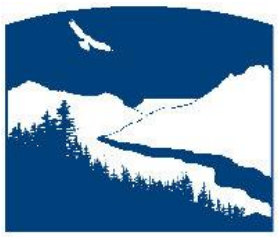

August 28, 2018

Chris French, Objection Reviewing Officer,
1400 Independence Ave. SW,
EMC-PEEARS
Mailstop 1104
Washington, DC 20250

Submitted via email to: objections-chief@fs.fed.us

Re: Objection regarding the Revised Blue Mountains Forest Plans

Dear Objection Reviewing Officer,

In accordance with 36 CFR § 219 subpart B, the Greater Hells Canyon Council (GHCC), Oregon Wild, Wildearth Guardians, the Lands Council, the Juniper Group of the Oregon Sierra Club, American Rivers and the Oregon Natural Desert Association hereby submit this objection to the Revised Land Management Plans for the Malheur, Umatilla, and Wallowa-Whitman National Forests, the single Final Environmental Impact Statement (FEIS); and the combined Draft Record of Decision for the three plans.

Our organizations have a long history of participating in decisions concerning the management of Forest Service lands. We represent members who use and enjoy the waters, public lands and natural resources in the Blue Mountains for recreational, scientific, spiritual, educational, aesthetic, and other purposes. Our members enjoy fishing, hiking, camping, hunting, bird watching, study, contemplation, photography and other activities in and around the waters and public lands in this area.

This objection is filed pursuant to issues raised in GHCC et al. comments on the Draft Environmental Impact Statement (DEIS), filed on August 15, 2014, and issues raised in GHCC et al. scoping comments filed on September 28, 2010. This objection tracks many of those comments, but because the FEIS contains dramatically different information and raises new issues, some issues raised below do not appear in our comments on the DEIS.

The legal notice initiating the 60-day objection period for these plans was published in the Oregonian on June 29, 2018. The 60-day objection-filing period for this project ends on August 28, 2018. The Regional Forester for the Pacific Northwest Region is the Responsible Official for this project and approved the final Records of Decision for the Revised Malheur, Umatilla, and Wallowa-Whitman Forest Plans.

Sincerely,

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STATEMENT OF RELATION TO PRIOR COMMENTS

Following the release of the Proposed Resource Management Plans (LMPs) for the Blue Mountains and associated Draft Environmental Impact Statement (DEIS), our organizations[1] prepared comprehensive comments that pointed out aspects of the proposed project that violate applicable laws, regulations and policies. Responses to our comments were included in Appendix C to the Final Environmental Impact Statement (FEIS) for the revised plans. However, the FEIS did not correct or address the issues of concern. Further, the FEIS contains significant new information and raises new issues; thus some issues raised below do not appear in our comments on the DEIS.

In our previous submitted written comments, we raised concerns regarding violations of the National Forest Management Act (NFMA) including: the failure to incorporate quantitative and qualitative Standards and Guidelines in order to attain the three plans' stated goals and objectives; failure to ensure the diversity or viability of aquatic or terrestrial wildlife species in the Blue Mountains (including bighorn sheep; species relying on snags and down wood, large and old structure; and threatened and endangered species such as bull trout, Snake River Chinook salmon and steelhead and mid-Columbia Basin steelhead); failure to protect soils, watershed conditions, and wildlife diversity; failure to develop an adequate monitoring plan; and relying upon flawed Wilderness and Wild and Scenic River evaluations and inventories. We also raised concerns about violations of the National Environmental Policy Act (NEPA) including: the inadequate range of alternatives and failure to take a hard look at their effects on watershed and forest health, sensitive plant species, water quality, wildlife connectivity, wildlife habitat, soils, climate change; failure to take a hard look at the impacts of motorized use; failure to consider best available science; and failure to establish accurate baselines for current forest conditions.

We have reviewed the FEIS and Draft Record of Decision (ROD) and found that these specific issues have not been resolved and so we address those issues again here in this objection.

STATEMENT OF OBJECTIONS

I. The proposed Land Management Plans do not comply with the National Forest Management Act or the 1982 planning rule

The National Forest Management Act (NFMA) directs the Secretary of Agriculture to issue regulations "that set out the process for the development and revision of the land management plans, and the guidelines and standards prescribed by this subsection." 16 U.S.C. § 1604(g). The Secretary "shall … incorporate the standards and guidelines required by this section in plans for

[1] GHCC's previous comments were submitted under our old name, Hells Canyon Preservation Council or HCPC. For the purposes of this objection we will refer to the organization as GHCC.

units of the National Forest System…" *Id*. § 1604(c). In this case, the National Forests in the Blue Mountains have chosen to proceed under the 1982 planning regulations. The 1982 planning regulations implementing NFMA state that "[p]lans guide all natural resource management activities and establish management standards and guidelines for the National Forest System. They determine resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management." 36 C.F.R. § 219.1(b) (1982). Standards and guidelines in forest plans must be "qualitative and quantitative," *Id*. at §219.1(b)(12), and forest plans must establish "standards and requirements by which planning and management activities will be monitored and evaluated." *Id*. § 219.5(a)(7). As set forth below, in a number of respects, the draft plans do not meet the requirements of NFMA or the 1982 planning rule.

The FEIS supporting the three revised plans' compliance with NFMA is extremely difficult to read, does not contain essential information, and in many respects is internally contradictory and inconsistent. This is not surprising, given that the Forest Service has been actively revising the Blues plans since 2004 and dozens, if not hundreds, of agency planners and specialists have worked on the document; is plain from the text that different approaches have been taken with respect to NFMA compliance during the ensuing 15 years. For example, the plan components in the three plans for terrestrial wildlife emphasize desired conditions and goals, rather than plan components (specifically Standards) that are specific, measurable, achievable, relevant, and time-bound. See e.g. Malheur LMP Species Diversity plan components, pp. 133-134.[2] On the other hand, Appendix B of the Malheur LMP contains "Sage-grouse guidance for Malheur and Wallowa-Whitman National Forests" that are extremely well-written, form the basis of a functional adaptive management framework, and contain numerous plan components – including standards – that are specific, measurable, achievable, relevant, and time-bound. These two sets of plan components are extremely different, likely because they were written by two entirely different planning teams over different planning horizons. There is no effort to integrate them into a cohesive and intelligible plan. There are further examples of this throughout the plan, some of which are discussed below.

Because the FEIS is largely unintelligible, the corresponding plans fall short of demonstrating compliance with NFMA.

A. The proposed Land Management Plans do not establish quantitative and qualitative standards and guidelines that will attain the stated goals and objectives for the Malheur, Umatilla, or Wallowa-Whitman National Forests

[2] An example of this problem is as follows: SD-2G states: "Known bat maternity and roost sites should not be disturbed to minimize disturbance to bats during critical times and to protect the integrity of the site." This guideline is poorly written. "Should not be disturbed to minimize disturbance" is circular, and doesn't not define "disturbance." When are "critical times"? At what scale does "site" apply? Roost site? Forest stand? What does "integrity of the site" mean? What management is or is not appropriate?

NFMA requires the incorporation of "standards and guidelines" into forest plans to "insure" that resources such as wildlife diversity, soils, watershed conditions, and fish habitat are protected during management activities such as logging. 16 U.S.C. §1604. Standards are mandatory constraints on project activities while guidelines, as historically applied by the Forest Service and interpreted by courts, are discretionary restrictions on project activities. Webster defines "insure" as "to make certain especially by taking necessary measures and precautions." Since guidelines have not been interpreted as mandatory, standards are the only planning component that can adequately insure the resource protection mandated in NFMA. Other planning components such as desired conditions, goals, objectives and guidelines are important, but they cannot insure such protection because of the discretion they afford in implementation.

The 1982 planning regulations affirm this requirement to use standards to protect wildlife diversity, soils, watershed conditions, and fish habitat. The regulations require the establishment of quantitative and qualitative standards and guidelines in order to attain a plan's stated goals and objectives. 36 C.F.R. § 219.1 to 219.3. The 1982 rule also requires forest plans to: protect streams, streambanks, shorelines, lakes, wetlands, and other bodies of water; provide for and maintain diversity of plant and animal communities; provide for adequate fish and wildlife habitat to maintain viable populations of existing native vertebrate species; include measures for preventing the destruction or adverse modification of critical habitat for threatened and endangered species; prohibit detrimental changes in water temperature or chemical composition, blockages of water courses, or deposits of sediment in areas which adversely affect water conditions or fish habitat. 36 C.F.R. § 219.27 (1982).

Not only are standards required by NFMA and its implementing regulations, they are good practice as they promote accountability and planning efficiencies. Standards provide certainty about future management action. Without adequate standards, interpretation of the legal requirements and the forest plans' desired conditions, goals, and objectives are left up to line officers. It forces them to make politically contentious decisions without an adequate framework. Clear guidance, direction, and requirements will help them meet legal requirements and implement best available science as they manage national forests, and will provide the public with assurance that forest management will not cross certain unacceptable thresholds. Minimum requirements and actions are not inconsistent with the discretion afforded in NFMA and the 1982 regulations; they merely place floors and sideboards on that discretion and channel it in the right direction. In addition, standards facilitate planning efficiencies at the project level by eliminating the need for planning teams to negotiate and write project specific standards for each management action--a time consuming and inefficient use of limited Forest Service resources. See Nie et al, 2014[3].

[3] Nie, M. & E. Schembra. "The Important Role of Standards in National Forest Planning, Law, and Management," *Environmental Law Reporter* 44 (2014): 10281-10298.

Standards also lead to efficiencies in the context of the Endangered Species Act (ESA). One of the five factors considered by the wildlife regulatory agencies in making listing decisions is "the inadequacy of existing regulatory mechanism[s]." 16 U.S.C. § 1533. Voluntary and unenforceable plan components such as desired conditions, goals, objectives, and guidelines are generally not considered a sufficient regulatory mechanism. Standards have been used to justify not listing a species while lack of standards has led to listing decisions. For example, the U.S. Fish and Wildlife Service (USFWS) did not list the Queen Charlotte goshawk in southeast Alaska due to the standards contained in the Tongass National Forest Plan. Conversely, the 2010 decision to list the greater sage grouse as "warranted but precluded" was influenced by the lack of protection in National Forest plans with sagebrush habitat significant to the species. Now that the Trump Administration is proposing to eliminate or weaken the protections for sage grouse, it is quite possible that the species will be listed under the ESA because relevant forest plans will not have adequate regulatory mechanisms to protect this sensitive species.

The Proposed Revised Land Management Plans for the Blue Mountains fail to comply with NFMA's requirement to incorporate standards into forest plans in order to protect the valuable ecological resources identified by the Act. In particular, the FEIS repeatedly states that climate change is having a deleterious effect on native wildlife and their habitat, but there are no plan components that address this issue in a responsible way.[4] See, FEIS Vol. 2, p. 267 (discussing the effects of climate change). For example, the FEIS states that grazing and high road densities are having serious adverse effects on native wildlife, but there are no plan components that reduce or eliminate these stressors, and in some cases (such as with the Malheur LMP), the plans increase range utilization and roaded access on the forest. FEIS Vol. 2, p. 266, Vol. 2, p. 269 ("A management adaptation to make these habitats more resilient to climate change is to reduce the effects of non-climatic stressors (such as roads, intense grazing, etc.)...Alternative E Modified "include[s] limited management direction to address the effects to motorized access on surrogate species habitats"), Vol. 3, p. 259 (selected alternative increases animal unit months or "AUMs" on the forests).

Instead of developing specific plan components to meet specific ecological needs, the FEIS simply states that "management action to foster relatively intact and functioning ecosystems will be the best strategy to mitigate these effects." FEIS Vol. 2, p. 356. That very well may be true, but there is no analysis in the FEIS that supports this contention. Moreover, there are few, if any, plan components that direct appropriate "management action" to achieve this goal.

For the above reasons, during scoping and commenting we asked that detailed standards and

[4] The FEIS asserts without citation that "Alternative E-Modified...include[s] management direction that would help restore the resilience of habitats that are sensitive to climate change," but does not indicate which plan components it is describing. In fact, outside of general desired conditions, there are no plan components that affect management action that address climate change or its effects on the three forests.

guidelines be developed. We pointed out that the proposed action did not contain adequate standards and guidelines to protect wildlife diversity or watershed condition as required by NFMA and its implementing regulations. We provided the best available science for use in drafting the requested management direction, and have continued to provide updated information to the agency.

No action alternative developed contains the standards necessary to insure the protection of wildlife diversity, soils, watershed conditions, and fish habitat, in violation of NFMA. 16 U.S.C. § 1604(g)(3)(B), 36 C.F.R. §§ 219.19(a)(1), (a)(6)(1982); 5 U.S.C. § 706(2)(A).

B. The proposed Land Management Plans do not insure the diversity or viability of aquatic or terrestrial wildlife species in the Blue Mountains; the Forest Service's use of "surrogate" species is unlawful.

NFMA requires the Forest Service to ''provide for a diversity of plant and animal communities" across Forest Service lands. 16 U.S.C. § 1604(g)(3)(B). Regulations implementing this requirement direct the Service to manage forests for viable populations of native vertebrate and desired non-native species. 36 C.F.R. § 219.19(1982). The regulations define viable populations as a population that has "the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area." *Id*.

To insure viable populations are maintained, the 1982 regulations also require that the Forest Service identify management indicator species (MIS) and that "[p]opulation trends of the management indicator species will be monitored and relationships to habitat change determined." 36 C.F.R. § 219.19(a)(6)(1982). This monitoring is "essential to verify and, if necessary, modify the forest plan's assumptions about the effects of timber harvesting and other management activities on wildlife…In order to meet the monitoring requirement, planners will need to obtain adequate inventories of wildlife populations and distribution." Wilkinson, 1987.[5]

A fundamental problem with the 1982 planning rule is that it requires the use of the scientifically discredited concept of "management indicator species." The best available science for decades has been clear that it is extremely unlikely that a single species – or set of species – can adequately or accurately represent the needs of other, related species. The only exception to this rule is if empirical research on the representative species – and its associates – demonstrates that the representative can in fact "represent" other species and their habitat needs.

Given its decision to continue planning under the 1982 rule, the Forest Service is wedded to the concept of MIS. However, rather than use the flexibility in the 1982 rule to utilize contemporary

[5] Charles Wilkinson and and H. Michael Anderson. Land and Resource Planning in the National Forests (Island Press; 1987)

and scientifically-valid method to ensure wildlife persistence, the agency doubled-down on its use of empirically discredited methodologies and utilized the new concept of "surrogate species" in the FEIS, presumably to meet its NFMA diversity requirement. There are several problems with this approach.

First, the concept of surrogate species is new to the FEIS and proposed LMPs: this concept was not discussed in the draft EIS and proposed plans, and therefore is not a logical outgrowth of the preceding planning process. *Envtl. Def. Ctr., Inc. v. U.S. E.P.A.*, 344 F.3d 832, 851 (9th Cir. 2003). Further confusing the issue, the FEIS states that "it is important to note that surrogate species were referred to as focal species in the Draft Environmental Impact Statement but the name was changed to avoid confusion with focal species as defined in the monitoring requirements of the 2012 Planning Rule." FEIS Vol. 2, p. 229. Focal species in the DEIS had a much different function than surrogate species do in the FEIS, resulting in confusion; indeed, the FEIS never really explains for what purpose surrogates are utilized in either the FEIS or the proposed plans.

