regional Leadership Team (RLT) met to discuss the "Chief's expectations for FY18 and beyond."[72] The RLT indicated that the Chief issued "clear direction and intention" to "increase acres treated and volume output" and increase the national annual timber target to 4 billion board feet (BBF) by FY20.[73] The RLT then explained that its contribution to reaching the 4 BBF timber target could only be accomplished by "doing business differently."[74] That meant:

[68] 2023 AFRC Annual Meeting Handout 1 (Ex. 10) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[69] *Id*.
[70] Gifford Pinchot National Forest, Forest Wide Thinning & Potential Control Line Treatments Project (July 1, 2024), https://www.fs.usda.gov/project/giffordpinchot/?project=65884.
[71] *See* Forest Wide Thinning & Potential Control Line Treatments Scoping Notice 5-6.
[72] Chief's expectations for FY18 and beyond (Ex. 11) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[73] Id.
[74] Id.

> Tak[ing] a hard look at how we are doing NEPA – are we doing more analysis than is necessary; can we take more risk in some areas (WO may send out guidance on this aspect).[75]

Since at least 2017, the Pacific Northwest Region has been doing everything it can to take "more risk," making Forest Service look for every conceivable way to increase the amount of logging while at the same time reducing the amount of detailed environmental analysis and opportunities for public comment. Job performance is based on how many trees are sold and cut down:

> [I]t is critical that we **take advantage of all the tools** that we have available to us to implement an integrated restoration program. These include, but are not limited to, simpler NEPA analysis, virtual boundaries, weight scaling, DxP, DxD, Good Neighbor, Tribal Forest Protection Act and stewardship contracting authorities. **Just as use of these types of tools are part of my performance standards, they will also be part of your performance standards**.[76]

The pressure to meet timber targets does not just affect those in the timber program. For example, in a May 2018 email, the head of the Region's Threatened and Endangered Species (TES) Program expressed dismay that Forest Service staff on the Mt. Baker-Snoqualmie National Forest might miss their timber target "due to their consultation challenges."[77] The TES Program Manager said they were:

> trying to help them find options . . . but am at a loss for ideas. They are very concerned of not meeting this year's timber target as a result of T&E issues and I feel horrible for that.[78]

This underscores the perverse nature of having timber targets in the first place. Forest Service staff ***whose primary job is the protection of threatened and endangered species*** should not be "at a loss for ideas" about how the agency can get around "consultation challenges" in order to meet timber targets.

More recently, this lack of concern for the protection of species habitat was made clear on the Siuslaw National Forest. On February 22, 2023, the Regional Office prepared a spreadsheet of FY23 timber target assignments to units.[79] The initial FY23 timber target for the Siuslaw National Forest was 40 million board feet (MMBF). However, another 5 MMBF was added as "additional capability" for a final FY timber target of 45 MMBF.[80] That increase led to internal

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[75] Id.
[76] FY 2018 Funding for 5-Year Integrated Restoration Plans (Dec. 21, 2017) (Ex. 12) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[77] MBS Consultation with FWS and NMFS (May 3, 2018) (Ex. 13) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[78] *Id*.
[79] FY23 R6 Final Timber Volume Sold Target Assignment to Units (Column G), 2-22-23 (Ex. 14) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[80] *Id*.

"complaints about scraficing auatics [sic] work for additional 5 mmbf."[81] It is deeply troubling when Forest Service staff are warning about "sacrificing aquatics" in order to sell an additional 5 MMBF of trees.

But perhaps the Forest Service thinks that "sacrificing aquatics" is an acceptable tradeoff when the Region's funding depends on meeting timber targets. For example, on June 9, 2023, the Regional Office had a "timber target check-in" meeting with staff that provided an overview of assigned timber targets and a report from each forest documenting how much timber volume they can contribute in order for the Region to meet the assigned target. Regional staff explained that the current national timber target is 3.45 BBF and would increase to 3.6 BBF in FY24 and to 4 BBF in FY26.[82] The pressure to meet these targets is obvious – at one point, Regional leadership explains that because the region "came up short" in meeting the previous year's timber target, "it set a bad precedent that R6 is not a good investment."[83] As a result, the Region's "NFTM dollar were reduced and sent to R8 & R9."[84] In other words, regions are fiscally punished for not meeting assigned timber targets.

During this same meeting, Regional leadership lamented that current timber volume numbers "are dismal" and that "[w]e have a lot of ground to make up!"[85] Regional staff reminded forests that recent congressional funding is "in the system and we have some tools to help us . . . Utilize the tools!"[86] The meeting then turned to each forest to provide an update on their "expected attainment by end of FY, additional attainment that could be offered, [and] any major obstacles to achieving assigned target."[87]

The notes from this meeting underscore the immense pressure that is placed on Forest Service staff to do everything they can possibly do to "move the machine forward" in order to meet assigned timber targets. And with the Pacific Northwest identified as one of the regions to have the "greatest increase in total volume output," the expedited authorities to expedite site-specific logging projects are a necessary but insufficient means to keep that machine moving forward. In order to take advantage of these expedited authorities, the Forest Service needs to have more land available where they can be used. And weakening the NWFP is instrumental to that end.

II. Keeping the Machine Fed

The Forest Service states that Alternative B would increase logging between 660,000 to 810,000 acres per decade with between 5.9 to 13.5 BBF sold per decade.[88] That means the just the NWFP

[81] *Id*.
[82] Timber target check-in 1 (June 6, 2023) (Ex. 15) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[83] *Id*.
[84] *Id*. Note, NFTM is the "forest products" program code used for "expenses necessary to inventory, develop, prepare, and update commercial timber resource information for timber analysis and monitoring at the project level[.]" FSH 6509.11g, Ch. 30, Amend. 6509.11g-2020-1, p. 16 (Feb. 27, 2020).
[85] *Id*. at 2.
[86] *Id*. at 1.
[87] *Id*. at 1-2.
[88] DEIS 3-33.

area part of Region 6 would be expected to sell 590 MMBF to 1.35 MMBF each year. The lower end of this range exceeds the FY23 timber target for all of Region 6 and is 90% of the Region's FY24 timber target.[89] The upper end of this range would exceed the entire Region's FY24 target by double.[90] The Forest Service proposes several changes to the NWFP to make it easier to cut trees in order to "move the machine forward" for years to come.

A. Late-Successional Reserves

Perhaps the most significant change in the proposed amendment is how management would change in LSRs. The Forest Service proposes to increase the definition of young forest stands in moist LSRs from 80 to 120 years old.[91] The Forest Service also proposes to allow logging in moist LSRs to "restore habitat for [ ] species that depend upon younger stands."[92] These proposed changes are intended to make it easier for the Forest Service to meet increasing timber targets going forward.

Increasing the stand age where logging can occur in moist LSRs to 120 years old would open 824,000 additional acres in moist LSRs to logging.[93] Moreover, allowing logging in moist LSRs to create conditions for "species that depend upon younger stands" eviscerates the entire concept of LSRs.

According to the original NWFP, LSRs are areas that "would be managed to protect and enhance conditions of late-successional and old-growth forest ecosystems, which serve as habitat for late-successional and old-growth related species including the northern spotted owl."[94] LSRs were "designed to maintain a functional, interacting, late-successional and old-growth forest ecosystem."[95] Any logging in LSRs was supposed to be for the sole purpose of "accelerat[ing] the development of old-growth habitat conditions."[96]

The proposed changes in moist LSRs essentially ends the Forest Service's obligation to "maintain a functional, interacting, late-successional and old-growth forest ecosystem."

B. Matrix

The Forest Service's proposed changes related to Matrix lands would further ensure that the machine is fed to meet higher timber targets. The Forest Service proposes to use arbitrary stand establishment dates that are intended to eliminate mature and old-growth stands from the landscape over time. Once eliminated, the Forest Service will have more acreage it can dedicate solely to timber production.

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[89] *Compare* DEIS 3-33 *with* Ex. 4, p. 4.
[90] *Id*.
[91] DEIS 3-25 – 3-26.
[92] *Id*.
[93] DEIS 3-26.
[94] 1994 NWFP FSEIS, S-8.
[95] *Id*.
[96] *Id*.

On moist Matrix lands, the Forest Service proposes to define mature stands as those "established by" 1905 and old-growth stands as those "established by" 1825.[97] On dry Matrix lands, the Forest Service proposes to define old-growth not by stand establishment dates but rather for individual "trees established before 1850."[98]

With firm stand or tree establishment dates, mature and old-growth forests remaining on Matrix lands will eventually be lost and never replaced. For example, there are 417,000 acres of moist forest stands in the Matrix that were established before 1825.[99] As stand replacement events caused by natural disturbance events like fire and wind affect these forests, they will acquire a new "establishment" date and lose any ostensible protections they had. This will lead to a steady increase in the amount of land where it will be easier to approve logging.

III. The Forest Service improperly dismissed the proposed action's effects to its road system and related environmental consequences.

The Forest Service states that "[i]t is possible that the forest road networks could be affected by project/treatment-specific actions authorized by the proposed amendment.[100] However, the Forest Service claims that because the "scope, extent, and location of these effects cannot be determined at this time . . . this topic was dismissed from further analysis.[101] This was a mistake, especially considering the large increases in logging that are planned for under the proposed action.

A. Impacts of Transportation Infrastructure and Access to the Ecological Integrity of Terrestrial and Aquatic Ecosystems and Watersheds

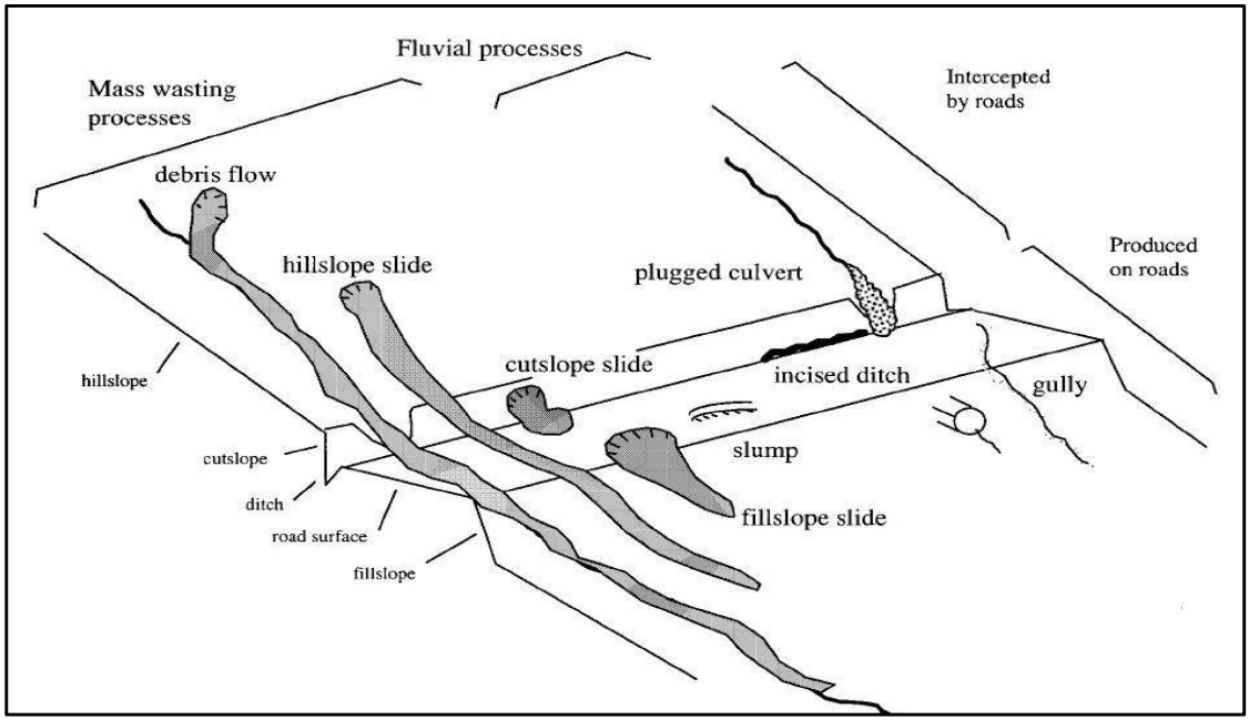
1. Impacts on geomorphology and hydrology

The construction and presence of forest roads can dramatically change the hydrology and geomorphology of a forest system leading to reductions in the quantity and quality of aquatic habitat (Al-Chokhachy et al. 2016). While there are several mechanisms that cause these impacts (Wemple et al. 2001, Figure 1), most fundamentally, compacted roadbeds reduce rainfall infiltration, intercepting and concentrating water, and providing a ready source of sediment for transport (Wemple et al. 2001). In fact, roads contribute more sediment to streams than any other land management activities on Forest Service lands (Gucinski et al. 2000). Surface erosion rates from roads can be up to three orders of magnitude greater than erosion rates from undisturbed forest soils (Endicott 2008).

Erosion and sediment produced from roads occur both chronically and catastrophically. Every time it rains, sediment from the road surface and from cut-and fill-slopes is picked up by rainwater that flows into and on roads (fluvial erosion). The sediment that is entrained in surface flows are often concentrated into road ditches and culverts and directed into streams. The degree

[97] DEIS 3-
[98] *Id*.
[99] *Id*.
[100] DEIS 1-12.
[101] *Id*.

of fluvial erosion varies by geology and geography, and increases with increased motorized use (Robichaud et al. 2010). Closed roads produce significantly less sediment than open drivable roads (Sosa Pérez and Macdonald 2017, Foltz et al. 2009).



Typology of erosional and depositional features produced by mass-wasting and fluvial processes associated with forest roads (from Wemple et al. 2001).

Roads also precipitate catastrophic failures of road beds and fills (mass wasting) during large storm events leading to massive slugs of sediment moving into waterways (Gucinski et al. 2000, Endicott 2008). This typically occurs when culverts are undersized and cannot handle the volume of water funneled through them, or they simply become plugged with debris and sediment. The saturated roadbed can fail entirely and result in a landslide, or the blocked stream crossing can erode the entire fill down to the original stream channel.

The erosion of road- and trail-related sediment and its subsequent movement into stream systems affects the geomorphology of the drainage system in a number of ways. It directly alters channel morphology by embedding larger gravels as well as filling pools. It can also have the opposite effect of increasing peak discharges and scouring channels, which can lead to disconnection of the channel and floodplain, and lowered base flows (Gucinski et al. 2000). The width/depth ratio of the stream changes can trigger changes in water temperature, sinuosity and other geomorphic factors important for aquatic species survival (Trombulak and Frissell 2000).

2. Impacts on aquatic habitat and fish

Roads can have dramatic and lasting impacts on fish and aquatic habitat. Increased sedimentation in stream beds has been linked to decreased fry emergence, decreased juvenile densities, loss of winter carrying capacity, increased predation of fish, and reductions in macro-invertebrate

populations that are a food source to many fish species (Gucinski et al. 2000, Endicott 2008). Roads close to streams reduce the number of trees available for large wood recruitment, and reduce stream-side shade (Meredith et al. 2014.) On a landscape scale, these effects add up to: changes in the frequency, timing and magnitude of disturbance to aquatic habitat and changes to aquatic habitat structures (e.g., pools, riffles, spawning gravels and in-channel debris), and conditions (food sources, refugia, and water temperature) (Gucinski et al. 2000).

Roads also act as barriers to migration and fragment habitat of aquatic species (Gucinski et al. 2000). Where roads cross streams, road engineers usually place culverts or bridges. Undersized culverts interfere with sediment transport and channel processes such that the road/stream crossing becomes a barrier for fish and aquatic species movement up and down stream (Erikinaro et al. 2017). For instance, a culvert may scour on the downstream side of the crossing, actually forming a waterfall up which fish cannot move. Undersized culverts can infringe upon the channel or floodplain and trap sediment causing the stream to become too shallow and/or warm such that fish will not migrate past the structure. Or, the water can move through the culvert at too high a gradient or velocity to allow fish passage (Endicott 2008).

River fragmentation is problematic for many aquatic species but especially for anadromous species that must migrate upstream to spawn. Well-known native aquatic species affected by roads include salmon such as coho (*Oncorhynchus kisutch*), Chinook (*O. tshawytscha*), and chum (*O. keta*); steelhead (*O. mykiss*), a variety of trout species including bull trout (*Salvelinus confluentus*) and cutthroat trout (*O. clarki*), as well as other native fish and amphibians (Endicott 2008). The restoration and mitigation of impassable road culverts has been found to restore connectivity and increase available aquatic habitat (Erikinaro et al. 2017), and the quality of aquatic habitat (McCaffery et al. 2007).

3. Impacts on terrestrial habitat and wildlife

Roads and trails impact wildlife through a number of mechanisms including: direct mortality (poaching, hunting/trapping), changes in movement and habitat-use patterns (disturbance/avoidance), as well as indirect impacts including altering adjacent habitat and interference with predator/prey relationships (Coffin 2007, Fahrig and Rytwinski 2009, Robinson et al. 2010, da Rosa and Bager 2013). Some of these impacts result from the road itself, and some result from the uses on and around the roads (access). Ultimately, numerous studies show that roads reduce the abundance, diversity, and distribution of several forest species (Fayrig and Ritwinski 2009, Benítez-López et al. 2010, Munoz et al. 2015).

a. Abundance and distribution

The extensive research on roads and wildlife establishes clear trends of wildlife population declines. Fahrig and Rytwinski (2009) reviewed the empirical literature on the effects of roads and traffic on animal abundance and distribution looking at 79 studies that addressed 131 species. They found that the number of documented negative effects of roads on animal abundance outnumbered the number of positive effects by a factor of 5. Amphibians, reptiles, and most birds tended to show negative effects. Small mammals generally showed either positive effects or no effect, mid-sized mammals showed either negative effects or no effect, and large

mammals showed predominantly negative effects. Benítez-López et al. (2010) conducted a meta-analysis on the effects of roads and infrastructure proximity on mammal and bird populations. They found a significant pattern of avoidance and a reduction in bird and mammal populations in the vicinity of infrastructure. Muñoz et al. (2015) found that many insect populations have declined as well.