The FEIS states that "[r]ather than evaluating the viability of each individual species within the Plan Area, a representative (surrogate species) was selected to represent a group of species." FEIS Vol. 2, p. 229. The concept is later defined: "The key characteristic of a surrogate species is that its status and trend provide insights to the integrity of the larger ecological system to which it belongs. Surrogate species serve an umbrella function in terms of encompassing habitats needed for other species, are sensitive to the changes likely to occur in the area, or otherwise serve as an indicator of ecological sustainability." FEIS Vol. 3, p. 289.

The problem is that the FEIS never demonstrates that a particular surrogate species in fact represents a particular "group of species" or their habitat needs; that the agency has documented the status and trend of the surrogate (or its represented species); that the status and trend of the surrogate in fact "provides insights to the integrity of the larger ecological system to which it belongs;" that the surrogate is sensitive to "the changes likely to occur in the area;" or that the surrogate "otherwise serves as an indicator of ecological sustainability." The FEIS is simply devoid of this information. Not only does this violate NEPA's requirement to disclose and discuss the environmental consequences of the agency's action and to use high quality scientific information, it also violates NFMA's requirement to provide for the diversity of plant and animal communities.

It appears as though the Forest Service is using the concept of surrogate species to meet its NFMA diversity obligation; but again, it is very unclear from the FEIS and the plans what exactly surrogate species are being used for. They are not used for monitoring purposes, because that is the role of focal species.[6] Nor are they used as indicators of management effects. They are

[6] While focal species are required by the 2012 Planning Rule for monitoring purposes, *aquatic* surrogates make an

also not sensitive species. FEIS Vol. 2, p. 291. All of these categories of species are similar, but the USFS insists that they are different and used differently; yet the FEIS and plans do not cogently explain the differences.

Importantly, although the proposed plans list surrogate species in a table, ***there are no plan components that address them*** outside of hortatory desired conditions, which are not obligatory or binding management constraints on agency action. ***Consequently, it is far from clear what the intended management or analysis purpose of surrogates are.*** Because it is not clear from the record what role surrogates are intended to fill, the resulting environmental analysis only serves to confuse the public, and will be impossible to implement by land managers.

Second, the FEIS is simply wrong when it alleges that "the surrogate species approach is a credible and scientifically rigorous method to assess ecosystem conditions that contribute to the viability of wildlife species." FEIS Vol. 2, p. 229. In fact, the surrogate species concept has been roundly discredited in the scientific literature because empirical evidence demonstrating the "representativeness" of a particular surrogate is nearly always lacking, and given the complexity of ecosystems, it is nearly impossible for scientists to know with a fair degree of certainty what habitat needs either the surrogate or its represented group have. According to Cushman et al. (2010)[7]:

> Surrogacy is a key concept in ecosystem management and the movement into multispecies conservation paradigms. Effective species surrogates, however, appear to be rare. Ecological theory provides a possible explanation. No two species can long occupy the same niche (Gause 1934; Hutchinson 1957; Pulliam 2000). Thus, all coexisting, sympatric species must differ along at least one critical niche dimension. There must be some limit to the similarity of coexisting species (MacArthur 1967), and it is expected that species that are similar in some aspects of their niche will displace others so as to minimize competition. This would tend to lead to weak or negative patterns of co-occurrence for species sharing functional ecological characteristics, as we found in our study (see also Sherry 1979). Niche displacement processes would appear destructive to the stable existence of strong species surrogacy on the basis of functional ecological characteristics.

The best available science therefore recommends that surrogacy be *demonstrated*, not *assumed*. The FEIS ignores this recommendation and simply assumes that the selected terrestrial surrogate

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appearance twice in the monitoring plans; but the aquatic surrogate species are also species listed under the ESA and may require additional monitoring regardless of their status as surrogates. See, Malheur LMP p. 160, p. 162. Consequently, the public must wonder: are surrogates *also* used for monitoring? How, then, are they different than focal species?

[7] Cushman et al., *Use of Abundance of One Species as a Surrogate for Abundance of Others*, Conservation Biology, Volume 24, No. 3, 830–840 (2010).

species can and do in fact represent something else (relevant to the Forest Service's NFMA legal obligation) about other species and their habitat needs.

The FEIS appears to rely on Wales 2011 for it use of the surrogate species approach. FEIS Vol. 2, p. 241. However, this document is a draft white paper that apparently represents one Forest Service employee's "best guess" at how to group species across the Blue Mountains into families that could be represented by a surrogate species; this does not appear to comport with NEPA's requirement to ensure the scientific integrity of agency decision making. Similarly, the draft white paper references a "table 3" that purports to "show[] the viability outcomes for the focal species[sic] we evaluated using the models described above by time period," but this table is not a part of the Wales 2011 paper. Surely the agency is not relying on an incomplete and draft white paper for its viability analysis?

Finally, regardless of the reason why surrogates were utilized in the planning effort, the fact remains that the 1982 planning rule requires:

> In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities... Population trends of the management indicator species will be monitored and relationships to habitat changes determined.

36 C.F.R. § 219.19 (1982). It is clear from a plain reading of the regulation that the USFS is required to designate MIS, assess (monitor) the population trends of MIS, and assess how those species respond to habitat change as a result of management action. While the FEIS states the scientific truism that "management indicator species are no longer considered an appropriate approach to addressing species viability," the 1982 planning rule nonetheless requires the USFS to select them and develop plan components for their persistence. Although MIS appear to have been selected in the FEIS (see Table 328), the FEIS does not explain why these species were selected, what their current populations are, or how those populations may be changing in response to management or other stressors. Importantly, other than a single mention in a background section, the Malheur proposed LMP does not mention MIS at all: **there are exactly *zero* plan components addressing MIS, their habitat needs, monitoring for them (or their habitat), or how management may change in response to changes in population trends over time (adaptive management framework)**. This is arbitrary, capricious, and not in accordance with NFMA. 5 U.S.C. § 706(2)(A).

This situation is complicated by several additional facts. One, the FEIS concludes that some species that were MIS in the first-generation forest plans, and listed as an MIS in Table 328,

have serious viability concerns and may in fact not be viable at all. FEIS Vol. 2, p. -243 (Table 330), Vol. 2, p. 227, Vol. 2, p. 248 (stating that under the status quo, Alternative A, "white-headed woodpeckers on all three forests would have a viability outcome of E, meaning that suitable habitat is highly isolated and there is little or no possibility of population interactions among suitable patches of habitat, resulting in potential for extirpations within many of the patches and little likelihood of recolonization of such patches"); Vol. 2, p. 263 (aquatic species at risk under status quo), Vol. 2, p. 326 ("...there is a high likelihood that this population [of Rocky Mountain bighorn sheep] is not viable"), Vol. 2, p. 352 (showing decreasing habitat trends for some MIS and other species). If these species are already not viable, their selection of MIS may be inappropriate; these species should likely be listed under the ESA.

Two, some species listed as MIS in Table 328 have no viability concerns, therefore it is not clear why they are MIS if they are secure. FEIS Vol. 2, p. -241.

Three, other species listed as MIS (or surrogates) in Table 328 are difficult to survey for, which undermines their utility as indicators or surrogates. FEIS Vol. 2, p. 299 ("monitoring of wildlife populations and habitats has been lacking or poorly implemented on national forests due largely to the lack of capacity or commit to fund data collection, management, and analysis").

Four, other species listed as MIS in table 328 are unresponsive, or overly responsive, to management effects, also undermining their utility as surrogates.

Five, habitat trends were modelled for only 10 surrogates: 9 birds and 1 mammal; but there is no indication why other surrogates were not modelled. FEIS Vol. 2, p. 245; Vol. 2, p. 279 ("there also was a group of species that were not modeled for existing conditions. Although it was not possible to model viability, a qualitative analysis of forest plan components (desired conditions and standards and guidelines) for the alternatives indicated they would be sufficient to reduce threats and improve habitat for most of these species, thereby improving the likelihood of continued viability for all of the alternatives").[8] Similarly, the FEIS contains a section captioned "cumulative effects" and purports to analyze the cumulative effects on only the boreal owl, Cassin's finch, western bluebirds, fox sparrows, Lewis' woodpecker, and bighorn sheep, only a small subsection of surrogate species. FEIS Vol. 2, pp. 293-295. Why doesn't the FEIS examine the cumulative effects of the proposed plans on *all* surrogate species? Either NEPA, NFMA, or both require this analysis. 40 C.F.R. §§ 1502.16, 1508.8; 16 U.S.C. § 1604(g)(3)(B), 36 C.F.R. §§ 219.19(a)(1), (a)(6)(1982).

[8] The FEIS does not cite these plan components that allegedly are "sufficient to reduce threats and improve habitat for most [but not all] of these species." Without more, it is impossible for the public to know what plan components the FEIS is referring to or discern whether in fact the agency has met its NFMA obligations with this approach. Moreover, it is clear that some species' needs will not be met: but the FEIS does not indicate which ones, or why their needs may not be met.

Similarly, many species have extremely poor viability ratings under the selected alternative, which calls into question whether the proposed plans in fact meet their viability obligations. FEIS Vol. 2, pp. 273-277 (Table 333 showing a viability rating of D, "these species may not be well distributed across the assessment area," for numerous species under Alternative E-Modified), Vol. 2, p. 279 ("Although some of these surrogate species had low viability scores, there was no indication that implementing any of the alternatives would threaten the viability of any of those species to the extent that would cause a trend towards Federal listing").[9] It appears that the FEIS never really undertakes a viability analysis of *species* and instead focuses on habitat: "the viability outcomes are based on departure from historical conditions." FEIS Vol. 2, p. 243. The "viability outcomes" for surrogate species are then ranged A through D, which, while perhaps useful from a comparison point of view, in fact says nothing about whether or not a species is likely to persist on the landscape as required by NFMA because the analysis only focuses on habitat departure, not the numbers and trends of members of a species.[10]

C. The Land Management Plans fail to protect population viability of wilderness-dependent and -associated species

Many forest species evolved within the unroaded interior conditions that forest ecosystems naturally provide. To ensure terrestrial species viability, it is necessary to protect core habitat areas that serve as anchors of diversity, and to provide connectivity between these areas to ensure the ability of species to move and adapt to climate change. Because of their relatively large size and diverse species composition, roadless areas represent one of the last remaining opportunities to conserve large-scale ecological processes, intact hydrologic regimes, and species that are intolerant of road-related impacts (e.g., large carnivores). The unmodified natural character of roadless areas create few barriers to species movements, making these intact tracts of land critical to facilitating movement of species across landscapes. Roadless areas contain relatively high levels of intact old growth forests that support unique biodiversity, and have been shown to provide temperature refuges from climate warming, and to buffer climate-sensitive species (Betts et al. 2017;[11] Frey et al. 2016[12]). Furthermore, and of great significance to this Forest Plan Revisions, the Blue Mountains serve as one of the most biologically significant wildlife and

[9] There is nothing in the FEIS that supports the contention that species with low viability rankings are still secure such that ESA listing is not required: there is simply no analysis or data in the FEIS that low-ranked species will still persist across the landscape.

[10] On the other hand, the FEIS also states that "trends in population viability were determined at the National Forest scale;" but this *population* viability analysis does not appear anywhere in the FEIS. FEIS Vol. 2, p.235.

[11] Betts, M.G. et al. 2017. Global forest loss disproportionately erodes biodiversity in intact forest landscapes. Nature 547, 441–444.

[12] Frey, S.J.K. et al. 2016. Spatial models reveal the microclimatic buffering capacity of old-growth forests. Science Advances, 2 (4), e1501392.

floristic mega-corridors in the Pacific Northwest, connecting the Northern Rockies to the East, the Cascades to the West, and the Great Basin to the South.[13]

The Blue Mountains are renowned for topoclimate complexity and associated diverse ecological communities. The diversity of vegetation types in the Blue Mountains supports abundant and diverse fauna, including many large ungulate species such as elk, mule deer, whitetail deer, bighorn sheep, and mountain goats that need secure habitat free from roads, protected from extractive management, and closed to motorized vehicles. The Blues encompass over 16,000 km of perennial streams, almost 2,000 lakes and ponds, and thousands of springs. Roadless areas are key watersheds for aquatic species and serve as strongholds for salmonids and other aquatic species whose habitat is diminished by road building and associated uses. Avian diversity is even greater with 263 total species known to occur in the Blue Mountains. Numerous species are closely associated with late successional, old growth forests in unfragmented roadless areas, such as Pileated Woodpecker, Black-backed Woodpecker, White-headed woodpecker, Pygmy Nuthatch, Three-toed woodpecker, Lewis' Woodpecker, Williamson's Sapsucker, and other cavity excavators.

As a mega-wildlife corridor linking the Northern Rockies and the Cascades and Great Basin regions, the Blue Mountains have seen the return of native species in recent decades, such as wolves, moose, and wolverine. Roadless and Wilderness lands have been key to both the dispersal and establishment of species returning to the Blue Mountains. The future viability of these and other species that require wide ranging intact habitats (like Canadian lynx and pacific fisher) is dependent upon protection of the region's remaining wilderness lands.

To ensure the viability of these and other species, the Forest Service needs to insure that the high-quality habitat provided by these roadless area is protected. The proposed Forest Plans and their preferred alternative fail to accomplish this.

D. The Final Environmental Impact Statement and Revised Land Management Plans do not insure viability of bighorn sheep and other species of concern

As noted above, NFMA and the Forest Service regulations at 36 C.F.R. § 219.19(1982) require the Forest Service to "maintain viable populations of existing native … vertebrate species in the planning area." In the Blue Mountains Forest Plans' ROD and FEIS, the Forest Service has opted to box bighorn sheep into their existing islands of habitat rather than allow for a population where "the estimated numbers and distribution of reproductive individuals" insures that bighorn sheeps' "continued existence is well distributed in the planning area." The ROD and FEIS fail to provide habitat that will "support, at least, a minimum number of reproductive individuals," Nor do they provide habitat that is "well distributed so that individuals can interact with other in the planning area." (Quoting 36 C.F.R. § 219.19(1982)).

[13] See e.g Migrations in Motion map for Oregon: http://maps.tnc.org/migrations-in-motion/#6/46.883/-118.773

Without doubt, the most crucial factor for the viability of bighorn sheep is separation from domestic sheep. FEIS at Vol. 1, p.172. While the standards in the three forest plans might protect existing bighorn herds from domestic sheep, they do not allow for the population growth necessary for bighorn sheep to thrive in numbers that are viable over the long-term. The FEIS states as much: "Based strictly on herd size and geographic distribution of the Rocky Mountain bighorn population, there is a high likelihood that this population is not viable." FEIS Vol. 2, p. 326.

On the issue of viability, the FEIS also states that "[a]nother population characteristic that is limiting viability of bighorn sheep in the Plan Area is the relatively small and isolated herd distribution, particularly for the California subspecies." FEIS Vol. 2, p. 327. It then adds that "[r]elatively small herd size is also a concern for long-term viability in the Rocky Mountain subspecies. FEIS Vol. 2, p. 330.