b. Direct mortality, disturbance, and habitat modification

Road and motorized trail use affect many different types of species. For example, trapping, poaching, collisions, negative human interactions, disturbance and displacement significantly impact wide ranging carnivores (Gaines et al. 2003). Hunted game species such as elk (*Cervus canadensis*), become more vulnerable from access allowed by roads and motorized trails resulting in a reduction in effective habitat among other impacts (Rowland et al. 2005). Slow-moving migratory animals such as amphibians, and reptiles who use roads to regulate temperature, are also vulnerable (Gucinski et al. 2000, Brehme et al. 2013). Roads and motorized trails also affect ecosystems and habitats because they are major vectors of non-native plant and animal species (Gelbard and Harrison 2003). This can have significant ecological and economic impacts when aggressive invading species overwhelm or significantly alter native species and systems.

c. Habitat fragmentation

At the landscape scale, roads fragment habitat blocks into smaller patches that may not be able to support interior forest species. Smaller habitat patches result in diminished genetic variability, increased inbreeding, and at times local extinctions (Gucinski et al. 2000; Trombulak and Frissell 2000). For example, a narrow forest road with little traffic was a barrier in Arizona to the Mt. Graham red squirrel (*Tamiasciurus hudsonicus grahamensis*; Chen and Koprowski 2013). Fragmentation intensifies concerns about grizzly bear population viability, especially since roads increase human/bear interactions exacerbating the problem of excessive mortality (Proctor et al, 2012)

Roads also change the composition and structure of ecosystems along buffer zones, called edge-affected zones. The width of edge-affected zones varies by what metric is being discussed; however, researchers have documented road-avoidance zones a kilometer or more away from a road (Robinson et al. 2010; Table 2). In heavily roaded landscapes, edge-affected acres can be a significant percentage of total acres. For example, in a landscape where the road density is 3 mi/mi^2 and where the edge-affected zone is estimated to be 500 ft from the center of the road to each side, the edge- affected zone is 56% of the total acreage.

Table 2: A summary of some documented road-avoidance zones for various species (adapted from Robinson et al. 2010).

Species	Avoidance zone m (ft)	Type of disturbance	Reference
Snakes	650 (2133)	Forestry roads	Bowles (1997)
Salamander	35 (115)	Narrow forestry road, light traffic	Semlitsch (2003)
Woodland birds	150 (492)	Unpaved roads	Ortega and Capen (2002)
Spotted owl	400 (1312)	Forestry roads, light traffic	Wasser et al. (1997)
Marten	<100 (<328)	Any forest opening	Hargis et al. (1999)
Elk	500–1000 (1640-3281)	Logging roads, light traffic	Edge and Marcum (1985)
Grizzly bear	3000 (9840)	Fall	Mattson et al. (1996)
	500 (1640)	Spring and summer	Kasworm and Manley (1990)
	1122 (3681)	Open road	
	665 (2182)	Closed road	Kasworm and Manley (1990)
Black bear	274 (899)	Spring, unpaved roads	
	914 (2999)	Fall, unpaved roads	

d. Migration disruption

Roads disrupt migration of large ungulates, such as elk, impeding travel at multiple scales, including seasonal home range use and migration to winter range (Buchanan et al. 2014, Prokopenko et al. 2017). For example, a recent study found migrating elk changed their behavior and stopover use on migration routes that were roaded (Paton et al. 2017). The authors suggest this disturbance may lead to decreased foraging, displacement of high-quality habitat, and affect the permeability of the migration route. In addition, roads disrupt grizzly bear movements influencing dispersal away from the maternal home range and ultimately influencing population-level fragmentation." (Proctor et al. 2018).

Oil and gas development (and associated roads) reduced the effectiveness of both mule deer and pronghorn migration corridors in western Wyoming. (Sawyer et al. 2005). Multiple studies found that mule deer increased their rate of travel during migrations, reducing stop over time and their use of important foraging habitats (Sawyer et al. 2012, Lendrum et al. 2012; Lendrum et al. 2013;). A study in Colorado found that female mule deer changed their migration timing which may change alignment with vegetative phenology and potentially result in energetic and demographic costs (Lendrum et al. 2013).

4. Road density thresholds for fish and wildlife

It is well documented that, beyond specific road density thresholds, certain species will be negatively affected, and some risk being extirpated (Robinson et al. 2000, Table 3). Most studies that look into the relationship between road density and wildlife focus on the impacts to large

endangered carnivores or hunted game species, although high road densities certainly affect other species. Grizzly bears have been found to have a higher mortality risk as road density increases (Boulanger and Stenhouse 2014). Gray wolves (*Canis lupus*) in the Great Lakes region and elk in Montana and Idaho also face increased mortality risk, and have undergone the most long-term and in-depth analysis. Forman and Hersperger (1996) found that in order to maintain a naturally functioning landscape with sustained populations of large mammals, road density must be below 0.6 km/km2 (1.0 mi/mi2).

A number of studies show that higher road densities also impact aquatic habitats and fish (Table 3). Carnefix and Frissell (2009) provide a concise review of studies that correlate cold water fish abundance and road density, and from the cited evidence concluded that:

> 1) no truly "safe" threshold road density exists, but rather negative impacts begin to accrue and be expressed with incursion of the very first road segment; and 2) highly significant impacts (e.g., threat of extirpation of sensitive species) are already apparent at road densities on the order of 0.6 km/km^2 (1.0 mi/mi2) or less, (Carnefix and Frissell (2009), p. 1).

Cold water salmonids such as threatened bull trout, are particularly sensitive to the impacts of forest roads. The U.S. Fish and Wildlife Service's Final Rule listing bull trout as threatened (USDI Fish and Wildlife Service 1999) addressed road density stating:

> ... assessment of the interior Columbia Basin ecosystem revealed that increasing road densities were associated with declines in four non-anadromous salmonid species (bull trout, Yellowstone cutthroat trout, westslope cutthroat trout, and redband trout) within the Columbia River Basin, likely through a variety of factors associated with roads (Quigley & Arbelbide 1997). Bull trout were less likely to use highly roaded basins for spawning and rearing, and if present, were likely to be at lower population levels (Quigley and Arbelbide 1997). Quigley et al. (1996) demonstrated that when average road densities were between 0.4 to 1.1 km/km^2 (0.7 and 1.7 mi/mi^2) on USFS lands, the proportion of subwatersheds supporting "strong" populations of key salmonids dropped substantially. Higher road densities were associated with further declines (USDI Fish and Wildlife Service (1999), p. 58922).

Anderson et al. (2012) showed that watershed conditions tend to be best in areas protected from road construction and development. Using the U.S. Forest Service's Watershed Condition Framework assessment data, they showed that National Forest lands protected under the Wilderness Act tend to have the healthiest watersheds. In support of this conclusion, McCaffery et al. (2005) found that streams in roadless watersheds had less fine sediment and higher quality habitat than roaded watersheds. Miller et al. (2017) showed that in 20 years of monitoring forests managed by the Northwest Forest Plan there were measurable improvements in watershed conditions as a result of road decommissioning, finding "...the decommissioning of roads in riparian areas has multiple benefits, including improving the riparian scores directly and typically the sedimentation scores."

Table 3: A summary of some road-density thresholds and correlations for terrestrial and aquatic species and ecosystems (reprinted from Robinson et al. 2010).

Species (Location)	Road density (mean, guideline, threshold, correlation)	Reference
Wolf (Minnesota)	0.36 km/km2 (mean road density in primary range); 0.54 km/km^2 (mean road density in peripheral range)	Mech et al. (1988)
Wolf	>0.6 km/km^2 (absent at this density)	Jalkotzy et al. (1997)
Wolf (Northern Great Lakes region)	>0.45 km/km^2 (few packs exist above this threshold); >1.0 km/km^2 (no pack exist above this threshold)	Mladenoff et al. (1995)
Wolf (Wisconsin)	0.63 km/km^2 (increasing due to greater human tolerance	Wydeven et al. (2001)
Wolf, mountain lion (Minnesota, Wisconsin, Michigan)	0.6 km/km^2 (apparent threshold value for a naturally functioning landscape containing sustained populations)	Thiel (1985); van Dyke et al. (1986); Jensen et al. (1986); Mech et al. (1988); Mech (1989)
Elk (Idaho)	1.9 km/km^2 (density standard for habitat effectiveness)	Woodley 2000 cited in Beazley et al. 2004
Elk (Northern US)	1.24 km/km^2 (habitat effectiveness decline by at least 50%)	Lyon (1983)
Elk, bear, wolverine, lynx, and others	0.63 km/km^2 (reduced habitat security and increased mortality)	Wisdom et al. (2000)
Moose (Ontario)	0.2-0.4 km/km2 (threshold for pronounced response)	Beyer et al. (2013)
Grizzly bear (Montana)	>0.6 km/km^2	Mace et al. (1996); Mattson et al. (1996)
Black bear (North Carolina)	>1.25 km/km^2 (open roads); >0.5 km/km2 (logging roads); (interference with use of habitat)	Brody and Pelton (1989)
Black bear	0.25 km/km^2 (road density should not exceed)	Jalkotzy et al. (1997)
Bobcat (Wisconsin)	1.5 km/km^2 (density of all road types in home range)	Jalkotzy et al. (1997)
Large mammals	>0.6 km/km^2 (apparent threshold value for a naturally functioning landscape containing sustained populations)	Forman and Hersperger (1996)
Bull trout (Montana)	Inverse relationship of population and road density	Rieman et al. (1997); Baxter et al. (1999)