Experts place the historical Rocky Mountain Bighorn Sheep population in this area in the range of thousands of bighorn sheep, possibly as high as 10,000. See Coggins Declaration at 3, attached as Exhibit A. The 2015 population detailed in the FEIS does not even add up to 1,000. The specific herd sizes in 2015 are as follows (FEIS Vol. 2, p. 329):

Table 342. Bighorn sheep herd names and 2016 population estimates within the Blue Mountains forest plan revision analysis area

Bighorn Sheep Subspecies and Herd Name*	**State**	**2015 Adult Population Estimate (ODFW)**	**National Forest (Nearest to bighorn herd)**
California *O.c. californiana* Aldrich Mountain	Oregon	150	Malheur
Burnt River	Oregon	87	Wallowa-Whitman
McClellan	Oregon	82	Wallowa-Whitman
Potamus	Oregon	147	Umatilla
Rocky Mountain *O.c. canadensis* Asotin	Washington	46	Umatilla
Black Butte (Upper Joseph Canyon)	Washington & Oregon	24	Umatilla
Mountain View	Washington	30	Umatilla
Tuncannon	Washington	31	Umatilla
Bear Creek (Minam)	Oregon	54	Wallowa-Whitman

Lookout	Oregon	181	Wallowa-Whitman
Lostine	Oregon	68	Wallowa-Whitman
Lower Hells Canyon (includes Downy Saddle)	Oregon	40	Wallowa-Whitman
Lower Imnaha	Oregon	76	Wallowa-Whitman
Muir Creek	Oregon	19	Wallowa-Whitman
Upper Hells Canyon	Oregon	7	Wallowa-Whitman
Upper Saddle (Saddle Creek & Hat Point)	Oregon	43	Wallowa-Whitman
Wenaha	Oregon & Washington	62	Umatilla

As a side note, the extended length of this LMP revision process (over one decade and counting) provided an opportunity for the Forest Service to include population trends in the FEIS. Instead, they opted to detail only population numbers from 2015. *Id*. It is interesting that the FEIS contains a comparison of habitat trends since the Interior Columbia Basin Ecosystem Management Project (ICBEMP) analysis was conducted in 2000, and for bighorn sheep habitat there has been a negative relative trend of roughly -50.0. FEIS Vol. 2, p. 352.

The standards in the three Forest Plans create a system in which a Risk of Contact Analysis (or current best available scientific quantitative and qualitative analysis) is conducted for domestic sheep allotments when those allotments go through site-specific NEPA analyses. Yet the site-specific NEPA analyses happen very rarely, at best once per decade. Thus, under the proposed framework, if any bighorn sheep herd grows back towards its historical population number during a period between site-specific NEPA being conducted, the expansion of those herds (into habitat that is historical bighorn habitat, no less) will likely result in contact despite what an outdated Risk of Contact Analysis might determine.

In other words, a major failure of the proposed Standards is that they do not account for future growth of bighorn sheep herds. Outside of this current process and any site-specific NEPA that may or may not take place, there is nothing that triggers a re-evaluation of the risk of contact between bighorn and domestic sheep, even if there is evidence that a particular herd is finally recovering from over a century of being negatively impacted by domestic sheep grazing.

The FEIS provides a good example of this:

> The Mud Creek sheep allotment management plan has gone through a relatively recent environmental analysis that documents the supporting rationale for when and where

> domestic sheep are grazed in relation to the nearest bighorn sheep herds. The current low level of risk is expected to continue unless bighorn sheep in the Black Butte or Wenaha herds begin to expand their range closer to the allotment boundary. FEIS Vol 2., p. 337.

The Draft ROD claims (p. 21) that "[t]he effective separation standard would allow bighorn sheep populations to expand and move into new areas over time." That statement is a gross exaggeration of the effective separation standard. At best, the effective separation standard – BHSM-1S – assures effective separation as of this moment. It does not even purport to address expansion over time because there is nothing that triggers a revaluation of the risk of contact.

It is important to keep in mind that the effective separation standard is only as strong as the science behind it. While the Risk of Contact model is the current best available science dealing with effective separation, it does not consider risks associated with lost or wandering domestic sheep or goats. FEIS Vol. 2, p. 331. Lost and wandering sheep are a common occurrence on any forest; these three forests are no exception. See Coggins 5th Declaration, attached as Exhibit B. In fact, the inclusion of Standard BHSM-S5 is an admission that domestic sheep will stray. It attempts to address this factor, but of course can only do so after the fact--after the damage is done.

Likewise, when discussing viable population numbers for bighorn, the FEIS aims low. The only science cited that defines a viable population is Zeigenfuss et al. (2000), which concludes a herd of 125 is the minimum viable population for bighorn sheep. FEIS Vol. 2, p. 325. The other two studies cited on the issue of minimum viable population describe herd sizes that are *not* viable: herds of 30 and 50. *Id*. Science more recent than the Zeigenfuss et al. (2000) study indicates that herd size in the thousands, not hundreds, is the only viable management approach.[14]

The best available science thus indicates herd sizes lof at least 125 and possibly far more are required to maintain viability. As seen in the table above, almost no herds on the three forests are of this size. Two of the four California Bighorn Sheep herds reach that number, and only one of the thirteen Rocky Mountain Bighorn Sheep herds.

Moreover, Cassirer et al. (2018) point out that "[i]n the long-term, agencies will need better strategies for the management of larger interconnected bighorn sheep populations for species viability."[15] As noted in the FEIS, the Rocky Mountain bighorn sheep population within the

[14] Reed, D.H, J.J. O'Grady, B.W. Brook, J.D. Ballou, and R. Frankham. 2003. Estimates of minimum viable population sizes for vertebrates and factors influencing those estimates. Biological Conservation 113:23–34. (attached) Traill, L.W, B. W. Brook, R. R. Frankham and C. J .A. Bradshaw. 2010. Pragmatic population viability targets in a rapidly changing world. Biological Conservation 143(1):28-34 (attached).

[15] Cassirer, F.C., K.R. Manlove, E.S. Almberg, P.L. Kamath, M. Cox, P. Wolff, A. Roug, J. Shannon, R. Robinson, R.B. Harris, B.J Gonzales, R.K. Plowright, P.J. Hudson, P.C. Cross, A. Dobson, and T.E Besser. 2018. Pneumonia in Bighorn Sheep: Risk and Resilience. The Journal of Wildlife Management 82(1):32-45.

Plan Area functions as a meta-population made up of many relatively small herds. FEIS Vol. 2, p. 329. While meta-populations can help provide population and genetic resilience, they can also expose more individuals to disease from a single source.

The final issue affecting bighorn sheep viability is the failure to regulate recreational goat use in bighorn habitat. The ROD addresses this issue by stating: "Restricting pack goat use would require separate, site-specific analysis and decisionmaking." Draft ROD p. 18. There is no explanation for this conclusory statement. This LMP process most certainly aims to regulate certain recreational uses throughout the forest (see, for example, the Recreation section in the FEIS Vol. 2 pp. 422-438)so any claim that the specific recreational use of pack goats cannot be regulated in this process is balderdash, especially when the FEIS notes that "[a]lthough there seems to be a low prevalence of *M. ovipneumoniae* in pack goats, there are risks of pack goats contracting *M. ovipneumoniae* through co-mingling with other domestic sheep or goats." FEIS Vol. 2, p. 333. "Although the risk of disease transmission from pack goats is low, the risk is not zero, and a single transmission event has the potential to start an all-age die-off in bighorn sheep." FEIS Vol. 2, p. 338.

If the Blue Mountains national forests are serious about protecting the viability of bighorn sheep, they need to do more than protect the current bighorn in their small and isolated herds. They need to look to the future and manage habitat for a truly viable meta-population.

Requested Relief:

1. Include a mechanism in the BHSM Standards that triggers a site-specific re-evaluation of the effectiveness of separation, perhaps using a % growth in herd size as the trigger to recalculate risk of contact from all domestic sheep grazing and goat use in the vicinity.

2. Instead of using current location of bighorn as the default measure in a risk of contact analysis, as in BHSM-1S, use as the default standard the boundaries of historical bighorn habitat to allow for expansion of bighorn sheep rather than boxing populations into only their current habitat.

3. Remove historical bighorn habitat from areas deemed suitable for livestock grazing for the same reasons as above.

4. Ban use of recreational pack goats within a reasonable distance from occupied bighorn habitat.

Bighorn sheep are only a single example amongst many where the viability of species of concern is not appropriately addressed by the new LMPs.

E. Comments specific to standards and guidelines for grey wolves

We ask that the following clarifications and changes are made to the forest plans guidelines for wolves. *Italics* are used for additions. ~~Strikethroughs~~ are used to delete a word. Bulleted points are additional comments and requests for changes.

SD-6G Management activities within one mile of a known active (during same calendar year that use is documented) wolf den and rendezvous sites should implement appropriate seasonal restrictions based on site specific consideration and potential activity effects, to reduce disturbance and human presence near to denning wolves.

- It makes sense to limit the time for which a known wolf den or rendezvous site is recognized as such for these purposes. However limiting it to a calendar year is problematic. Wolves – even wolves new to an area – will often utilize previously used sites long after their last use. Wolves typically breed in February and give birth in April. If a known site is arbitrarily considered inactive every time the ball drops in Times Square, this definition would undermine this standard at exactly the time it is most needed. We recommend the Forest Service either drop "active" or define it in a way that allows the standard to function. Three years would be an appropriate standard, but to have any practical effect it can be no less than two years.

- Presence should be assumed at recently used sites unless proactive monitoring at the appropriate time indicates absence. Another way of saying that is that absence of appropriate monitoring should be considered presence.

- This should be a standard not a guideline and require cessation of activities that may be harmful to wolves for a reasonable amount of time if such a site is discovered.

- "Appropriate seasonal restrictions" is vague and should be defined. While wolves may tolerate human presence and activity, sometimes they may not. Further, even if wolves stay in the area, increased human activity may cause habituation, and other potential conflict that may cause direct or indirect – but very real – harm.

- There is a tension between protecting areas of known wolf activity while keeping such sensitive information from causing harm. The Forest Service should seek out information from agencies (choosing not to know about areas of wolf activity should not be a way to avoid this standard) but not share specific details with any member of the public including livestock managers.

SD-7G ~~Do not authorize~~ *Prohibit* turnout of sick or injured livestock to reduce risk of attracting *or being preyed upon by* wolves *and other native carnivores. Require the removal of known sick, injured, or otherwise vulnerable livestock.*

- This is a common sense husbandry standard made only more so with the presence of wolves and other native carnivores. Rather than "do not authorize", the Forest Service should clearly prohibit such activity. Animals regularly get sick, injured, or otherwise decline in fitness while on the range. Those animals are no less an attractant or at less risk of predation. If livestock managers are aware of animals that are in a weakened condition, they should be removed from the range.

- We request that this guideline become a standard. As a guideline, there is no assurance that this will be required of grazing permittees because of the discretion they are afforded in implementation.

SD-8G Remove or otherwise dispose of livestock carcasses such that the carcass will not attract wolves. If, due to location of the carcass, this is not possible, develop other remedies.

- We request this guideline become a standard. Guidelines cannot ensure that this important action will occur on the ground because of the discretion they are afforded in implementation.

SD-9G ~~Do not authorize~~ *Prohibit* salt, or other livestock attractants ~~near~~ *within 0.75 miles of* known active (during same calendar year that use is documented) wolf dens or rendezvous sites to minimize livestock use of these sites.

- The placement of attractants to areas of known wolf activity should be explicitly prohibited. As above, limiting the definition to the same calendar year is problematic. "Near" is vague. A reasonable minimal distance should be included. We'd suggest a mile and no less than ¾ of a mile. This standard should also take into account regular travel routes to and from den/rendezvous sites.

- It is helpful to address livestock attractants. However the silence of these standards on potential artificial ***wolf*** attractants is problematic.

If the goal of these plans is truly to reduce conflict between livestock and wildlife and to have a successful and socially acceptable grazing program on public lands, then the Forest Service should incorporate the following the final plans as appropriate plan components:

- Forest Service range personnel shall proactively consult with wildlife agencies to help reduce conflict with wolves while developing range management plans and during their implementation.

- Range management plans should allow flexibility to adjust grazing patterns if predation becomes a problem. Especially if that predation becomes chronic and leads to killing wolves, plans should require livestock be moved from the area of chronic predation.

- Range management plans shall require livestock managers to comply with state-requirements for non-lethal conflict deterrence and encourage them to consult and coordinate with agencies and others to help implement effective non-lethal conflict deterrence measures.

- Prohibit turnout of pregnant cows and calves under 200 pounds.

- Forest Service staff should not share specific Grey Wolf location information with members of the public.

F. The Revised Land Management Plans do not properly address aquatic species viability

As discussed above, NFMA and its implementing regulations prescribe that the Forest Service provide for the viability of all plant and animal communities and requires the incorporation of standards and guidelines into forest plans in order to ensure protection species viability and habitat are protected. 16 U.S.C. §1604. Specifically, the 1982 regulations require forest plans to: protect streams, streambanks, shorelines, lakes, wetlands, and other bodies of water; provide for adequate fish and wildlife habitat to maintain viable populations of existing native vertebrate species; include measures for preventing the destruction or adverse modification of critical habitat for threatened and endangered species; prohibit detrimental changes in water temperature or chemical composition, blockages of water courses, or deposits of sediment in areas which adversely affect water conditions or fish habitat. 36 C.F.R. § 219.27

In the Blue Mountains, there are 17 salmonid populations that are currently extinct. In addition, the Snake River Chinook salmon and steelhead, the mid-Columbia Basin steelhead, and the bull trout are listed as threatened. In order to meet the statutory and regulatory requirement to provide for species viability in the Blue Mountains, the revised plans must include a suite of standards and guidelines specific to aquatic species viability; it appears that the Forest Service is relying on the Blue Mountains Aquatic and Riparian Conservation Strategy (ARCS) to meet these requirements. Our objections regarding ARCS are discussed elsewhere.

In our comments on the DEIS, we advised that the final plans include a standard that sets an upper limit for the density of motorized routes (roads and motorized trails) in key watersheds, headwater areas, and Riparian Management Areas (RMAs). Where the current density exceeds

the threshold, the final plans should require an annual reduction in route density until the threshold is met. The scientific literature related to route densities in watersheds containing salmonids and bull trout points to an appropriate maximum density of around 1 mile/sq mile. *See* Carnefix and Frissell, 2001; McCaffery et al, 2007; Harr and Nichols, 1993. We also advised that the final plans should include a standard that disallows ground disturbing activities within riparian areas, unless the agency can demonstrate that such activities will improve riparian condition (e.g., stream restoration work).

The FEIS and revised plans do not include these limitations on ground-disturbing activities and road densities, instead relying on ARCS to achieve these objectives. However, those provisions appear insufficient to meet the needs of listed and sensitive species.

Further, as stated above, it is not clear whether the FEIS and revised plans in fact designate aquatic MIS. And, regardless, there are no plan components that address the management of MIS and their habitat. This violates NFMA and is arbitrary and capricious. 16 U.S.C. § 1604(g)(3)(B), 36 C.F.R. §§ 219.19(a)(1), (a)(6)(1982); 5 U.S.C. § 706(2)(A).