Fish populations (Medicine Bow National Forest)	(1) Positive correlation of numbers of culverts and stream crossings and amount of fine sediment in stream channels (2) Negative correlation of fish density and numbers of culverts	Eaglin and Hubert (1993) cited in Gucinski et al. (2001)
Macroinvertebrates	Species richness negatively correlated with an index of road density	McGurk and Fong (1995)
Non-anadromous salmonids (Upper Columbia River basin)	(1) Negative correlation likelihood of spawning and rearing and road density (2) Negative correlation of fish density and road density	Lee et al. (1997)

5. Roads and fires

Wildland forest fire plays an essential role in many forest ecosystems, and with climate change, fire will increasingly shape National Forest lands. Humans have made fire more common on the landscape, and studies have found that forest roads can affect fire regimes and localized fuel regimes. Following a fire, exposed bare ground on roads can result in chronic erosion, catastrophic culvert failures, and noxious weed invasion.

Forest roads can increase the occurrence of human-caused fires, whether by accident or arson, and road access has been correlated with the number of fire ignitions (Syphard et al. 2007, Yang et al., 2007, Narayanaraj and Wimberly 2012, Nagy et al. 2018). A recent study found that humans ignited four times as many fires as lightning. This represented 92% of the fires in the eastern United States and 65% of the fire ignitions in the western U.S. (Nagy et al. 2018). Another study that reviewed 1.5 million fire records over 20 years found human-caused fires were responsible for 84% of wildfires and 44% of the total area burned (Balch et al. 2017).

Roaded areas create a distinct fire fuels profile which may influence ignition risk and burn severity (Narayanaraj and Wimberly 2013). Forest roads create linear gaps with reduced canopy cover, and increased solar radiation, temperature, and wind speed. Invasive weeds and grasses common along roadsides also create fine fuels that are highly combustible. These edge effects can change microclimates far into the forest (Narayanaraj and Wimberly 2012, Ricotta et al. 2018). While there is little definitive research on roads and burn severity, an increase in the prevalence of lightning-caused fires in roaded areas may be due to roadside edge effects (Arienti et al 2009, Narayanaraj and Wimberly 2012). Furthermore, watersheds that have been heavily roaded have typically received intensive management in the past leaving forests in a condition of high fire vulnerability (Hessburg and Agee 2003).

Roadless areas are remote and secure from many human impacts such as unintentional fire starts or arson. A forest fire is almost twice as likely to occur in a roaded area than a roadless area (USDA Forest Service 2000). In fact, human-ignited wildfire is almost five times more likely to

occur in a roaded area than in a roadless area. (USDA Forest Service 2000). Higher road density correlates with an increased probability of human-caused ignitions. (Syphard et al. 2007).

After a forest fire, roads that were previously well vegetated often burn or are bladed for fire suppression access or firebreaks leaving them highly susceptible to erosion and weed invasion. Roads are a source of chronic erosion following a fire, and pulses of hillslope sediment and large woody debris can result in culvert failures (Bisson et al. 2003). Fine sediment is frequently delivered to streams and reduces the quality of aquatic habitat. Noxious weeds are established on many forest roads, and post-fire weed invasion can be facilitated by creating a disturbance, reducing competition, and increasing resource availability (Birdsaw et al. 2012).

B. The Forest Service should have analyzed the effects of the proposed action on the road system in the NWFP area.

In light of the known ecological impacts caused by roads, the Forest Service should have considered this issue in detail in the DEIS. The proposed action would significantly increase logging in the planning area for years to come. Accessing areas for logging will require road construction, reconstruction, and maintenance. This will have significant environmental consequences on terrestrial and aquatic habitats.

The Pacific Northwest Region has approximately 90,000 miles of roads (Table 4 below).

Table 4: Region 6 Annual and Deferred Maintenance Needs (2015).[102]

National Forest	Road Miles	Total Maintenance Need	
		DM	AM
Deschutes	8,109	$80,566,681	$7,526,877
Fremont-Winema	12,548	$133,971,908	$13,642,507
Gifford Pinchot	4,103	$53,330,891	$5,312,486
Malheur	9,628	$56,025,932	$6,153,833
Mt. Baker-Snoqualmie	2,453	$81,915,920	$9,660,568
Mount Hood	2,881	$51,813,990	$4,896,610
Ochoco	3,253	$33,260,537	$3,313,734
Olympic	2,026	$42,680,614	$4,467,995
Rogue River-Siskiyou	5,288	$111,614,953	$11,581,995
Siuslaw	2,128	$26,115,387	$2,777,636
Umatilla	4,624	$65,211,612	$6,647,168
Umpqua	4,776	$73,669,140	$7,148,103
Wallowa-Whitman	9,119	$64,279,905	$6,808,709
Okanogan-Wenatchee	8,163	$158,111,026	$17,050,400
Willamette	6,542	$90,942,456	$8,838,067
Colville	4,309	$37,336,065	$4,306,765
Columbia River Gorge	99	$1,454,584	$121,557
	90,047	$1,162,301,600	$120,255,010

As of at least 2017, it would take nearly $1.2 billion dollars to bring the Region's road system up to standard.[103] According to the Forest Service, "[c]urrent levels of CMRD funding are not sufficient to provide minimal, safe access to meet our needs."[104] How does the Forest Service plan to substantially increase logging in the NWFP area if it cannot meet current road infrastructure needs?

We also do not accept that the "scope, extent, and location" of effects from roads "cannot be determined at this time."[105] For example, one of the most significant proposed changes is stand age increase (80 yo to 120 yo) in LSRs. It is therefore reasonably foreseeable to anticipate the roads that will be needed to access these stands for future logging.

The Forest Service should also be able to determine the anticipated costs associated with the planned increase in logging. In 2017, the Forest Service said that it required a minimum of $30/MBF "to meet the basic needs for the timber program."[106] Using this figure (or an updated one), the Forest Service should be able to disclose to the public how much it will cost them to rebuild the agency's road network for increased logging.

[102] Wallowa-Whitman National Forest, Travel Analysis Report 74 (Sept. 2015).
[103] FY2017 Forest Products Volume/Funding Update and Out-Year Projections Narrative Region 6, 1 (Ex. 16) (obtained in response to FOIA Request No. 2024-FS-R6-04259-F).
[104] *Id*. at 2.
[105] DEIS at 1-12.
[106] Ex. 16 at 1.

IV. Invasive Species

The Forest Service has repeatedly acknowledged that "[i]nvasion of nonnative species … is one of the most important issues in natural resource management today,"[107] and there is broad scientific consensus that the activities contemplated by the amendments can significantly worsen the issue.[108] Yet the draft amendment and DEIS fail to address the amendment's probable, dramatic impact on invasive species introduction, spread, or management.

A. Invasive Species Overview

Invasive species are, by definition, harmful, and often have substantial adverse environmental impacts.[109] Invasives, particularly plants, are widespread across public lands, including throughout Region 6: In 2000, the Forest Service estimated that 420,000 acres of National Forest System lands in the region were then infested with invasive plants, which were "spreading at an estimated rate of 4,600 acres per day on all federal lands in the West, outside of Alaska[.] This equates to adding approximately 1.7 million acres (an area the size of the Willamette National Forest), of new invasive plants every year."[110] "[T]here are several species of plants and

[107] Roadless FEIS at 3-126; *see also* 36 C.F.R. §§ 219.8(a)(1)(iv), 219.10(8) (recognizing invasive species as "system driver" that must be addressed in agency planning); Bioregional Assessment of Northwest Forests at 28 ("The effects of invasive species are one of the primary concerns associated with maintaining ecological integrity across [Region 6]."); Invasives Program ROD at 1–2; U.S. Forest Service Manual § 2902 (2011) (setting agency objectives for preventing introduction and spread of invasive species); U.S. Forest Service, Invasive Species, http://www.fs.usda.gov/goto/r6/invasives (last visited March 11, 2025 ("Invasive species are one of the most serious challenges that affect natural resources worldwide.").

[108] Our comments focus primarily on invasive plant species, which will be the most directly impacted by the proposed amendment. However, this is not to suggest that other invasive species are not cause for serious concern in the planning area. "Invasive pathogens with significant effects on forests of the NWFP area include white pine blister rust (Cronartium ribicola), Port Orford cedar root disease (Phytophthora lateralis), and sudden oak death (SOD) (P. ramorum)[.]" Spies et al. (2018) at 175. And research suggests that the invasive barred owl—widely recognized as the most serious threat to the northern spotted owl—has a greater tolerance for disturbed ecosystems and younger forests, and is therefore also likely to benefit from these changes at the expense of its threatened native cousin. *See* U.S. Fish and Wildlife Service (2024) at 10; Bioregional Assessment at 28; Wiens et al. (2014) at 21–23, 32, 38–39.