1. The ARCS does not contain plan components that ensure aquatic species viability, and the MIS chosen do not comply with the NFMA

The 1982 planning rule requires:

> ***Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area*** (emphasis added). For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area.
>
> (a) Each alternative shall establish objectives for the maintenance and improvement of habitat for management indicator species selected under paragraph (g)(1) of this section, to the degree consistent with overall multiple use objectives of the alternative.
>
> (1) In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species and the reasons for their selection will be stated. ***These species shall be selected because their population changes are believed to indicate the effects of management activities*** (emphasis added). In the selection of management indicator species, the following

> categories shall be represented where appropriate: Endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; non-game species of special interest; and additional plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality. On the basis of available scientific information, the interdisciplinary team shall estimate the effects of changes in vegetation type, timber age classes, community composition, rotation age, and year-long suitability of habitat related to mobility of management indicator species. Where appropriate, measures to mitigate adverse effects shall be prescribed.
>
> …
>
> (6) Population trends of the management indicator species will be monitored and relationships to habitat changes determined. This monitoring will be done in cooperation with State fish and wildlife agencies, to the extent practicable.

36 C.F.R. § 219.19 (1982).

The FEIS designates four aquatic species as surrogate species,[16] and the Blue Mountains Aquatic and Riparian Conservation Strategy (ARCS) designates another four that are apparently for the purpose of monitoring riparian habitat, but are not addressed in the FEIS. The FEIS states:

> The four aquatic surrogate and focal species selected for this Plan revision are spring Chinook salmon, bull trout, summer steelhead, and redband trout. **For purposes of diversity and viability analysis and comparison of alternatives, these four species will be referred to simply as surrogate species for the remainder of the analysis, as they only function as focal species for Monitoring Plan purposes under the 2012 Planning Rule.**

FEIS Vol. 2, p. 15. (emphasis in the original)

But the ARCS designates four additional species for riparian monitoring. See ARCS, Table 39, "Status of surrogate species to assess the ecological conditions required under § 219.9." 36 CFR

[16] As addressed above, the 1982 Planning Rule requires selection of "management indicator species" (MIS). The USFS has largely changed that nomenclature to surrogate and/or focal species – a confusing, and potentially illegal change. Although the plan is clear that focal species will be monitored, not surrogate species, it appears that in the aquatic section, surrogate species will be monitored, and that this is the USFS's response to the requirement of designating management indicator species. The legal problems with that are addressed elsewhere in this comment. For the purposes of this section we will assume that surrogate, focal and MIS are one and the same.

219.9 (the 2012 Planning Rule) provides, in relevant part, that there shall be plan components intended to maintain or restore:

> (i) Key characteristics associated with terrestrial and aquatic ecosystem types;
> (ii) Rare aquatic and terrestrial plant and animal communities; and
> (iii) The diversity of native tree species similar to that existing in the plan area.

While we concur it remains critically important to continue to manage for and monitor spring Chinook salmon, bull trout, summer steelhead, and redband trout, we applaud the inclusion of riparian associated MIS other than fish. The FEIS makes a case for the difficulty of monitoring fish and that the health of fish species is tied to more than what occurs on USFS lands.

However, despite claims in the FEIS that riparian habitats are generally improving on USFS lands, this is not supported. For example, the FEIS states:

> ***None of the native aquatic management indicator species were Endangered Species Act-listed at the time the Blue Mountains forest plans were signed in 1990***. Several steelhead and bull trout distinct population segments were subsequently federally listed as threatened between 1998 and 2010, along with their designated critical habitats, indicating a loss of viability at the distinct population segment or species scale. Reasons for those listings are provided in the various Federal Registers that announced the listings. No other 1990 aquatic management indicator species in the Plan Area have been listed as threatened or endangered since 2010. ***Redband trout and westslope cutthroat trout are the only remaining native aquatic management indicator species from the 1990 Forest Plans that are not currently listed under the Endangered Species Act*** (emphasis added).

FEIS Vol 2, p. 41.

The FEIS explains that "indicators should be chosen for specific habitats identified as being at risk, where there is a high level of management actions anticipated, and where there is reasonable certainty that management indicator species population changes can be monitored and attributed to Forest Service activities (Hayward et al. 2004)." FEIS Vol 2, p. 40. The Blue Mountains ARCS contemplates numerous stream restoration activities for the purpose of improving habitat. MIS should be chosen whose "population changes can be monitored and attributed to Forest Service activities."

As a result of these challenges, we applaud the inclusion of non-fish focal/surrogate species for monitoring riparian health. Not only might we choose species that are easier to monitor than fish, but we might choose species that more directly indicate the health of non-fish-bearing

streams and wetlands which contribute substantially to downstream water quality and temperature. And, obviously, fish are not the only riparian obligate species. Frogs, salamanders, beavers and many avian species are more terrestrial, but also riparian obligates. The Malheur LRMP points out that 75% of species require access to riparian habitats at some point in their life cycle. Malheur LMP at 119.

Unfortunately, we don't see how the additional species chosen for this job have any relationship with riparian health. Neither the plans themselves, the draft ROD, or the FEIS provide any explanation for why this apparently random list of species was chosen to represent riparian ecological health outside the water.

The ARCS proposes that the following surrogate species be monitored to comply with the species diversity requirements of 36 CFR 219.9:

- Cassin's finch
- fox sparrow
- mountain bluebird
- whitebark pine

We are aware of no science indicating these are riparian associated species, whose "status and trend provide insights to the integrity of" riparian systems. More importantly, the FEIS makes no attempt to explain why these species were chosen over other more obvious species, such as riparian obligates. The FEIS indicates there are only four riparian focal species, and they are all fish. All of the species listed above are upland species with no particular association with riparian ecosystems. Accord FEIS Vol. 2 pp. 277, 294, 295.

According to the FEIS, "The key characteristic of a surrogate species is that its status and trend provide insights to the integrity of the larger ecological system to which it belongs. Surrogate species serve an umbrella function in terms of encompassing habitats needed for other species, are sensitive to the changes likely to occur in the area, or otherwise serve as an indicator of ecological sustainability." FEIS Vol. 3 p. 289.

While 85% of birds will at some point be found in riparian areas, Malheur LMP at 119, there is no scientific evidence that any of these species health or viability in any way correlates to riparian health.

According to the FEIS, fox sparrow tends to prefer "open brushy habitats" and was likely benefited by removal of late old structure pine. FEIS Vol. 2, p. 38. Why a species that is benefitted by historical logging practices that are now discredited was chosen is extraordinarily unclear.

Bluebirds are secondary cavity nesters most commonly found in open areas, such as recent burns. Further, their populations are currently being impacted by "bluebird enthusiasts in Washington, Oregon, and British Columbia [that] have established trails of nest boxes in an effort to reestablish local breeding populations." FEIS Vol. 2 p. 294. It is unclear why the Forest Service would choose to monitor an upland species whose population it admits is currently being impacted by other factors that have nothing to do with riparian health.

Cassin's finch is distributed from British Columbia southward and into Mexico during winter. Throughout the conifer belts of North America's western interior mountains, Cassin's finch can be one of the most common and conspicuous breeding birds. FEIS Vol. 2, pp. 913-94. The forest plans will improve dry upland habitat specifically for Cassin's Finch. FEIS Vol. 3, pp. 44, 52, 59. While we appreciate the improvement of upland habitat for Cassin's Finch, it is not clear what information about riparian health would be indicated by changes in its population.

Whitebark pine is only mentioned in one other place in the entire FEIS. There it is described as most closely associated with very high elevation cool moist and cold dry vegetation types such as wolverine habitat. FEIS Vol. 2, p. 287. How whitebark pine could be considered an appropriate species for indicating the health of riparian systems – especially lowland riparian systems which are the majority of the systems in the Blue Mountains – is beyond comprehension.

There is no place in the FEIS where it is clear that these four species represent aquatic ecosystem types, rare communities, or the diversity of native tree species required by 36 CFR 219.9. Further, there is no evidence in the plans or the FEIS that the FS has current baseline data on any of these species. Hence, any actual monitoring done is not likely to produce useful trend information. Notably missing from the list of chosen – or even considered – species are common riparian associated species such as: ducks, frogs, salamanders, beaver, American dipper, marsh wren, red-winged blackbird, yellow-headed blackbird, MacGillivray's warbler, western wood-pewee, Bullock's oriole, willow flycatcher, yellow breasted chat, yellow warbler, sapsuckers, aspen, willow, alder and cottonwood. All of these species are recognized in the literature, and many in the FEIS, as strongly associated with riparian habitat. The Malheur LMP specifically notes that "One good measure of riparian and wetland health is the ecological condition of riparian vegetation …" Malheur LMP at 119. Given this assertion, it is unclear why no representatives of riparian vegetation were chosen for monitoring. Trees, such as aspen and cottonwood, are substantially easier to count than birds or fish.

The FEIS only addresses the choice of the four fish species as riparian surrogate/focal species. The other species common to riparian associated areas are simply not in there. Although numerous places refer the reader to the Watershed Function section of chapter 3, this section does not in fact provide anything but the most generalized information about the concept of

surrogate species. It never clarifies how these particular riparian focal/surrogate species were chosen, or what their population trends are expected to indicate about riparian health in general. This is a clear and unambiguous violation of NEPA which provides that:

> Agencies shall insure . . . scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement.

42 C.F.R. 1502.24.

Requested Relief**:**

1. Issue a supplemental information piece identifying a new set of species to be monitored for riparian health.
2. Distinguish between the major types of riparian habitats in the Blue Mountains (beaver influenced wet meadows, cottonwood galleries, forested high-elevation headwaters) and designate appropriate monitoring indicator species for each.
3. Consider each of the species (or classes of species) listed here: ducks, frogs, salamanders, beaver, American dipper, marsh wren, red-winged blackbird, yellow-headed blackbird, MacGillivray's warbler, western wood-pewee, Bullock's oriole, willow flycatcher, yellow breasted chat, yellow warbler, sapsuckers, aspen, willow, alder and cottonwood and explain the best available *current* science on each species, the monitoring practicalities for each species (for example tree populations will be easier to sample than bird populations), and explain why they are or are not appropriate for long term monitoring to determine riparian health.
4. Provide a clear plan explaining how they will be systematically monitored over time and what changes in their populations are expected to indicate about riparian health.

2. The LMPs do not contain a coherent riparian monitoring plan

The 1982 planning regulations require monitoring and evaluation "to determine how well objectives have been met and how closely management standards and guidelines have been applied." 36 C.F.R. § 219.12(k). Monitoring requirements must provide for a quantitative estimate of performance; documentation of measured prescriptions and effects, including significant changes in productivity of the land; and documentation of costs associated with carrying out the planned management prescriptions as compared with the costs estimated in the land management plans. *Id.* § 219.12(k)(1)-(3). This monitoring is essential to verify and, if necessary, modify the forest plans' assumptions about the effects of timber harvesting and other management activities on wildlife.

Monitoring and adaptive management together are one of the five key elements of the Blue Mountains ARCS. Indeed, continued management of grazing is highly dependent on verification of long-term riparian health. See Standard GM-1s: "If adjusting practices is not effective, remove livestock." Malheur LMP p. 150. Yet, there is no coherent monitoring plan in the ARCS or in any of the forest plans generally that would allow either Forest Service staff, ranchers, or the public to determine whether their practices are actually moving conditions toward or away from desired conditions.

Given the fact these plans rely more heavily on Desired Conditions and Guidelines than on Standards, monitoring is of utmost importance. Flexibility in implementation requires accountability for outcomes. The plans appear to attempt to make room for a variety of means to reach a particular goal. This approach may have merit in certain circumstances. However, it also requires a rigorous strategy to determine if these novel means of accomplishing goals are actually working. The FEIS contains a history of the monitoring efforts that have been proposed and failed since the last planning period. See FEIS Vol. 2, pp. 41-43. Given that history, clear direction is critical.

The ARCS does not contain a coherent monitoring plan that will live up to this higher level of accountability, or even to the basic requirements of the Planning Rule.

The Monitoring Plan begins on page 76 of the ARCS. After two pages of explanation of the importance of monitoring in general, the plan explains:

> Broad-scale monitoring would generally be authorized and funded by the regional forester. This type of monitoring would generally focus on significant issues occurring over broad areas (many national forests). Actions ***could*** include development or refinement of regional policies and procedures, training and functional assistance trips to national forests, and direction to national forest personnel to focus additional resources towards certain activities. These actions would generally occur over short to medium time-scales (for example, one to 5 years).
>
> Additional effectiveness monitoring will be conducted on a prioritized ad-hoc basis. (emphasis added)

Blue Mountain ARCS (Appendix A to the Malheur, Umatilla, and Wallowa-Whitman National Forests LMPs) p. 78.

This provides no actual coherent plan. It provides only broad generalizations about what could be done, but no standards or explanations of what will be done, or what is actually being planned for.

The plan goes on to explain that PACFISH-INFISH biological opinion monitoring (PIBO monitoring) will continue. That is clear and coherent. It's also welcome news. But PIBO monitoring alone does not satisfy the full requirements of the 2012 Planning Rule. PIBO monitoring covers geo-morphological stream conditions such as pool frequency and depth, bank angle, etc. While these are important monitoring questions that have been shown to indicate habitat quality for salmonid species, they don't actually address the status of all MIS species as required by the rule.

It is virtually impossible to tell from the rest of the ARCS if any other monitoring protocols will actually be implemented. The ARCS states:

> Implementation ***may*** happen at the ranger district scale, national forest scale, or both. Implementation monitoring would measure the effects of various activities such as, watershed restoration, timber harvest, grazing, road building, decommissioning, or fuels treatment (emphasis added).

Appendix A to the Malheur, Umatilla, and Wallowa-Whitman National Forests LMPs p. 82

This statement provides no real direction for the public to understand what will or will not be done. A statement that implementation "may" happen is not a specific plan. A statement that monitoring "would" include a look at things "such as" timber harvest etc., does not provide a clear vision of what, if any, monitoring actually will be done.

The ARCS goes on to state:

> The products of broad-scale status and trend monitoring will be used as part of watershed analysis for specific watersheds. Analysis teams will, for example, use those data to characterize how upslope and instream conditions and trends for a particular watershed fit within the distribution of conditions and trends across all reference and managed watersheds within a larger area (for example, subbasin, basin, national forest). From there, they will identify and use ***other information*** for the watershed of interest to more completely and accurately assess watershed and aquatic habitat conditions, the reasons (cause and effect) those conditions exist (for example, natural disturbance or human impacts), what actions might be warranted in the watershed and generally how and where they should be implemented. They may also choose to develop attributes of watershed-specific desired conditions based, in part, on products from broad-scale monitoring (emphasis added).

Id.

Again, this is not a clear plan. Essentially this says that watersheds will be occasionally analyzed. But it provides no source for baseline data, and no consistent way in which to measure changes over time. This is not consistent with the 2012 Planning Rule, which requires:

> Monitoring questions and associated indicators must be designed to inform the management of resources on the plan area, including by testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress toward achieving or maintaining the plan's desired conditions or objectives.

Finally, the ARCS states that "Watershed Condition Assessments" will be conducted "before each plan revision." ARCS, Appendix A to the Malheur, Umatilla, and Wallowa-Whitman National Forests LMPs p. 82. The current plans have been in place for 28 years. A Watershed Condition Assessment that occurs only once every 28 years will not provide relevant information about "management effectiveness or progress toward achieving or maintaining the plan's desired conditions or objectives." This is not consistent with the Planning Rule as quoted above.

Table 36 of the ARCS provides a series of "proposed" monitoring questions. The subject matter addressed by these questions could reasonably be expected to respond to the legal requirements. They track the requirements of the Planning Rule. But they are merely proposed, and not actually a part of the plans. *Id* at 161.

Further, the table merely provides potentially relevant topic areas. It does not provide a coherent plan to actually answer address those topics, or an explanation of whether the methods proposed are actually the best methods.

Requested Relief:

Redraft the ARCS to include a clear monitoring plan that:

1. States what systematic monitoring programs already exist (both internally and externally) and exactly what is being monitored by those programs.
2. States exactly what trends have been shown to exist to date, and a clear explanation of what new information is needed.
3. State how the public can obtain the data generated by these efforts.
4. State how that data will be used in future monitoring, especially if the use will change based on new rules.
5. A clear statement that the Forest Service intends to continue funding these programs. Or, if the program is being conducted by a third party, such as water quality monitoring being conducted by DEQ, a statement of why it is credible that program will continue into the future.

6. States what new systematic monitoring programs will be initiated. Specifically, what protocols will be used, how often field data will be taken, and how this is realistic given current fiscal constraints.
7. States which focal species will be monitored, and why those species were chosen.
8. Includes accountable, measurable, repeatable, predictable, ensurable monitoring questions.

3. The LMPs contain inappropriate reference conditions

The FEIS does not contain an adequate explanation of the use of reference conditions for riparian health. At no point did the plans or FEIS clearly explain what qualifies a location for being deemed in reference condition. There seems to be an assumption that reference conditions are places that have not been logged. This is a fine beginning. But other human factors – such as fire suppression, grazing, trapping out of beaver, and climate change – have influenced almost all locations on all three forests. If there are places that have not been influenced by these factors, they should be explicitly identified.

Reference conditions should also be comparable to areas where management will occur. For example it would be inappropriate to compare high elevation alpine meadows with lower elevation areas that are typical of grazing allotments in the Blues. It would be also not be useful to use reference conditions from different ecosystem types. If we are to accurately measure riparian health in the Blues, it needs to be referenced against riparian areas that are representative of the area.

Requested Relief:

1. Identify the exact location of reference areas, and explain why they have been chosen
2. Change the definition of reference locations from areas that are merely unlogged to areas in the Blues that are currently supporting the abundance of fish and wildlife and high water quality thought to have been historically present. Pay special attention to areas that appear to have improving trends. If this approach is not taken, explain why it's not appropriate.

4. The Blue Mountain Aquatic and Riparian Conservation Strategy is not as protective as PACFISH/INFISH

The Blue Mountain ARCS replaces previous riparian management direction for the three forests. PACFISH and INFISH amended all Eastside forest plans with the aim to provide management direction to slow the degradation and begin the restoration of aquatic and riparian ecosystems for

anadromous fish (PACFISH), and to protect habitat and populations of resident native fishes outside anadromous fish habitat (INFISH).

Our DEIS comments outlined the many ways that PACFISH and INFISH are inadequate for protecting riparian areas for water quality protection and to recover ESA listed fish species. This fact was acknowledged the 1995 Biological Opinion for PACFISH by the National Marine Fisheries Service (NMFS), which predicated in its conclusion that the land resource management plans, as amended by PACFISH, would probably not result in jeopardy for listed fish and adverse modification of their habitats. "In part, these conclusions were based on NMFS's expectation that the interim PACFISH guidance would be in place for a period not to exceed 18 months…"[17] This is also summarized in a relatively recent Beschta-Kauffman report (attached as Exhibit C) on the impacts of livestock grazing along the Malheur and North Fork Malheur Wild and Scenic Rivers.

The FEIS assumes:

> The 2008 Regional Aquatic and Riparian Conservation Strategy as it was applied across Alternatives B through F, and the 2018 Blue Mountains Aquatic and Riparian Conservation Strategy, as it applies to Alternatives E-Modified and E-Modified Departure, contain more comprehensive sets of desired conditions, standards and guidelines, and objectives than included in PACFISH and INFISH and are expected to be more effective at restoring ecologically healthy watersheds, riparian, and aquatic habitats, balancing and reducing risks to aquatic habitat conditions associated with management allocations deemed suitable for forest management, livestock grazing and/or roaded access.

FEIS Vol. 2 p. 52.

This assumption is not supported by the FEIS or project record. In fact, the FEIS and associated documents show the opposite: the Regional and Blue Mountain ARCS will be less effective then PACFISH and INFISH at protecting aquatic species and habitats. The plan components in the ARCS are not measurable; definitions have been changed (for example, "Key watersheds" in PACFISH addressed ESA species, under the Blue Mountain ARCS it does not); many requirements under PACFISH and INFISH have been changed to aspirational statements; and there is no prioritizations scheme for which aspirational desired conditions will be pursued. The ARCS language prioritizes management of riparian areas, even those with ESA listed fish and their habitats, over protection. It does not seek improvement of riparian conditions, only requires

[17] NMFS, 1995. Endangered Species Act - Section 7 Consultation BIOLOGICAL OPINION: Implementation of Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH)

that adverse impacts are minimized and conditions don't "retard" recovery of listed species. This is not an approach supported by the best available science and is a violation of NFMA's requirement to insure viability of aquatic species.

Even after 16 years of management under PACFISH and INFISH, many riparian areas in the Blues still fall far short of the management objectives of these two strategies. Despite the fact that we have not restored aquatic and riparian ecosystems for native fish on our National Forests, the revised plans would remove a significant amount of required restoration implementation as found in PACFISH and INFISH, and replace it with unmeasurable and unenforceable desired conditions and objectives.

The Blue Mountain ARCS, as incorporated into the revised plans, replies upon aspirational desired conditions. These conditions are not intended as commitments to be achieved during the life of the plans. It is impossible to realize these visionary statements without complementary plan components prohibiting or requiring certain actions that help achieve the stated vision. As such, they hold little value.

Further, the majority of the desired conditions, goals, and objectives contained in the proposed forest plans cannot be meaningfully measured. It will be impossible to assess whether site-specific projects reduce or improve opportunities to maintain or achieve these plan components. This is particularly true of the collective plan components that pertain to conserving or recovering ESA-listed aquatic species. Compounding this issue is the fact that a project can be considered consistent with the forest plans even if it makes no progress towards reaching a desired condition.

For example, the plans contain the following desired condition:

> Federally Listed Species DC-1. Federally listed species (aquatic and terrestrial) are recovered or delisted. Management activities improve the conservation status of listed species and designated critical habitat. Habitats are managed in accordance with conservation planning documents, recovery plans, best available scientific information, and local knowledge. Critical habitat components (primary constituent elements and primary biological features) are protected and restored to achieve species recovery.

Malheur, Umatilla, and Wallowa-Whitman LMPs p. 37.

The only corresponding other plan component that comes close to requiring that management activities are consistent with this desired condition is:

> Standard RE-5S. Minimize adverse effects to federally listed, proposed, and candidate species and their designated and proposed critical habitat in accordance with Forest Service authorities. Management activities shall not retard recovery of listed, and proposed, and candidate species and their designated and proposed critical habitat in the long-term in accordance with Forest Service authorities. Federally listed, proposed, and candidate species and their designated and proposed critical habitats shall be managed in accordance with their recovery or other conservation plans, in accordance with Forest Service authorities.

Malheur, Umatilla, and Wallowa-Whitman LMPs p. 53.

While we appreciate the ostensible commitment to implement recovery plans, recovery plans and their language are discretionary; they containing suggestions, not requirements. This standard only requires adverse impacts to be minimized, not avoided. Further, "shall not retard" is a low bar aimed merely at preventing further destruction of habitat, not species recovery. Perhaps the biggest failure of this standard is that is is not at all measurable.

To make matters worse for sensitive aquatic species and their habitats, this is not the only place in the plans that favors minimization over avoidance of adverse impacts to riparian areas.

For example, see:

> Standard RMA-1S (...project effects ***shall be minimized*** and not retard attainment of desired conditions to the extent possible...);
>
> Guideline RMA-4G. Water drafting sites should be located and managed ***to minimize*** adverse effects on stream channel stability…
>
> Standard TM-1S. Silvicultural treatments shall occur in riparian management areas only as necessary to maintain, enhance, or restore desired conditions for aquatic and riparian resources. When conducted, these activities shall avoid ***or minimize*** adverse effects to aquatic and riparian resources….
>
> Guideline RF-2G. Temporary roads, including stream crossings, in riparian management areas ***should be minimized***.

Malheur, Umatilla, and Wallowa-Whitman LMPs pp. 42 - 45 (emphasis added)

This is a non-exhaustive list. Most, if not all standards pertaining to riparian areas contain this minimize language.

Another example of how the plans' components are unmeasurable is the language of two of the key standards of the Blue Mountain ARCS. The ARCS states:

> Guidance in this appendix is specifically tied to standards WM-1S and RMA-1S within the revised plan. Making this tie to key management direction is consistent with the INFISH, PACFISH, and the 2014 updated Interior Columbia Basin Strategy that states, "Plans should provide direction to assure that projects balance short-term risks and long-term benefits to aquatic and riparian resources in managing toward desired conditions." Standards and guidelines, along with other components of the land management plan, are intended to collectively improve aquatic and riparian functions and processes over the life of the plan.

Blue Mountain ARCS (Appendix A to the Malheur, Umatilla, and Wallowa-Whitman National Forests LMPs) p. 130. However, both of those standards[18] are immeasurable and therefore cannot guide decision makers towards actions that will improve aquatic and riparian functions over the life of the plans.

The Blue Mountain ARCS is less protective of aquatic habitat than PACFISH and INFISH in that it approaches portions of watersheds where riparian-dependent resources receive primary emphasis and management activities are subject to specific measures. Current forest plans as modified by PACFISH and INFISH have "Riparian Habitat Conservation Areas" (RHCA), while

[18] WM-1S. When watershed function desired conditions are being achieved and watersheds are functioning properly, projects shall maintain those conditions. When watershed function desired conditions are not yet achieved or watersheds have impaired function or are functioning-at-risk and to the degree that project activities would contribute to those conditions, projects shall restore or not retard attainment of desired conditions. Short-term adverse effects from project activities may occur when they support or do not diminish long-term recovery of watershed function desired conditions and federally listed species. Exceptions to this standard include situations where Forest Service authorities are limited (Alaska National Interest Lands Conservation Act (ANILCA), 1872 Mining Law, valid State water right, etc.). In those cases, project effects shall be minimized and not retard attainment of desired conditions for watershed function, to the extent possible within Forest Service authorities. Use Blue Mountains Aquatic and Riparian Conservation Strategy attachment B to assist in determining compliance with this standard.
RMA-1S Riparian management areas include portions of watersheds where aquatic and riparian-dependent resources receive primary management emphasis. When riparian management area desired conditions are functioning properly, projects shall protect or maintain those conditions. When riparian management area desired conditions are not yet achieved or riparian management areas have impaired function or are functioning-at-risk and to the degree that project activities would contribute to those conditions, projects or permitted activities shall restore or not retard attainment of desired conditions.22 Short-term adverse effects from project activities may occur when they support long-term recovery of riparian management area desired conditions. Exceptions to this standard include situations where Forest Service authorities are limited (Alaska National Interest Lands Conservation Act, 1872 Mining law, valid state water right, etc.). In those cases, project effects shall be minimized and not retard attainment of desired conditions to the extent possible within Forest Service authorities. Use Blue Mountains ARCS Appendix A (e.g. diagnostic indicators and riparian management area ecological process and function descriptions) to assist in determining compliance with this standard.

the revised plans contain "Riparian Management Zones" (RMA). The change in name says it all: These are no longer areas to conserve for riparian-dependent species and process, but rather areas to manage. As a result, RMZ are less protective of riparian areas, both in how these areas are defined and what activities can occur in them, and the proposed forest plans reduces protection of not just riparian areas, but also aquatic ecosystems and the species that rely on these habitats.

For these reasons the Draft ROD and revised plans do not ensure protection of species viability and habitat as required by NFMA. 16 U.S.C. §1604. It is also arbitrary and capricious and thus is a violation of the Administrative Procedure Act (APA).

Requested relief: Develop an aquatic restoration strategy that:

- Avoids adverse effects instead of minimizing them and pursues objectives through passive management such as removing or avoiding disturbance instead of active management;
- Integrates all plan components; and
- Includes plan components, including standards, that can be meaningfully measured and achieved.

G. Connectivity required for species viability must be protected and restored

Most native wildlife species' survival depends on movement – whether it be day-to-day movements, seasonal migration, gene flow, dispersal of offspring to new homes, recolonizing an area after a local extirpation, or the shift of a species' geographic range in response to changing climate conditions. For most animals and plants, all of these types of movement require a well-connected natural landscape. There is abundant scientific evidence that loss of habitat connectivity has profound negative impacts on fish, wildlife and plant populations. Alarmingly, habitat loss and fragmentation is a cause of decline for about 83% of U.S. species that are becoming more rare. Climate change is accelerating and increasing connectivity is widely recognized as one of the best adaptation measures managers can take.

This vital role that habitat connectivity plays in ensuring long-term species' viability and the disastrous effects of habitat fragmentation has inspired a growing call to action. Federal agencies and state governments are increasingly recognizing the intrinsic value of ecological connectivity to species persistence, for economic sustainability and as a means of addressing the challenge of adapting to climate change. A primary example is the Western Governors' Association's (WGA) adoption of Policy Resolution 07-01 (adopted February 27, 2007), *Protecting Wildlife Migration Corridors and Crucial Habitat in the West and preparation of the Wildlife Corridors Initiative* (June 2008 report).

Despite the overwhelming science identifying connectivity and landscape permeability as essential to species viability, the FEIS contains no scientifically-based strategy for maintaining habitat connectivity. Most of the analysis pertaining to connectivity appearing in the FEIS is based on research conducted in western Washington, and the FEIS does not demonstrate that this research is applicable to the Blue Mountains. FEIS, 349. Indeed, the revised plans eliminate the Eastside Screens' connectivity corridor land use allocation and does not replace it with anything similar, failing to explain why the Forest Service has departed from its prior policy that wildlife connectivity requires specific management direction. FEIS, 350. As the Ninth Circuit has explained,

> ...A policy change complies with the APA if the agency (1) displays "awareness that it is changing position," (2) shows that "the new policy is permissible under the statute," (3) "believes" the new policy is better, and (4) provides "good reasons" for the new policy, which, if the "new policy rests upon factual findings that contradict those which underlay its prior policy," must include "a reasoned explanation ... for disregarding facts and circumstances that underlay or were engendered by the prior policy."

Organized Village of Kake v. U.S. Dept. of Agriculture, 795 F.3d 956, 966 (2015). The FEIS for the revised forest plans conducts none of this requisite analysis, and importantly, does not replace wildlife corridors with anything even remotely similar: the land allocation and its management requirements designed to protect old growth trees and habitat are simply eliminated from the plans without explanation. This is arbitrary and capricious. 5 U.S.C. § 706(2)(A).

H. The FEIS and revised LMPs do not contain plan components to address the effects of climate change on species diversity and viability

In our comments on the DEIS, we advised the Forest Service to address the growing climate crisis by developing plan components that respond to the effects of climate change in the Blue Mountains. We appreciate that the FEIS contains more information about how climate change is affecting the region, and that the FEIS acknowledges that: "The 1990 Forest Plans do not address climate change." FEIS Vol. 1, p. 8. Although the analysis is confused and inaccurate in places, the FEIS is clear that climate change is affecting the Blue Mountains forests. FEIS, 354, 373. Rather than addressing this issue by prioritizing certain types and locations of upland and riparian restoration, or anticipate the increasing tempo of fire and drought disturbance, the forest plan contains no plan components to address the effects of climate change on the Forest. FEIS, 260. Water shortages are an obvious and frequently cited consequence of climate change, but the LMP contemplates augmenting wetlands storage at only 12 sites during the life of the plan. There are no specific or concrete management actions presented in the LRMP that address climate change challenges or opportunities.