[109] Sometimes casually referred to as "nonnative" or "exotic" species or, for plant species, "noxious weeds," invasive species are defined as any nonnative plants, animals, or diseases that cause or are likely to cause "economic or environmental harm, or harm to human, animal, or plant health" in the context of a particular ecosystem. Executive Order 13751, "Safeguarding the Nation From the Impacts of Invasive Species," 81 Fed. Reg. 88,609, 88,610 (Dec. 5, 2016); *see also* Roadless FEIS at G-7 (defining "nonnative invasive species" as "species that are introduced into an area in which they did not evolve … These species can cause environmental harm by significantly changing ecosystem composition, structure, or processes" and stating that "noxious weeds" are "generally aggressive, difficult to manage, poisonous, toxic, parasitic, [or] a carrier or host of serious insects or disease"). "It is the policy of the United States to prevent the introduction, establishment, and spread of invasive species, as well as to eradicate and control populations of invasive species that are established." 81 Fed. Reg. at 88,609.

[110] Invasives Program FEIS at 1-1–2.

pathogens that are having or could have significant impacts on forests within the NWFP area."[111] Despite interagency efforts to address the problem, it has continued to expand in the intervening decades.[112] As of 2010, the Forest Service had identified 396 invasive plant species in Region 6 alone.[113] "Despite substantial efforts to control invasive species in the United States, the threat will remain high in coming years unless significant steps are taken to slow the advance of invasive plants and animals."[114]

Although the impacts of invasive nonnative species are not as well-known as other threats to ecosystem health, they can be substantial. "Invasive plants create a host of adverse environmental effects, including: displacement of native plants; reduction in habitat and forage for wildlife and livestock; loss of threatened, endangered, and sensitive species; increased soil erosion and reduced water quality; and reduced soil productivity."[115]

Competition by invasive species is one of the leading reasons that native species are listed as endangered or threatened, second only to habitat loss and fragmentation.[116] Researchers in 2000 warned that roughly 42% of the species listed as threatened or endangered "are at risk primarily because of non-indigenous species."[117] This can occur through a number of different mechanisms, including predation, competition, and, in the case of invasive plants, by altering habitat composition, including altered fire cycles.

Invasive plant species in particular can significantly alter ecosystem and disturbance processes.[118] Two of the most destructive and widespread invasive plants in the planning area—Scotch broom

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[111] Spies et al. (2018) at 175.
[112] *See*, e.g., ScienceDaily (2021); National Invasive Species Council (2016) at iii.
[113] U.S. Forest Service, List of Invasive Plants on National Forests in the PNW Region.
[114] Stine et al. (2014) at 96; *see also* Pysek et al. (2020) at 1517 ("Indeed, for most taxonomic groups, rates of first recorded introductions are higher now than at any other time, no signs of a slow-down are evident, and many new invasions will be discovered in the near future given the typical time lags between introductions, establishment, and spread[.] … The growing number of alien species introductions and their subsequent establishment highlights the urgent need for more effective measures for prevention, early detection, and control[.]").
[115] Invasives Program FEIS at 1-1; *see also* Pysek et al. (2020), throughout; National Invasive Species Council at iii ("Invasive species represent one of the most significant threats to ecosystems, human and animal health, infrastructure, the economy, and cultural resources. Alarmingly, the threat is growing.").
[116] Pysek et al. (2020) throughout and at 1527; National Invasive Species Council at 1; Invasives Program FEIS at 3-45; Gray (2005) at 109; Pimentel et al. (2005) at 273; Roadless FEIS at 1-4; Mack and D'Antonio (1998) at 195.
[117] Wilcove et al. (2000). Commenters notes the importance of this particular impact in the context of the Northwest Forest Plan, which was (contrary to the apparent emphasis of the proposed amendments) specifically intended to prevent the extinction of old-growth-dependent species such as the northern spotted owl.
[118] *See* Bioregional Assessment at 54; Pysek et al. (2020) at 1519 (invasive species can "alter ecosystem productivity, nutrient and contaminant cycling, hydrology, and disturbance regimes … For invasive plants, 63% of studies that have measured impacts found significant differences in species, community, or ecosystem characteristics compared to the situation prior to invasion."); Invasives Program FEIS at 3-45 ("Some researchers have suggested that alteration of disturbance regime may be the most profound effect that [invasive] species can have on an ecosystem."); Mack and D'Antonio (1998) at 195 ("[I]n many

and Himalayan blackberry—specifically are known to "invade disturbed areas and oak savannas, altering soil nutrient conditions, limiting tree regeneration, and promoting growth of other nonnative species."[119] Other species in the area, such as false brome, "outcompete native species, alter fire regimes, and possibly alter soil conditions where they occur within forests."[120] The disruptive effects on fire regimes are particularly notable: Some "invasive species change the fuel structure of forests," causing them to burn more or less frequently and with greater or less intensity.[121] Invasive species also "generally reduce ecosystem resilience, which is of heightened concern in the face of climate change."[122]

The cultural and economic impacts of invasive species are similarly substantial.[123] For example, in 2014, a study commissioned by the Oregon Department of Agriculture estimated that the economic impact to Oregonians from just 25 of the 118 state-designated noxious weed species was "$83.5 million [in 2012 dollars] personal income which would represent 1.9 thousand jobs," which the researchers warned could grow to "$1.8 billion which represents about 41 thousand jobs" if the issue was left unchecked.[124] Invasives can "adversely impact plant and animal health, undermine food and water security, jeopardize the integrity of critical infrastructure, threaten the livelihoods and cultures of people who are largely dependent upon local resources, [and] compromise resistance to and recovery from ecological disturbances."[125] This includes the cost—economic, ecological, and in terms of human health—of typical invasives treatments, which often rely heavily on pesticide applications.[126]

In short, invasive species dramatically impact virtually every one of the Northwest Forest Plan and the proposed amendment's stated purposes and needs and most of the "significant" issues identified in the DEIS.

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cases these alterations [from invasive species] result in profound changes, including direct species replacements and changes in ecosystem processes that ultimately control plant and animal activity.").

[119] Spies et al. (2018) at 175.

[120] *Id.*

[121] Keeley (2006) at 377; *see also* Spies et al. (2018) at 176 ("False brome may increase flammability of forests [.]"); Brooks and Lusk (2008) at 16 ("Once established, invasive plants can create new and unexpected fire hazards that may be even more difficult to manage. Even fuel treatment specifically targeted to remove an invasive plant … can be followed by invasion of another species that, in turn, could bring additional problems."); Invasives Program FEIS at 3-45, 3-68; Brooks (2004) at 677 ("Invaders that alter fire regimes are widely recognized as some of the most important system-altering species on the planet.") and throughout; Mack and D'Antonio (1998).

[122] Bioregional Assessment at 54.

[123] *See* Spies et al. (2018) at 175–76; Invasives Program FEIS at 3-68 ("Some direct socioeconomic impacts of invasive plants on National Forest lands include increased risk of wildfires and suppression costs and reduced productivity of forest nurseries and tree plantations."); Gray (2005) at 109.

[124] The Research Group, LLC (2014) at IV-1, II-12.

[125] National Invasive Species Council at 1; *see also* Invasives Program FEIS at 3-45 ("Changes in species composition [resulting from invasive species establishment] can lead to such impacts as declines in the availability of native plant resources, such as special forest products or species collected by [Native Tribes].").

[126] *See* Invasives Program ROD, throughout (emphasizing use of herbicides over prevention or other invasive plant treatments).

B. Invasive Species and Forest Planning

In light of these significant adverse effects, NFMA and the Forest Service's 2012 Planning Rule specifically require the agency to consider and address invasive species issues as a key aspect of "ecosystem integrity" and "integrated resource management."[127]

Forest plans must include components to "maintain or restore [ecosystem] structure, function, composition, and connectivity, taking into account … [s]ystem drivers, including dominant ecological processes, disturbance regimes, and stressors, such as natural succession, wildland fire, [and] invasive species[.]"[128] In other words, a plan must address management of invasive species and restoration of infested areas, and must also consider how other restoration programs will affect or be affected by invasives. Without such planning, invasive species spread by management activities "can pose even greater management challenges" than the original restoration issue being addressed.[129] Invasive species considerations are equally relevant to the Forest Service's duty to "provide for ecosystem services and multiple uses" through Forest plans.[130] "When developing plan components for integrated resource management," the agency again "shall … consider" system drivers such as invasive species.[131]

In short, the Forest Service must specifically address invasive species concerns throughout most key components of any Forest plan. The agency recognized the ongoing need to do so in both Forest-specific and regional planning in its recent Bioregional Assessment:

> Land management plans in the [planning] area should address the need for proactive invasive species management by integrating invasive species ecology and management direction with overarching desired conditions related to forest ecology. In addition, plans need to include approaches for increasing invasive species prevention and control efforts, such as early detection and rapid response, frequent inventories, and increased interagency coordination. Because invasive species are a landscape-level issue that crosses administrative boundaries, creating consistency in plan direction across the [planning] area would improve efficiency and effectiveness of treatment strategies by making it easier to coordinate and share resources within the Forest Service.[132]

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[127] 36 C.F.R. §§ 219.8(a)(1)(iv), 219.10(8); *see also* DEIS at 1-6. The Forest Service is also required to "refrain from authorizing, funding, or implementing actions that are likely to cause or promote the introduction, establishment, or spread of invasive species … unless … the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions[.]" 81 Fed. Reg. at 88,611.
[128] 36 C.F.R. § 219.8(a)(1)(iv).
[129] Brooks and Lusk (2008) at 17.
[130] 36 C.F.R. § 219.10(8).
[131] *Id.* § 219.10.
[132] Bioregional Assessment at 28.