Instead, the FEIS claims that increased logging and prescribed burning will be responsive to the

effects of climate change. FEIS, 267. While these activities may be beneficial to the landscape, there is no analysis in the FEIS that demonstrates that logging generally or prescribed fire generally will be sufficient to address the effects of climate change; and in fact, there is a fair amount of literature that concludes that logging and burning *exacerbate* climate change because they release carbon rather than store it. This issue is not addressed in the FEIS.

II. The Land Management Plans violate Forest Service policy, the Wild and Scenic Rivers, National Environmental Policy Act and the Administrative Policy Act

A. The Forest Service did not properly analyze eligible Wild and Scenic Rivers during forest planning

The Wild and Scenic Rivers Act (WSRA), was enacted in 1968 and protects "free flowing" rivers and streams possessing "outstandingly remarkable ... values ... for the benefit and enjoyment of present and future generations." 16 U.S.C. § 1271. As part of a forest plan revision, the Forest Service must conduct a process to determine whether the project area contains potential additions to the national Wild and Scenic River System. *Id.* at § 1276(d)(1). The agency must determine whether certain river segments are "eligible" for inclusion. *Id.* at §§ 1273(a), (b), 1275(a). A river is eligible for protection if it is a free-flowing stream possessing, or with adjacent land possession, "outstanding remarkable ... values" such as "scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar" characteristics. *Id.* at §§ 1271, 1273(b). See *Ten Lakes Snowmobile Club v. United States Forest Serv.*, CV 15-148-M-DLC, 2017 WL 4707536, at *1 (D Mont Oct 18, 2017), *appeal dismissed,* 17-36028, 2018 WL 3045471 (9th Cir Mar 30, 2018).

The Forest Service's 2012 Planning Rule for the management of the National Forest System also requires eligibility inventories, requiring the agency to: "Identify the eligibility of rivers for inclusion in the National Wild and Scenic Rivers System, unless a systematic inventory has been previously completed and documented and there are no changed circumstances that warrant additional review." 36 C.F.R. § 219.7(c)(2)(vi). The Forest Service violated Forest Service Policy, the Wild and Scenic Rivers, NEPA and the APA by summarily not considering potentially eligible streams and rivers for for designation as a part of the national Wild and Scenic Rivers System.

During scoping and the comment periods, the undersigned pointed out that the Forest Service did not adequately consider the protection of Wild and Scenic Rivers in the proposed action. In fact, during the entire process for this planning effort many people expressed the inadequacy of the identification of eligible Wild and Scenic Rivers in accordance with the Wild and Scenic River Act. See DEIS, Vol. 1 p. 13. Despite this, all of the action alternatives developed would allocate fewer rivers as eligible for Wild and Scenic designation than the proposed action.

In particular, the undersigned noted specific rivers that should be considered for eligibility based on their meeting the criteria used in selection. On the Malheur National Forest, these included Forest Big Boulder, Big Creek (Blue Mountain Road), Granite Boulder, Big Creek/Lake Creek, the Little Malheur River, Murderer's Creek, the Middle Fork John Day River, South Fork Long Creek, Silver Creek and Vinegar Creek. However, according to the Forest Service, none of these rivers was eligible. Ultimately the Forest Service selected only one river, totaling 3.3 miles, on the entire Malheur National Forest that was Suitable for designation. On the Wallowa-Whitman National Forest eleven rivers were studied and only Dutch Flat Creek, East Eagle Creek, and Five Points Creek were found Suitable. (Also see comments on Suitability below).

The FEIS fails to explain how this conclusion is reasonable in the context of the large river system that exists on the Malheur, which includes the headwaters of the John Day, Umatilla, Walla Walla, Tucannon, Grande Ronde, Imnaha, Powder, Burnt, Malheur, and Silvies rivers. Similarly few rivers and river segments are recommended for suitability for designation on Wallowa-Whitman and Umatilla.

The FEIS also fails to adequately analyze the impacts of the alternatives on potential national wild, scenic, and recreational river areas. NEPA requires agencies to "consider every significant aspect of the environmental impact of a proposed action" in an EIS. *ONDA*, 625 F.3d at 1100 (citing *Vermont Yankee Nuclear Pwr. Corp. v. Natural Res. Def. Council*, 435 U.S. 519, 553 (1978)). This includes studying the direct, indirect, and cumulative impacts of the action, *see* 40 C.F.R. §§ 1508.7, 1508.8, as well as studying "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." *Id.* § 1502.9(c)(1)(ii). Instead of studying the impacts of the forest plan alternative on rivers in the Blue Mountains, the FEIS summarily identifies which river areas are currently designated wild and scenic, which river areas are designated as eligible for designation, and how much acreage would be allocated to the Wild And Scenic Management Area (MA 2A) under each alternative. Simply disclosing this information is insufficient. The NEPA analysis must include an analysis of the direct, indirect and cumulative impacts on the designations and allocations of this important resource.

The LRMPs lack important standards and guidelines limiting motorized vehicle use, timber harvest roads, new designated routes and trails, mineral leasing and other incompatible uses in Wild and Scenic River areas. All of the designated and proposed Wild and Scenic Areas should include prescribed levels of motor vehicle use consistent with protecting the outstandingly remarkable values for these rivers, not just the "wild" designations (which mostly overlap with wilderness areas).

B. The Forest Service inadequately identified the region of comparison used for its determinations

A fundamental test for Wild and Scenic River eligibility and suitability assessments is to identify the regional or national significance of the stream or river's "outstandingly remarkable values" using a region of comparison. Forest Plans are required to identify a region of comparison to establish a meaningful basis for a comparative analysis. While a responsible official may use different regions of comparisons for different outstandingly remarkable values for the same river, the region of comparison for each value must be clearly defined. In this instance, the analysis is general or vague contrary to the 2012 Planning Rule and the Forest Service Guidelines for Wild and Scenic River Evaluation. FSH 1901.12, Chapter 80. Without a clear region of comparison the agency fails to establish a meaningful basis for the analysis which undermines the analysis overall.

C. The Forest Service lacks authority to conduct suitability analyses during forest planning

The Forest Service has cited WSRA Section 5(d)(1) to claim it can conduct suitability determinations of river segments found eligible for inclusion in the National Wild and Scenic Rivers System though its forest planning processes. 16 U.S.C. § 1276(d)(1). That reading is erroneous as a matter of law under the plain language of the statutory text. As the Supreme Court has held, if statutory language is clear, "that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 468 U.S. 837, 843 (1984).

The original 1968 Wild and Scenic Rivers Act did not address suitability analysis of potential additions to the System. Instead, Congress amended the WSRA twice, in 1974 and 1988, to include provisions for conducting suitability analysis, but neither applies to forest planning.

The term "suitability" was first added to WSRA Section 4 on May 10, 1974, directing that the appropriate Secretary of Interior or Agriculture (or both together) "shall study and submit to the President reports on the suitability or nonsuitability . . . of rivers which are designated herein or hereafter by the Congress as potential additions to such System." *See* Pub. L. No 93-279 § 4(a), 88 Stat. 122 (1974), *codified at* 16 U.S.C. § 1275(a) (emphasis added). Section 4(a) thus provides for suitability determinations to be made for Congressional study rivers designated under WSRA Section 5(a), which lists the specified study rivers as "designated for potential addition to the [System]." 16 U.S.C. § 1276(a). Because the Forest Service is not addressing Congressional study rivers under Section 5(a) in its proposed suitability determinations for all eligible river segments during the forest planning process, it is not authorized by Section 4(a) to do undertaken such suitability determinations.

The second instance of the term "suitability" in the WSRA occurs in Section 5(d)(2), which was added on October 28, 1988. *See* Pub. L. No. 100-557, 102 Stat. 2790 (1988), *codified at* 16 U.S.C. § 1276(d)(2). This amendment directed the Secretary of the Interior "to complete a study

of the eligibility and suitability of [the Upper Klamath River] segment for potential addition to the [System]." *Id.* (emphasis added).

This specific Congressional direction to study eligibility and suitability of the Upper Klamath in Section 5(d)(2) stands in sharp contrast to WSRA Section 5(d)(1), which makes no reference to conducting suitability determinations during agency planning processes. *See* 16 U.S.C. § 1276(d)(1). The first sentence in Section 5(d)(1) simply directs federal agencies doing planning to "consider ... potential national wild, scenic and recreational river areas," while the second sentence directs the Secretaries to "make specific studies and investigations to determine which additional wild, scenic and recreational river areas . . . shall be evaluated in planning reports by all Federal agencies as potential alternative uses." *Id.* (emphasis added). Congressional use of these terms in Section 5(d)(1) – "consider," "study," "investigate" and "evaluate" – without directing that suitability determinations be done as expressly provided for in Sections 4(a) and 5(d)(2), underscores that Congress has not authorized the Forest Service to conduct suitability determinations during forest planning under Section 5(d)(1). *See, e.g.*, A. Scalia & B. Garner, *Reading Law: The Interpretation of Legal Texts* (Thompson/West 2012), Chap. 8 (discussing "Omitted-Case Canon," that nothing may be added to what a statutory text states or reasonably implies) & Chap. 10 (discussing "Negative-Implication Canon," that the expression of one thing implies the exclusion of others, or *expressio unius est exclusion alterius*).

Furthermore, using the forest planning process to conduct suitability determination and thereby strip rivers of their eligible status, remove protections, and foreclose their potential addition to the System is counter to the purposes and statutory scheme of the WSRA.

The WSRA declares a national policy that certain rivers and their river corridors possessing outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values "shall be preserved in free-flowing condition" and "protected for the benefit and enjoyment of present and future generations." 16 U.S.C. § 1271. In the WSRA, Congress declared that the national policy of dam building needed to be complemented "by a policy that would preserve other selected rivers . . . in their free-flowing condition to protect . . . water quality and to fulfill other vital national conservation purposes." *Id.* Releasing eligible rivers during forest planning does not further these goals; counter to these goals, the Forest Service's proposal would leave these free-flowing rivers and their outstandingly remarkable values unprotected.

The WSRA's statutory scheme sets up a process for Congress and the states—not the Forest Service—to decide, from time to time, whether to designate eligible wild and scenic rivers. The WSRA's declaration of purpose is to "institut[e] a national wild and scenic rivers system," "designat[e] the initial components of that system," and "prescrib[e] the methods by which and standards according to which additional components may be added to the system from time to

time." 16 U.S.C. § 1272. Rivers can be added to the national wild and scenic rivers system by act of Congress or by State designation with federal approval. 16 U.S.C. § 1273(a).

The Forest Service's proposal to release non-suitable eligible rivers during these forest plan revisions undermines the power the WSRA vests in Congress and the states to designate additional rivers "from time to time." *See* 16 U.S.C. § 1272. Suitability determinations are temporal. *See* Department of the Interior and Department of Agriculture, *National Wild and Scenic Rivers System: Final Revised Guidelines for Eligibility, Classification and Management of River Areas*, 47 Fed. Reg. 39,454, 39,456 (Sept. 7, 1982) (explaining that a suitability determination includes temporally specific considerations such as political context, regional objectives, and current status of land ownership in the area). *See also* 16 U.S.C. § 1275(4)(a)(ii); 16 U.S.C. § 1276(c) (listing considerations). Even if an eligible river is not suitable today, it might be suitable tomorrow, and the Forest Service cannot take away Congress's and the states' power to designate such a river in the future by stripping it of eligibility and related protections and considerations.

In support of conducting suitability determinations through forest planning, the Forest Service also points to Jimmy Carter's 1979 Presidential Memorandum calling for federal land management agencies to conduct suitability determinations during land use planning. *Memorandums From the President on Wild and Scenic Rivers and National Trails* (Aug. 2, 1979). But that Presidential Memorandum cannot override the statutory language and authority granted by Congress under the WSRA; and its continued relevance is doubtful, since it was not even issued as an Executive Order and presumably expired when President Carter left office.

Moreover, to the extent relevant, the Forest Service is misinterpreting the Carter Presidential Memorandum, as it called for suitability determinations during forest planning for the purpose of protecting rivers only—not for releasing rivers. The Memorandum states: "It is important for federal agencies to set an example of sound management for state, local, and private landowners by taking an aggressive role in protecting Wild and Scenic Rivers which flow through public lands." President Carter called on federal land management agencies to conduct suitability analyses as part of ongoing land use planning, and provided that if an agency determines a river is suitable, the agency should promptly take steps to protect the river and surrounding area, and the agency is encouraged to prepare legislation to designate the river as wild and scenic. Notably, the Memorandum did not call for removing any rivers found not to be suitable during planning from eligible river lists and did not call for stripping such rivers of any protections or future consideration under the WSRA.

In the line with the Carter Memorandum, the Forest Service's 2012 Planning Rule encourages identifying additional rivers for designation, and again does not provide for removing eligible rivers or stripping their protections. During plan assessment, the Rule requires the Forest Service

to identify and evaluate information relevant to "[e]xisting designated areas located in the plan area including wilderness and wild and scenic rivers and potential need and opportunity for additional designated areas." 36 C.F.R. § 219.6(b)(15) (emphasis added). Additionally, the Rule requires plans to include standards or guidelines to "manage[] rivers found eligible or suitable to protect the values that provide the basis for their suitability for inclusion in the system." 36 C.F.R. § 219.10(b)(1)(v) (emphasis added). The Rule does not distinguish between eligible rivers—eligible rivers found suitable, eligible rivers found not suitable, or eligible rivers for which no suitability analysis has been performed. Under the Rule, all eligible or suitable rivers must be protected to preserve their free-flowing condition and outstandingly remarkable values.

III. The proposed land management plans do not accurately identify wilderness quality lands or adequately protect existing wilderness areas

Under the Wilderness Act, 16 U.S.C. §§ 1131–1136, Congress designates "wilderness" which represents land that is "an area where the earth and its community of life are untrammeled by man" and that most prioritizes preservation. Absent Congressional direction in a specific bill, motorized and mechanized forms of transport in lands formally designated as wilderness are prohibited. 36 CFR § 219.7(c)(2)(v) requires units undergoing new plan development or plan revision to "identify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System and determine whether to recommend any such lands for wilderness designation." See *Ten Lakes Snowmobile Club v. United States Forest Serv*., CV 15-148-M-DLC, 2017 WL 4707536, at *2 (D Mont Oct 18, 2017), *appeal dismissed*, 17-36028, 2018 WL 3045471 (9th Cir Mar 30, 2018).

A. Recommended Wilderness Areas

The final LMPs for the Malheur, Umatilla and Wallowa-Whitman National Forests fail to accurately identify all wilderness-eligible lands in the Blue Mountains and include them in the analysis and alternatives. The lands designated as recommended for wilderness area (RWA) fall grossly short of the amount of lands that should be included for designation. Further, in violation of NEPA, the Forest Service failed to provide a reasonable range of alternatives considering different amounts of recommended wilderness. Even the Alternative with the largest number of acres of RWA (Alternative C) only recommends less than half of the total acres identified by conservationists as potential wilderness.

Ultimately, of the 1.8 million acres conservationists identified as potential wilderness, the preferred alternative would only allocate 70,500 acres, or less than 4%, to RWA. This is a 24% decrease even from the DEIS, which was already too few acres. The DEIS Vol. 1, page 190 justified this by stating that "additional wilderness designation is not necessary within the Blue Mountain national forests. Protection of areas with wilderness potential including the biological species and resources that they contain may be better achieved through alternative land

management designations or other legal authorities". This determination indicates the Forest Service's analysis was skewed away from including more acreage for wilderness designation. The fact that wilderness designations are controversial is not part of the required consideration for whether an area should be designated yet it appears that that was the primary consideration.

The possibility of subsequent NEPA documents fails to address the impacts of placing Inventoried Roadless Areas (IRA) and other land with wilderness potential in zones where management activities are allowed that would diminish their wilderness character. The Forest Service must comply with NEPA "at the earliest possible time to insure that planning and decisions reflect environmental values." 40 C.F.R. § 1501.2. A project-by-project NEPA analysis will not and cannot address the combined and cumulative regional and local environmental impacts of allowing such development to occur in the first place.

In previous comments, the undersigned have identified areas that warrant wilderness designation, including Joseph Canyon, Hellhole, Murderer's Creek, the Elkhorn Mountains, and Dixie Butte. The Forest Service recommended none of these for designation despite extensive discussion in our prior comments on why they warrant inclusion.

B. The Forest Service failed to identify and include all wilderness-eligible lands in wilderness inventory for the Blue Mountains National Forests

All roadless undeveloped areas that satisfy the definition of wilderness found in the Wilderness Act must be evaluated and considered for recommendation as potential wilderness areas during forest plan revisions. In 2010, the Forest Service conducted a Wilderness Needs Evaluation for the Malheur, Umatilla, and Wallowa-Whitman National Forests. Through this process, 76 potential wilderness areas were identified within the Blue Mountains National Forests. These areas cover 705,310 acres, or 13 percent, of the national forest lands. As pointed out in our scoping and DEIS comments, and in correspondence with the agency, this figure does not represent all of the acreage across the Blue Mountains National Forests that meet the criteria of wilderness. The FEIS states the agency included an additional 8 areas for a total of 84 potential wilderness areas, increasing the acreage total slightly to 719,030 acres. Yet this figure still falls far short of including all lands which meet wilderness criteria.

The detailed inventory of all potential wilderness areas in the Blue Mountains we presented to the agency used the same inventory criteria outlined in the Forest Service Handbook (FSH). However, the Forest Service decided, based on a heavily skewed interpretation of the criteria, to disqualify 203 of the 205 non-inventoried roadless areas that we had identified as qualifying from inclusion in the inventory. Many of our inventoried areas were field-verified and developed using advanced GIS technology. The disqualification of virtually the entire inventory was and still is unacceptable.

One of the primary flaws in the Forest Service inventory process is related to the definition of a road. Chapter 70 of the FSH inventory criteria relied upon identifies roadless areas as areas of sufficient size that do not contain "forest roads . . . or other permanently authorized roads." The definition of forest roads is: "A motor vehicle travelway over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary." This definition is a dramatic departure from previous inventory criteria, which defined roadless areas as areas that "do not contain *improved* roads *maintained for travel by standard passenger vehicles*" and current inventory criteria which do not disqualify lands with Maintenance Level 5 roads or closed roads. This criteria best meets the intent of the Wilderness Act and should be used to inventory potential wilderness lands. Indeed, many existent wilderness areas, including those in the Blue Mountains Forest Plan region, contain what once were roadways and even former railroad ways that have long been disused, no longer accessible by motor vehicles, but which serve well as trails for both human hikers and horseback riders. As such, the Forest Service' use of the definition quoted above, fails to meet the reasonableness and accuracy standards of NEPA, is in contravention with existent wilderness realities, and as such must be revised – including withdrawing the FEIS and revising this analysis to include as potential wilderness those areas which meet the previous definition as not containing "forest roads… or other permanently authorized roads."

Applying the Chapter 70[19] language will lead to the exclusion of areas that contain unmaintained routes, high-clearance routes, off-road vehicle routes, administrative routes, other vehicle ways, and vehicle routes that are managed as trails. While inclusion of these routes may not be appropriate in areas the agency is recommending for wilderness, they do not, in and of themselves, exclude an area from consideration. Many roadless areas—and wilderness areas as well—contain such routes, and it is clear that Congress does not view areas that contain such routes as being de facto eliminated from wilderness consideration. The original inventory criteria should be retained, and the presence of unmaintained routes, high-clearance routes and the like should be addressed in the evaluation process, not the inventory process.

The agency misapplied wilderness evaluation and management criteria prematurely during the inventory stage. This should not happen until the evaluation stage. There appear to be a number of areas/acres that have been eliminated or not inventoried. These situations are the most prevalent in areas where setbacks or buffers from roads or previous disturbances have been employed or large contiguous areas have been eliminated from the roadless inventory because they were connected by an isthmus.

[19] Note, as the agency disclosed in the FEIS, they utilized the FSH 1909.12 Chapter 70 from 2007, which is no longer effective. It was replaced in 2008, and most recently revised and replaced in 2015. The FEIS fails to disclose this reality anywhere in the FEIS. Use of an outdated directive, when the new one is readily available and has replaced the former violates the accuracy standards of the NEPA and violated the agency's own internal directives. Further, the FSH of 2007 is no longer readily available to the public, so verifying agency claims as to its contents is not reasonably possible for most of the public participants, again this violates the NEPA.

C. The management designations for congressionally designated wilderness areas, recommended wilderness areas and wilderness study areas are insufficient

Standards and guidelines are at the heart of a forest plan. They serve as the basis for future decisions. Maintaining wilderness values is a responsibility the agency has under the Wilderness Act and is not discretionary. We appreciating seeing that some guidelines in the draft plans analyzed in the DEIS and been converted to standards. There is still work to do. Guidelines should be converted to standards and new standards and guidelines should be drafted.

1. Management designations for recommended wilderness areas

The 2006 USFS Handbook provides that "[a]ny inventoried roadless area recommended for wilderness ... is not available for any use that may reduce the wilderness potential of an area. Activities currently permitted may continue, pending designation, if the activities do not compromise wilderness values of the area." (2006 USFS Manual § 1923.03(1)).

The standards and guidelines for the RWAs should be written so that they serve as a link and clearly assist the agency in achieving legal mandates. In this case the management direction for the RWAs should be clearly linked to the requirement of protecting wilderness characteristics pursuant to the Wilderness Act of 1964. The standards and guidelines should ensure that wilderness characteristics and values are retained and protected.

The proposed standard for MA 1B appears to allow existing uses that are incompatible with wilderness and could impair wilderness area eligibility to continue. This standard is insufficient to protect these areas. In addition to degrading wilderness conditions, allowing conflicting uses into RWAs prior to designation could cause complications with later designation processes. The Wilderness Act contains an unambiguous affirmative obligation to protect wilderness character. The standards and guidelines for RWAs and existing Wilderness areas must be consistent with this requirement.

2. Management designations for roadless areas not recommended as wilderness

As an initial matter, the Forest Service appears to have under-designated the number of acres that should be included in Backcountry designations. All of the areas that meet the criteria as roadless areas that are not recommended for wilderness designation should be given a backcountry designation. Conservationists have previously provided the Forest Service with an inventory of roadless areas. By using outdated MVUM maps and eliminating areas of less than 5000 acres, the Forest Service's identification of roadless areas is inaccurate and should be updated.

We also object to the designations given to areas identified as roadless. Of the areas the Forest Service has identified for backcountry designations, the LRMP ultimately designates 486,600 acres as motorized backcountry and only 128,800 acres as nonmotorized backcountry. On the Malheur, only 47,200 acres are designated as backcountry nonmotorized, whereas 1.5 million acres will be available for both winter and summer motorized vehicle use. FEIS at 48. This is a gross disparity and simply does not provide for the solitude and nonmotorized values that users of the forest are seeking, not to mention habitat security for key species on the forest, watershed protection and safety. The designation of this many acres as motorized will lead to an inevitable enforcement and safety issue for the forests if there is a lack of funding for travel management planning and adequate law enforcement personnel to prevent user-created trails and user conflict.

Several of the areas designated as motorized backcountry were the areas identified by the undersigned and numerous other members of the public for recommended wilderness area. Instead of designating these areas as RWA, the LRMPs will allow motorized recreation in these areas, which as discussed elsewhere in this objection, will have inevitable negative effects on the backcountry and wilderness values present in the areas. In particular, on the Malheur, the motorized designation for Murderer's Creek (Dry Cabin) is troubling. This area is one of the best habitats for big game in the region and would greatly benefit from minimal motorized disturbance. As the FEIS acknowledges, wilderness areas provide the most habitat security for elk. Yet instead of designating the Dry Cabin area as wilderness or even nonmotorized backcountry the Forest Service will allow motorized recreation there, which will degrade the habitat values of the area immensely. Similarly the Forest Service failed to adequately analyze how designated motorized areas adjacent to wilderness or RWA will affect wilderness character and will cause enforcement and conflict issues.

These examples, and others, demonstrate that the Forest Service has failed to adequately examine the direct effects, indirect effects, and cumulative impacts of placing the IRAs and other roadless lands in zones where development is allowed, despite the fact that some roadless areas could lose their wilderness character over the life of the plan as a result. The FEIS violates FSH 1909.12 by failing to "Include site specific statements of the environmental consequences that a non-wilderness designation would have on…roadless area(s)." Furthermore, the plan fails to "Discuss mitigation measures to avoid or minimize the impact or loss of wilderness characteristics." The FSH at 1909.12-92-1, 4.19(c)(5) states that a land and resource management plan must: "describe the potential environmental consequences of a wilderness and a nonwilderness recommendation." At FSH 1909.12-92-1, 4.19(c)(5)(b) the Forest Service is required to: Discuss the impact on the roadless area of a wilderness designation and the impact of each nonwilderness prescription. Show the social and economic effects in each case. Include mitigation, if any, for loss of wilderness characteristics and the effects on plant and animal communities. The FEIS fails to offer this information in any comprehensive way. It is not enough to make "conclusory" or "perfunctory references" to cumulative impacts or to continue

to use the same boilerplate language throughout the FEIS. *Natural Resources Defense Council v. Hodel*, 865 F.2d 288, 298-99 (D.C. Cir. 1988). Cumulative effects analysis requires "some quantified or detailed information. . ." *Neighbors of Cuddy Mountain v.U.S.F.S.*, 137 F.3d 1372, 1379 (9th Cir. 1998). "General statements about 'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided." *Id*. at 1380.

More precisely, the FEIS fails to consider the impacts the preferred alternative and the other alternatives would have on the natural integrity, apparent naturalness, remoteness, solitude, special features, manageability, logical boundaries, and special places or values in the Blue Mountains' IRAs and other roadless areas. The effect of the alternatives on the wild character of the affected roadless areas was improperly studied in the FEIS; therefore it does not satisfy the detailed analysis requirements set forth in 36 CFR 219.17.

Requested Relief:

- Include additional areas as recommended wilderness, including the Elkhorns, Joseph Canyon and Murderer's Creek.
- Change standards and guidelines to clearly protect recommended wilderness areas so that the wilderness characteristics will not be jeopardized before Congressional designation.
- Designate more acreage as nonmotorized, particularly in areas that provide important habitat security, include intact stream systems and aquatic habitat, and significant solitude and nonmotorized recreation opportunities. Revise the FEIS to adequately analyze the impacts of designating so many acres of roadless areas for motorized use.
- Start over and do a new Wilderness Inventory and Evaluation using the 2013 Planning Rule

IV. Grazing and National Environmental Policy Act Violations

The preferred alternative, Alternative E-Modified, perplexingly increases the acreage open to livestock grazing by 52,600 acres (from 2,076,000 to 2,128,600), as well as increases the permitted AUMs through the forest from 224,000 to 272,500 (an increase of 48,500 AUMs). The combined acreage of the Umatilla, Malheur and Wallowa-Whitman National Forests total 5,300,000 acres. The preferred alternative opens over 40% of the forests to livestock grazing.

The negative impacts of livestock grazing on forest vegetation and riparian areas are well documented. Livestock grazing widens channels, reduces stream shade, destroys overhanging banks, elevates erosion and consequent sedimentation, compacts soils in ways degrade riparian soil function and reduce low flows, and exacerbates seasonal water temperature extremes in streams (See e.g. Platts et al. 1991; Fleischner, 1994; Rhodes et al., 1994; Lee et al., 1997;

Belsky et al., 1999, Kauffman et al., 2002[20]). Livestock grazing has caused significant degradation of salmonid habitats, water quality, riparian areas, and water quantity (Henjum et al., 1994[21]; Lee et al., 1997). Suspension of riparian area grazing is the grazing strategy that is most compatible with re-vegetation and the recovery of water quality, riparian areas, and salmonid habitat recovery (Platts et al., 1991; 1993; Rhodes et al., 1994). There is a very low likelihood that any grazing management system will result in consistent recovery in damaged riparian systems without some significant multi-year period of rest (Platts et al., 1991; Rhodes et al., 1994; Henjum et al., 1994; "ManTech Report :: NOAA Fisheries West Coast Region," n.d.[22]). Most widely-used grazing practices are incompatible with the protection and restoration of aquatic ecosystems. Grazing clearly retards species recovery in degraded riparian systems.

A. Failure to consider impacts and best available science

Under NEPA agencies must "consider every significant aspect of the environmental impact of a proposed action" in an EIS. *Oregon Natural Desert Association v. Bureau of Land Management* 625 F.3d 1092, 1100 (citing *Vermont Yankee Nuclear Pwr. Corp. v. Natural Res. Def. Council*, 435 U.S. 519, 553 (1978)). This includes studying the direct, indirect, and cumulative impacts of the action (see 40 C.F.R. §§ 1508.7, 1508.8), as well as studying "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." Id. § 1502.9(c)(1)(ii).

In the undersigned's scoping and DEIS comments, we requested that the agency analyze the ecological and fiscal costs of continued livestock grazing, and the benefits of eliminated/curtailed grazing. This information must be properly disclosed to adequately assess the direct, indirect, and cumulative effects of no livestock versus continued livestock grazing on:

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[20] Platts, W. S. 1991. Livestock grazing. Pages 389-423 in W. R. Meehan, editor. Influences of forest and rangeland management on salmonid fishes and their habitats. American Fisheries Society, Special Publication 19, Bethesda, Maryland; Fleischner, Thomas L. 1994. Ecological Costs of Livestock Grazing in Western North America. Conservation Biology 8(3): 629-644; Rhodes, J.J., McCullough, D.A., and F.A. Espinosa. 1994. A coarse screening process for evaluation of the effects of land management activities on salmon spawning and rearing habitat in ESA consultations. Tech. Rep. 94-4. Portland, OR: Columbia River Intertribal Fish Commission. 127 p.; Lee, D., J. Sedell, B.E. Rieman, R. Thurow, and J. Williams. 1997. Broad-scale assessment of aquatic species and habitats. In: An assessment of ecosystem components in the interior Columbia basin and portions of the Klamath and Great Basins. Edited by T.M. Quigley and S.J. Arbelbide. General Technical Report PNW-GTR-405. USDA Forest Service, Pacific Northwest Research Station, Portland, OR. Vol III. p. 183–196; Belsky, A.J., Matzke, A. & Uselman, S. (1999) survey of livestock influences on stream and riparian ecosystems in the western United States. J*ournal of Soil and Water Conservation* 54, 419-431; and Kauffman, J. Boone. 2002. "Lifeblood of the West: Riparian Zones, Biodiversity, and Degradation by Livestock." Pages 175 – 176 in G. Wuerthner and M. Matteson, eds. Welfare Ranching: The Subsidized Destruction of the American West. Island Press, Washington, D.C.