> Land management plan direction needs to better anticipate the extent or degree of invasive species including plants, insects, and animals. Invasive species have changed the nature of forests, grasslands, and aquatic systems, which will negatively affect ecosystem function and processes in the future. Invasive species generally reduce ecosystem resilience, which is of heightened concern in the face of climate change. Invasive species were not considered through a contemporary lens, or often at all, in the existing land management plans in the planning area. The result is that managing for invasive species is difficult and inefficient due to a lack of consistent guidance within and between forests.[133]

This is crucial, because only do invasive species have significant potential for adverse effects across a range of ecosystem and resource conditions, they are implicated in and affected by virtually every management decision the agency might make.

"Any land-use activity increases the chance for accidental introduction of invasive plants."[134] Invasive species are highly associated with ecosystem disturbances, either natural or anthropogenic, which can both introduce a new species to a previously un-infested area and create conditions under which such species thrive, sometimes outcompeting or almost entirely replacing native species.[135] As relevant here, invasive plant species are readily spread by logging;[136] fuels reduction and other "vegetation management" projects;[137] roads and road

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[133] *Id.* at 54.

[134] Brooks and Lusk (2008) at 20; *see also* Spies et al. (2018) at 176 ("Management strategies for reducing spread of [invasive] false brome … include limiting disturbance within stands[.] … False brome may increase flammability of forests, and short-interval fire may promote it; as climate warms, invasion of forests by false brome is expected to increase."); Sutherland and Nelson (2010) at 27 ("Because of the potential threat that nonnative plant species pose to native species, ecosystems, and fire regimes, managers need to be aware of the impact that silvicultural treatments can have on nonnative vegetation, alter their harvesting techniques to minimize negative nonnative impacts, and have weed control strategies in place to deal with increases in nonnative plant populations after harvest.").

[135] *See*, e.g., Jo et al. (2024); Spies et al. (2018) at 175–76; National Invasive Species Council (2016) at 1–2; Invasives Program FEIS at 3-14–14 ("The greater the extent and intensity of ground disturbance, the more likely an invasive plant will be successful … Even when invasions proceed without continuing disturbance, there is often an initial disturbance event that initiates the invasion."), 3-46 ("[A]ltered disturbance regimes associated with human activities often differentially increased the performance of invaders over natives. Such a conclusion affirms the need to reduce practices that are conducive to spread of invasive plants."); Vila at al. (2007) at 97 ("Disturbances are unanimously acknowledged to favor plant invasions[.]"); Gray (2005) at 122–24; Roadless FEIS at 3-5, 3-168; D'Antonio et al. (1999).

[136] *See* Jo et al. (2024) at 1857; Sutherland and Nelson (2010) at 31; Merriam et al. (2006) at 515–16; Gray (2005) at 119 ("The frequency of [invasive plants] was significantly [] related to both clearcutting and thinning."), 124 ("Logging and stand density were important for most [invasive] species."); J.E. Korb et al. (2005); Parendes and Jones (2000) at 73; Invasives Program FEIS at 3-14–16; Roadless FEIS at 3-146, 3-181–82.

[137] *See* Spies et al. (2018) at 410; Sutherland and Nelson (2010) at 27–31 ("The types of mechanical treatments that are being implemented to reduce fuels have the potential to increase abundance and richness of nonnative plants."); Brooks and Lusk (2008) at 16–17; Nelson et al. (2008) at 767–68; Keeley (2006) at 376–77 ("Extensive forest restoration is currently under way in many western U.S. ponderosa pine forests. These treatments alone or in combination with burning of slash increase both the diversity

construction, repair, and use;[138] fire (both wild and prescribed) and fire suppression activities;[139] and humans or equipment entering an area. Generally speaking, the more intense the disturbance, the greater the potential for significant invasive species introduction or spread.[140] Repeated disturbances can have an even more significant impact, as later entries to an area can create conditions (typically, disturbed soil and thinner canopy/greater light) conducive to rapid expansion of any infestations left by earlier disturbances.[141]

The proposed Northwest Forest Plan amendment would be an ideal opportunity to address these issues on a regional level and incorporate responsible invasive species management into planning and decisionmaking. It does not do this. Indeed, the proposed changes would substantially *increase* the extent of anthropogenic disturbances and the spread of invasive infestations. In combination with recent increases in regional timber targets, expected cuts to staffing and resources, and the growing impacts of climate change, the proposed amendment would expand the introduction and spread of invasive species across the affected Forest System lands, while simultaneously reducing the agency's ability to address the problem. This issue is highly relevant to the amendment's stated purposes and to the Forest Service's duties under NFMA—it should be addressed in all regional planning. Yet the amendment and the DEIS scarcely mention invasive species.[142]

C. Invasive Species and the Proposed Northwest Forest Plan Amendment

Although the DEIS never addresses the matter, the activities allowed by the amendment—and, indeed, its basic purposes—are highly likely to worsen the invasive species situation on the

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and abundance of alien plant species[.]"), 380–82; Merriam et al. (2006), throughout; Invasives Program FEIS at 3-21–22.

[138] *See* Bioregional Assessment of Northwest Forests at 55; Nelson et al. (2008) at 768; Brooks (2006) at 153–54; Merriam et al. (2006) at 516; Invasives Program FEIS at 2-37, 3-14–19, 4-22; Parendes and Jones (2000) at 70–74; Roadless FEIS, throughout and at 3-174 ("Roads are also avenues for invasion by nonnative invasive plant species that frequently compete with or displace native vegetation. … Areas subjected to intense and wide spread natural disturbances, such as high intensity stand-replacing wildland fire, can be susceptible to nonnative plant invasions for a period. However, the risk is significantly less than in roaded areas where human activities and disturbances associated with roads can exacerbate the problem. Lacking roads and many of the disturbances associated with them, inventoried roadless areas are less likely to experience problems with nonnative invasive species and are more likely to be able to maintain intact native plant communities.").

[139] *See* Jo (2024); Spies et al. (2018) at 175–76; Brooks and Lusk (2008) at 9; Keeley et al. (2006); Invasives Program FEIS at 3-13–16, 3-21–22; Mack and D'Antonio (1998) at 197.

[140] Nelson et al. (2008) at 767–68; Invasives Program FEIS at 3-14–15.

[141] *See* Jo et al. (2024) at 17; Sutherland and Nelson (2010) at 31 and throughout; Nelson et al. (2008) at 767; Invasives Program FEIS at 3-13.

[142] Notably, the DEIS lists several factors that should be considered at the site-specific planning and implementation stage to "promote ecological integrity and sustainability of forest ecosystems, and to determine what treatments might be appropriate for stands within the project area[.]" DEIS at 2-11–12. None of these address invasive species concerns, although the presence of invasive species, the area's likely vulnerability to invasion by nonnatives, the agency's ability to mitigate and monitor for invasives, and the potential or actual impacts of existing infestations on proposed activities are all highly relevant to this decisionmaking process. *See id.*

National Forest lands in the planning area. By allowing logging and "fuels treatments" in previously protected areas and significantly increasing the overall level of vegetation management—with the express purpose of removing fuels and reducing canopy cover—the proposed amendment will create on a large scale precisely the conditions in which invasive species thrive, while the influx of people and machinery needed to accomplish this work will provide clear invasives vectors into previously un-infested areas.

The proposed amendment calls for "increased fuels treatments within moist and dry forests" leading to "a reduction in canopy cover and down wood."[143] More specifically, the proposed amendment allows logging and "fuels management treatments" in moist forest LSR stands over 80 years old that were previously protected, and "promotes active dry forest restoration" in all LUAs—including LSRs that were previously protected.[144] The proposal also expands the types of treatments allowed in moist forest LSRs, permitting significantly more aggressive logging techniques in these protected areas.[145] Indeed, somewhat counterintuitively, the proposed amendment would allow activities "designed to … maintain or restore habitat for [] species that depend upon younger stands" and "encourage management of habitats other than mature and old-growth" in the LSRs (which are specifically intended to preserve habitat for old-growth-dependent species).[146] Virtually all protections against logging in dry forest LSRs would be removed. As a whole, the proposed amendment would lead to "more active management within reserves, which could result in additional disturbance to the forest vegetation and animals. This approach includes more active management in areas designated as critical habitat for the recovery of multiple species across the planning area."[147] Logging (or, as the Forest Service prefers to style it, "active management") would be both more intense and more widespread in all LUAs.[148]

These proposed changes will affect invasive species introduction and spread in multiple ways.

First, the amendment will (indeed, it is specifically intended to) expand the scope and intensity of ground-disturbing "active restoration," decreasing both undergrowth and canopy cover. The Forest Service's stated goal is to "treat" one third of dry forests across the entire planning area within 15 years, which represents an aggressive expansion of logging and related vegetation management activities—and, therefore, a likely similar expansion of invasive species.[149] The DEIS notes that the proposed "[i]ncreased thinning and harvest will open up tree canopies that can provide space for other understory plants," but fails to mention that the understory plants that

[143] DEIS at ES-9. *See* Spies et al. (2018) at 176 ("Once tree canopy closure is attained, these [invasive plant] species typically drop out of the ecosystem."); Merriam et al. (2006) at 524; Parendes and Jones (2000), throughout.
[144] *Id.* at 2-5–7, 2-14–20, 3-29.
[145] *Id.* at 2-16
[146] *Id.* and *id.* at 3-36.
[147] *Id.* at 3-35.
[148] *See id.* at 3-29–37.
[149] *Id.* at 2-18; *see also id.* at 2-20 (setting an objective for all forest types to "[t]reat 2.65 million acres per decade employing all fuels treatments across all LUAs"), 2-23 (noting that "restoration treatment of 660,000–810,000 acres per decade" would produce "5,900 –13,500 MMBF sold," suggesting that much of this "treatment" is merely logging by a different name).

stand to benefit the most will be invasive species.[150] The proposed changes will increase both the amount of open, disturbed ground and the level of light reaching the forest floor—both conditions that favor infestation by invasive plant species. The logging and fuels management treatments proposed by the Forest Service have been repeatedly linked to the introduction and spread of invasive plants:

> Timber harvest and other vegetation management activities (thinning, mechanical site preparation, hand scalping for conifer release, and pruning) can alter forest ecosystems. As habitats are altered, new generalist species or edge-adapted species, including invasive plants can be favored. The gaps in forest canopy created by these activities can increase the amount of light reaching the forest floor increasing the temperature, thus improving invasive seed germination and favoring early seral and invasive plants with rapid growth rates. Soil disturbances associated with vegetation management can create hospitable environments for establishment of invasive plants.[151]

Compounding these issues, to maintain the theoretically desired conditions, either as fuel breaks or as open forests, repeated management activities will likely be needed. Areas with low-level infestations are likely to see rapid expansion of invasives; this will increase with each new entry.[152] In some areas near structures, the amendment would prioritize "fuels treatments over other standards and guidelines," potentially allowing such projects to proceed without any of the minimal mitigating standards for invasives typically in place.[153]

Additionally, by allowing logging and other "treatments" in previously protected mature and old-growth stands, the proposed amendment will likely introduce invasive plant species into areas currently free of infestations—including in Inventoried Roadless Areas, where some timber harvest would "be treated with forest management activities," producing more disturbed soils and more openings in the canopies.[154] This has potentially serious implications for such crucial areas' overall ecosystem function and ability to provide habitat for old-growth dependent native species. Moreover, the proposed amendment would expand the type of treatments allowed in LSRs to permit more aggressive logging and the creation of "habitat for species that depend

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[150] *Id.* at 3-37; *see* Keeley (2006) at 377; Gray (2005) at 122;

[151] Invasives Program FEIS at 3-14; *see also id.* at 4-22; Spies et al. (2018) at 410; Keeley (2006) at 382; Merriam et al. (2006), throughout; Gray (2005) at 124 ("Clearcut logging and thinning had significant positive effects on the frequency of most of the nonnative species. … Logging and stand density were important for most species[.]");

[152] *Cf.* Gray (2005) at 122.

[153] DEIS at 2-7.

[154] DEIS at 3-35. *See* Jo et al. (2024) at 18 ("This emphasizes the need for greater attention to conserving these ecosystems because fragmented forests are particularly susceptible to invasion."); Stine et al. (2014) at 83 ("Opening the canopy of long-closed stands with diminished seed banks of herbaceous species might increase invasive species cover."); Keeley (2006) at 376 (noting "resilience to invasion of undisturbed forests" because "the closed forest canopy is highly inhibitory to aliens"); Gray (2005) at 122–23 (noting that invasives are "well-distributed and able to readily colonize new disturbances" in areas that did not previously support them); Roadless FEIS at 3-126 ("Since roads provide an entry way for nonnative species, inventoried roadless areas can act as strongholds against invasion of these species.").

upon younger stands"—in other words, the removal of large trees and dense canopy cover in favor of the early-seral landscapes most vulnerable to invasive plant species infestations.[155]

As the DEIS notes, "[s]alvage harvest … has generated both public and scientific debate."[156] But the DEIS fails to mention that salvage logging is strongly implicated in the spread of invasive plant species in recently burned areas.[157] The proposed amendment would do nothing to mitigate this problem and little to curtail this destructive practice.

All of these treatments, particularly those in previously protected areas, will require the construction, repair, and/or increased use of roads, which constitute one of the most significant vectors for invasive species.[158] This is true for both temporary and permanent roads, and occurs regardless of whether the road experiences significant traffic, as the road prism itself constitutes the sort of open, disturbed space most vulnerable to invasive colonization.[159] Logging projects typically also require the use of off-road vehicles and the creation of skid trails and landings, all of which lead to further ground disturbance, spread invasive plants into and across the disturbed area, and create canopy openings that encourage the quick growth of invasive plant species.[160]

Since the Forest Service's rationale for these changes is the purported need to reduce wildfire risk, one particular negative impact of invasives bears repeating: The tendency of invasive plants to colonize open, recently disturbed areas, combined with their potential impacts on fire behavior, could seriously diminish any expected fire-related benefits of the proposed treatments. Invasive plant species can impact fire regimes in multiple ways; as discussed above, the most infamous example is the ubiquitous cheatgrass, which has irreparably altered western firescapes, but new species can interact with fire in numerous unexpected ways.[161] Forest managers could

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[155] DEIS at 2-16; *see* Jo et al. (2024); Spies et al. (2018) at 175 ("Invasive plant species often have early-successional life histories and are well adapted to colonizing disturbed areas."); Invasives Program FEIS at 3-14, 3-21, 3-40; Sutherland and Nelson (2010) at 27; Keeley (2006) at 376; Gray (2005) at 119 (invasive plant prevalence "was at least double in seedling/sapling-size stands than in pole/mature-size stands"), 122 ("If plant or animal species are being displaced by these nonnative species, it will probably be those adapted to early-successional and open-forest habitat types.").

[156] DEIS at 3-32. As an aside, Commenters takes issue with the equivocation in this brief section—while it may be true that "both supporters and critics of postfire salvage logging can find evidence in the literature to support their claims," the weight of expert literature is strongly against the notion that postfire logging has any ecological benefit.

[157] *See* McGinnis (2010).

[158] *See* Brooks and Lusk (2008) at 16; Merriam et al. (2006) at 516; Invasives Program FEIS at 4-22 ("Roads will continue to be a major conduit for invasive plants."); Parendes and Jones (2000), throughout ("Roads are especially well-documented sites for exotic plant invasion [] and represent obvious dispersal corridors in a landscape.").

[159] *See* Brooks (2006) at 153–54; Roadless FEIS at 2-18 ("The use of temporary roads may have the same long lasting and significant ecological effects as permanent roads, such as the introduction of nonnative vegetation[.]").

[160] Nelson et al. (2008) at 768; Invasives Program FEIS at 3-15.

[161] *See* Oregon Conservation Strategy; Bioregional Assessment at 28; Invasives Program ROD at 1; Brooks and Lusk (2008) at 11–12, 16; Invasives Program FEIS at 3-3-7–8, 3-13–15, 3-45–48; Brooks et al. (2004), throughout; Roadless FEIS at 3-176; Mack and D'Antonio (1998) at 197.

find that their fuels treatments had in fact *increased* fire risk, or otherwise further altered the fire regime they intended to restore.[162]

Notably, the areas in which these proposed changes will occur are already highly impacted and at significant risk of further infestation by invasive plants. Oregon and Washington are in the upper 10% globally for nonnative species establishment; California is in the top 2.5%.[163] Eastside dry and moist forests have "moderate to high" susceptibility to invasion by nonnative plants.[164] On the westside, moist forests (defined, in this context, by true firs and tanoak) have low susceptibility, while "dry" forests—including areas dominated by Douglas fir, ponderosa pine, and Oregon white oak—are highly susceptible to infestation.[165] In short, the very areas where the Forest Service proposes to do the most, and the most intense, treatments are already at unusually high risk of adverse effects from invasive plant species.

All of these likely impacts, and the failure of the amendment to proactively address invasive species issues (see below), will likely lead to increased reliance on herbicides and other pesticides across the planning area—a response that comes with its own set of adverse environmental, social, and economic impacts.[166] Greater pesticide use would harm native vegetation and wildlife, forestry workers, and members of the public who use public forestlands for recreation or cultural uses. None of this is addressed substantively by the amendment or analyzed as required by NEPA, nor is there any discussion of alternative control methods or even a nod at *prevention*, although this is the first standard set forth in the regional Invasive Plants Program.[167]

Despite the proposed amendment's potential to significantly worsen invasive species issues, the DEIS is virtually silent on the matter, and neither the amendment nor the original Northwest Forest Plan contain any specific provisions to address the matter. Instead, the amendment kicks the invasive can down the planning road, calling for future, undefined groups to develop some sort of mitigation strategy.

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[162] *See* Spies et al. (2018) at 410 ("[T]here is disagreement over the need to use such treatments, even in fire-prone systems[.] Whereas fuel treatments and restoration management can affect fire behavior, these actions expose bare soil that, in turn, could promote invasion of exotic plant species that could spread into adjacent lands, and … nonnative plant cover is twice as high on fuel breaks as in adjacent wildlands[.]"); Brooks and Lusk (2008) at 17, 20; Merriam et al. (2006), throughout; Keeley (2006), throughout; Invasives Program FEIS at 3-68 ("Some direct socioeconomic impacts of invasive plants on National Forest lands include increased risk of wildfires and suppression costs and reduced productivity of forest nurseries and tree plantations.").

[163] Pysek et al. (2020) at 1514.

[164] Invasives Program FEIS at 3-41.

[165] Invasives Program FEIS at 3-42.

[166] *See* Roadless FEIS at 3-176, 3-293; *see also* National Invasive Species Council (2016) at 2 ("Preventing the introduction of potentially harmful organisms is … the most cost-effective strategy. … Control programs are … costly in terms of time, money, and, often, socio-political will.").

[167] *See* Invasives Program ROD at 10; *see also* Brooks et al. (2004) at 686 ("One of the few certainties of invasive plant management is that exclusion of potentially threatening species before they invade, or at least early detection and rapid response at the very early stages of invasion, is the most cost-effective and successful way to prevent their negative ecological and economic impacts.").

For example, the DEIS proposes a non-binding goal of coordinating with partners to "help achieve desired conditions in ecosystems that are experiencing (or may experience in the future) more frequent, severe, or large fires than the natural range of variation due to factors such as invasive annual grasses[.]"[168] This is not so much a goal as a vague hope that desired conditions will occur in spite of invasive plant infestations. Similarly, the DEIS cites "tactics that minimize the establishment and spread of invasive species" as one example of one climate adaptation strategy that "planning teams can consider" as part of a "Potential Management Approach" for climate change.[169] It does not describe what these tactics might consist of with any specificity, nor actually require future planning teams to consider—much less implement—them. Potential management approaches for wildland fire include "develop and implement mitigation strategies for invasive plant species" after large fires, but there is no commitment to doing so, no explanation of what such mitigation strategies would be, and no guess as to how effective the chosen strategy might be or how it would interact with other management goals.[170] In fact, none of the five provisions that even mention invasive species propose any binding standard or provide any concrete goals or other information.[171] This is inadequate, particularly given the scope and significance of the issue and its relevance to the proposed amendment's stated purposes.

Commenters are troubled by the Forest Service's failure to consider and address the amendment's significant potential impacts on invasive species, which potentially violates both NFMA and NEPA. We therefore reiterate our suggestions that the Forest Service (1) reduce the extent of proposed logging and "fuels management" work, thus reducing the potential for introduction and rapid expansion of invasive species; (2) retain protections for mature and old-growth forests and LSRs, thus minimizing the danger of introducing invasives into areas with little or no existing infestations; and (3) reduce the likely need for constructing new roads (or reopening closed or decommissioned roads), thus reducing a major vector for invasive species.

We additionally urge the Forest Service to develop and incorporate specific, binding standards requiring non-chemical invasives prevention and mitigation tactics for all implementing projects. These might include, but are not limited to: requiring invasive species surveys prior to any ground-disturbing management activity; prohibiting logging, mechanical fuels reduction projects, or road construction in all mature and old-growth stands currently free of invasive plant infestations; prohibiting logging or mechanical fuels reduction projects directly adjacent to major invasive plant infestations; prohibiting wet-weather logging or hauling in areas with the potential

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[168] DEIS at A2-20.
[169] *Id.* at A1-29.
[170] *Id.* at A1-27; *see also* Invasives Program FEIS at 4-98 (noting that "[c]osts for planning management of timber, other vegetation, road, livestock grazing, fire, fuels, recreation, and minerals and mining programs and projects [will] increase" with implementation of the program).
[171] *See also id.* at A1-29 (proposes goal of collaborating with partners to "identify opportunities for stream and watershed restoration … including but not limited to treatment of invasive species"), A2-20 (proposes guideline encouraging use of "extra measures to avoid spread of invasive plants" when "conducting management activities near special habitats"). No other standards, guidelines, goals, potential management approaches, or desired future conditions address invasive species concerns.

Relatedly, Commenters generally supports the removal of the Northwest Forest Plan's one standard addressing invasive species, which suggests that nonnative species might in some circumstances be introduced into LSRs. *See* NWFP FEIS at B-131.

to be infected by Port Orford cedar root disease; and monitoring for and rapidly controlling invasive plant infestations in fuel breaks and after logging or fuels treatments.[172]

V. The DEIS fails to adequately consider cumulative impacts.

The DEIS ignores substantial cumulative effects on nonfederal lands. For example, regarding how nonfederal forests are managed in the three states, the Forest Service simply claims that activities that occur on nonfederal forestlands are "managed under" or "must be managed in accordance with" such state laws.[173] There is no actual analysis of whether those state laws are adequately protecting wildlife and, if not, how the proposed amendment could further exacerbate impacts to wildlife.

"Contributions by nonfederal lands remain important to recover" the northern spotted owl[174] It is "critical to determine the extent to which conservation management on federal lands must 'take the brunt' of viability effects felt from other lands . . . [p]olicy for management of federal forest lands should reflect this."[175] Despite this, rampant logging has severely impacted nonfederal lands since 1994.

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[172] The current Pacific Northwest Region Invasive Plant Program relies heavily on the use of pesticides and does not require these more preventative standards. *See generally* Invasives Program ROD. Since its adoption, the Forest Service has stated that land management plans (which theoretically incorporated the Invasives Program) in the area did not adequately address the issue and that "plan direction needs to better anticipate the extent or degree of invasive species including plants, insects, and animals." Bioregional Assessment at 28.

Moreover, the proposed Northwest Forest Plan amendment brings the validity and effectiveness of this existing program into question, as it was developed under the more protective original Northwest Forest Plan standards. Whether the invasive plants program will be effective, and what costs and impacts its implementation could have if the amendment goes into effect is completely unknown. *Cf.* Roadless FEIS at 3-126 ("The ability of managers to eliminate invasive species, once established, is often limited."). The DEIS is silent on this matter, too—despite the standard requiring all management plans and assessments to address "[p]revention of invasive plant introduction, establishment and spread[.]" Invasives Program ROD at 10.

Because the amendment drastically undercuts, fails to comply with, and potentially invalidates the Invasive Plant Program, the Forest Service cannot rely on it to satisfy NFMA's planning requirements or to eliminate invasive species from its consideration of "significant" issues. *See* 36 C.F.R. §§ 219.8(a)(1)(iv), 219.10(8) (requiring plan components to address and planning efforts to consider invasive species); DEIS at 1-10 (explaining elimination of nonsignificant issues from consideration). And even if the amendment itself did not significantly change the situation on the ground, the analysis in the Invasives Program FEIS is nearly twenty years old and cannot be relied on to make up for Forest Service's failure to discuss invasive species in the DEIS. *See* 42 U.S.C. § 4336b.

[173] DEIS 3-160.

[174] 1993 FEMAT Report II-32.

[175] *Id*. at II-100.

Nonfederal lands northeast of Tillamook, OR (1994) (Google Earth).

Nonfederal lands northeast of Tillamook, OR (2020) (Google Earth).

Because of the extent of logging that has occurred on nonfederal lands within the NWFP area, it is more important than ever that federal lands are there to provide habitat for species that require older forests. The cumulative effects section in the DEIS is devoid of any detail on the continued loss of habitat on nonfederal lands and how the proposed action will likely add to that loss.

Conclusion

The Forest Service is proposing to amend the NWFP at the same time the agency is attempting to dramatically increasing logging to meet higher timber targets. To meet those higher timber targets, the Forest Service has identified the Pacific Northwest as one of the regions that "should have the greatest increase in total timber volume sold." The proposed amendment is a blueprint to do just that, by weakening core wildlife protections in the existing NWFP in order to increase the amount of national forest land that is available for commercial logging.

The Forest Service failed to take a hard look at significant existing and reasonably foreseeable environmental impacts from its road system. That system has deteriorated significantly, a situation that will only be exacerbated should the proposed amendment be approved. The Forest Service also failed to take a hard look at the environmental impacts of invasive species and the cumulative effects of rampant logging on nonfederal lands.

The Forest Service should abandon its attempt to weaken the NWFP so it can meet higher timber targets.

Thank you for the opportunity to comment.

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