[21] Henjum, M.G., Karr, J.R., Bottom, D.L., Perry, D.A., Bednarz, J.C., Wright, S.G., Beckwitt, S.A., and Beckwitt, 1994. Interim Protection for Late Successional Forests, Fisheries, and Watersheds: National Forests East of The Cascade Crest, Oregon and Washington. The Wildlife Soc., Bethesda, Md.

[22] The ManTech Report :: NOAA Fisheries West Coast Region. (n.d.). Retrieved from http://www.calwater.ca.gov/Admin_Record/D-051874.pdf

soil erosion; soil compaction; soil processes, including infiltration; soil productivity; available water storage in soils and effects on vegetation, forest productivity, and streamflows (both high and low flows); bank conditions, including overhanging banks, and bank erosion; channel conditions, including width to depth ratio, pools, and stream channel substrate; riparian vegetation and riparian functions, including stream shading and bank stability; turbidity and water temperature; salmonid habitats; salmonid survival and production; and non-native vegetation and noxious weeds. Both the DEIS and FEIS have failed to do so, and thus the agency failed to consider the impact here.

Further, in the era of increased fire activity and a changing climate, the best available science supports limiting or eliminating grazing with the goal of restoring the forests to their historical resilient pre-grazing composition. Short-term livestock grazing can result in reduced fire frequency within an area, by reducing herbaceous surface fuel loads and creating denuded areas that can act as firebreaks. However, scientific evidence exists suggesting long-term grazing within many western forests contributes to unintended negative consequences relating to fire and forest health. See e.g., Belsky and Blumenthal (1997) *Effects of Livestock Grazing on Stand Dynamics and Soils in Upland Forests of the Interior West* attached. Ponderosa pine and mixed-conifer forests in the Blues have undergone substantial structural and compositional changes following Euro-American settlement. These post-pioneer changes have increased the forests' vulnerability to severe fire and susceptibility to insect and disease outbreaks. Grazing our forests is one of that changes contributing to how our forests respond to wildfire. Livestock consume grasses that would otherwise regulate the development of new tree seedlings. Livestock also remove the herbaceous understory, which historically would have provided fuel for frequent mild surface fires that would thin out regenerating trees.

Livestock grazing must be excluded from riparian zones. Livestock exclusion has been shown to increase summer baseflow (Ponce and Lindquist, 1991, Reeves et al., 1991, Rhodes et al., 1994) and is one of the most promising means for increasing/restoring low flows in streams (Ponce and Lindquist, 1991; Rhodes et al. 1994). This will become even more critical because all available information indicates that ongoing climate change will increase occurrence of low flows and their duration in the Northwest (Mote et al., 2005; Elsner and Hamlet, 2009; Luce and Holden, 2009). In a regional analysis of climate impacts on streamflows in the Pacific Northwest, Elsner and Hamlet (2009) noted "…warmer temperatures in all previous assessments have led to projections of reduced snowpack, and transformation of sensitive watersheds from being fed by a mix of rain and snow to predominantly rain. Other impacts common to previous studies of hydrological impacts of climate change in the Pacific Northwest include earlier spring peak flow and lower summer flows." Based on the analysis of many years of snowpack data, Mote et al. (2005) concluded: "It is therefore likely that the losses in snowpack observed to date will continue and even accelerate with faster losses in milder climates like the Cascades." Lower flows are decreasing regionally (Luce and Holden, 2009). Mote et al. (2005) noted: "It is

becoming ever clearer that these projected declines in SWE [snow water equivalent], which are already well underway, will have profound consequences for water use in a region already contending with the clash between rising demands and increasing allocations of water for endangered fish and wildlife." Lee et al (2009) noted, "Anticipated future temperature changes in the mountainous U.S. Pacific Northwest will cause reduced spring snow pack, earlier melt, earlier spring peak flow and lower summer flow in transient rain-snow and snowmelt dominant river basins." Clearly, the river basins on these Forests will have low flows reduced by climate change, because they are dominated by runoff from snowmelt.

Sharply curtailing livestock grazing will be necessary to protect aquatic species during low flows and beneficial uses in the face of climate change, because livestock grazing greatly and inevitably compacts soils in ways that reduce the streamflows (Kauffman et al., 2004). The pressure from the hoof of a 1,000 pound cow exerts more than five times pressure than a Caterpillar D-9 Tractor, according to the BLM (Cowley, 2002), resulting in significant soil compaction (Kauffman et al., 2004). As Kauffman et al. (2004) noted:

> "The potential differences in soil water storage due to differences in soil pore space [caused by soil compaction by cattle] are not trivial. Based upon the results of this study we calculated that … the surface 10 cm of a single hectare of exclosed dry meadow would contain 61 000 L more water than an equivalent grazed hectare. …a hectare of wet meadows with the pore space measured in the exclosed communities of this study would contain 121 000 L more water than those with the pore space of the grazed wet-meadow communities. Based upon a GIS analysis … the 30-km riparian zone sampled in this study, there were 145 ha of dry meadows and 64 ha of wet meadows (C. Heider and J. B. Kauffman, unpublished data). Our results suggest that if the entire area was excluded from livestock, the surface 10 cm of soil in the meadows alone (about 60 percent of the riparian-zone cover) could potentially store 16.6 X 106 L more of water than if the area were grazed by cattle. And, this estimate does not include the entire soil profile. This increase in soil water likely influences ecosystem productivity, soil temperature, biogeochemistry, and stream flows."

This clearly demonstrates that grazing elimination can increase water during low flows. If only 50 percent of the additional stored water in soils not compacted by livestock (as estimated by (Kauffman et al., 2004)) is released to streams over a 160-day low flow period, it equates to a mean increase in flows of more than 21 cfs per day over the period, which equates to *at least* a 20-30 percent increase in flows in the stream.

Forage utilization standards are an ineffective approach to restoration and protection in degraded reaches, wet meadows, seeps, and travel corridors because habitat damage stems from trampling

and chiseling of banks and vegetation by livestock as well as the browsing and grazing of vegetation. A more effective approach to habitat improvement is to eliminate grazing in these areas.

Elimination of riparian grazing in degraded reaches and watersheds is the most effective approach to restoring riparian systems and realizing rapid habitat improvement in these forests. The forests must incorporate objective, quantitative, measurable grazing standards in the Proposed Action, including provision for the suspension or elimination of grazing if existing grazing management is not allowing rapid restoration of riparian areas. Grazing should be suspended within 300 ft of streams in watersheds historically used as spawning and rearing habitat for salmon where daily maximum summer water temperatures exceed of 60° F until this temperature standard is met, or a statistically significant improving trend ($p<0.05$) over at least five years is documented through monitoring (Rhodes et al., 1994). Grazing should be suspended within half a tree height from the edge of floodplains (or streams when floodplains are absent), in all reaches or watersheds where bank stability is less than 90 percent, until bank stability exceeds 90 percent or a statistically significant improving trend ($p<0.05$) over at least five years is documented through monitoring (Rhodes et al., 1994). Where the foregoing water temperature and bank stability standards and habitat standards are met, riparian grazing should be tightly controlled and closely monitored. In many areas, riparian area grazing is difficult to control; in these areas it will be necessary to completely remove livestock from watersheds to prevent grazing within floodplains and riparian areas until recovery occurs or standards are met.

Livestock grazing should also be suspended in watersheds that do not meet substrate standards (<20 percent surface fines in spawning habitat) until the standards are met, or a statistically significant ($p<0.05$) improving trend over the course of five years is documented through monitoring and total sediment delivery is estimated to be less than 20 percent over natural levels (Rhodes et al., 1994). Grazing should also be suspended in all areas where more than 10 percent of soils have been compacted such that bulk density has been increased by more than 5 percent.

Livestock should be restricted from access to spawning reaches during and after the spawning season, because livestock can trample redds when they ford streams. If livestock access to these reaches cannot be prevented during the spawning and incubation periods, livestock should be removed from watersheds prior to the onset of the spawning season.

Livestock grazing should also be eliminated in all wet soils (>50 percent field capacity) and other soils vulnerable to compaction. Compaction is inevitable in wet soils. Notably, many national forests prohibit vehicle use on wet soils because even a single pass by vehicles results in significant compaction (Klamath National Forest, 2010). As discussed above, cattle exert far greater pressure on soils than vehicles.

As recommended by Henjum et al. (1994), grazing should not be allowed to continue until its ecological effects are fully analyzed. Grazing should only be continued or re-initiated after degraded conditions have improved, and in areas were at least 10 percent of the riparian areas with grazed areas are fenced as monitoring exclosures. Livestock use should be tightly controlled, closely monitored, and only continued if condition and trend in grazed areas is as good as in exclosures. Monitoring is required in affected riparian areas that are grazed and in downstream habitat affected by upstream grazing.

Although lowered forage utilization rates do have some utility in reducing the impacts of livestock on aquatic habitats, they should not be relied upon solely to provide adequate levels of ecosystem protection. The control of forage utilization alone does not adequately address many livestock impacts, including bank trampling, soil compaction, sedimentation and restoration of riparian plant assemblages and status.

Requested Relief: Grazing should be eliminated from, not expanded into, environments where it is clearly incompatible with the protection of watersheds, soils, and aquatic resources. Livestock grazing in seasonally-saturated meadows with fine-grained, non-cohesive soils and without woody bank vegetation is incompatible with aquatic resource protection and therefore should be prohibited. Similar vulnerable environments should not be subjected to grazing unless completely fenced and all habitat standards are met.

B. Failure to consider classifying vacant grazing allotments as unavailable to grazing

Throughout the FEIS, the USFS denies its authority to classify grazing allotments that are currently available for grazing but are vacant (with no current grazing permit) as unavailable for grazing. Accordingly, the FEIS does not consider making vacant allotments unavailable, and in fact, proposes to make all currently vacant allotments available to grazing pending site-specific NEPA analysis.

This is unreasonable and thus is a violation of NEPA. The USFS should have considered an alternative that would close vacant allotments for the life of the forest plans. Contrary to the USFS's claims that it only makes livestock grazing use decisions at the project or site-specific level, forest planning is the obvious time and place to make broad-scale decisions about which areas within the forest should be available for grazing. The USFS appears to have done this only through the agency's flawed suitability and capability analysis. But the USFS declined to consider whether vacant allotments as a whole should continue to be grazed under the new plans, regardless of how many suitable acres they contained, and did not determine that any allotments should be closed under the plan because they were currently not in use.

The Forest Service also states that it cannot make an allotment unavailable for grazing without NEPA. However, this is not the case. Unlike the issuance of a grazing permit or annual operating instructions, which are affirmative agency actions, subject to environmental analysis, (*see Idaho Watersheds Proj. v. Hahn*, 307 F.3d 815, 828 (9th Cir. 2002); *Or. Natural Desert Ass'n v. U.S. Forest Serv.*, 465 F.3d 977, 983 (9th Cir. 2006)), if the Forest Service declines to issue a grazing permit, it takes no action at all. Likewise, classifying lands as unavailable for grazing in a LMP does not actually commit resources; thus, no NEPA analysis is required. *See Friends of Yosemite Valley v. Norton*, 348 F.3d 789, 800 (9th Cir. 2003); *N. Alaska Envtl. Ctr. v. Kempthorne*, 457 F.3d 969, 976 (9th Cir. 2006) (NEPA is required prior to irretrievable commitment of resources). And even if NEPA was required to "close" vacant grazing allotments through a plan revision, the Forest Service here has issued an EIS, and should have considered such an alternative during the development of these three forest plans.

V. Concern regarding roads

A. The LMPs are inconsistent with the NFMA and the 1982 planning regulations with regards to roads

The plan components in the proposed land management plans fail to establish adequate desired conditions, objectives, or standards and guidelines related to road management.[23] Our comments urged the Forest Service to incorporate stronger plan components for road-related forest-wide standards and guidelines, including stronger plan components to improve watershed conditions. DEIS Comment at 62-64. In light of the impacts from forest roads (see section below), our comments noted it is nearly impossible to achieve ecological goals without thoroughly addressing those impacts. *Id.* at 60. This is especially true in light of the lack of improvement in watershed condition after 10 years of proposed actions under the plan. *Id.* at 60-61 (highlighting the Forest Service's own anticipated lack of improvements in watershed conditions under each of the proposed land management plans).

Under this draft Record of Decision, however, the revised plan components related to road management still do not comply with NFMA or the 1982 planning regulations because they fail to provide necessary resource protection from roads, contain inadequate objectives, set inadequate standards and guidelines, and lack a sufficient monitoring program.

1. The forest plans fail to provide resource protection as required by NFMA planning regulations

[23] August 15, 2014, Comment on Proposed Land Management Plans for the Blue Mountains and Draft Environmental Impact Statement from Hells Canyon Preservation Council, WildEarth Guardians, Oregon Wild, The Lands Council, Cottonwood Environmental Law Center, Oregon Chapter Sierra Club, Soda Mountain Wilderness Council, Pacific Rivers Council, and American Rivers to Blue Mountains Plan Revision Team (hereafter, "DEIS Comment").

The 1982 planning regulations contain numerous management prescriptions requiring forest plans to provide for resource protection. 36 C.F.R. § 219.27. The road-related plan components in the Umatilla, Malheur, and Wallowa-Whitman revised land management plans fail to provide those resource protections in violation of the regulations.

For example, the 1982 planning regulations require forest plans to conserve water resources and protect streams, streambanks, shorelines, lakes, wetlands, and other bodies of water. 36 C.F.R. §§ 219.27(a)(1), 219.27(a)(4). Objective 1.11 (Water Quality) sets a goal of establishing water quality restoration plans in 5-7 watersheds, and 200-280 stream miles. Umatilla LMP at 126. *See also* Malheur LMP at 43 (similar objective for improving water quality); Wallowa-Whitman LMP at 130 (same). It fails to include any road-related objectives for conserving water resources or protecting water quality, despite best available science demonstrating that forest roads are the primary cause of water quality degradation on the Blue Mountain national forests. *See* DEIS Comment at 58-62.

As for standards and guidelines for watershed function, the two forest-wide standards related to roads fail to require the needed improvements in water quality by moving towards a smaller, economically and environmentally sustainable road system. *See* Umatilla LMP at 130 (KW-1S, applying only to waters that are ESA critical habitat containing listed species, and requiring no net increase in system roads that are functioning properly (1 mile road-related risk reduction for every new mile of road construction), a net decrease in system roads where they are functioning at risk (1.5 miles road-related risk reduction for every new mile of road construction), and net decrease where impaired (2.0 miles of road-related risk reduction for every new mile of road construction)); *id.* at 131 (RE-4S, requiring the agency to minimize – but not prevent – hydrologic connectivity and sediment delivery from roads and trails). *See also* Malheur LMP at 51-52, 133 (same plan components); Wallowa-Whitman LMP at 134, 135 (same). Given the existing miles of forest roads on the Blue Mountain national forests and inadequate funding to maintain these roads, these plan components fail to conserve water resources and protect water quality as required by the 1982 planning regulations.

What's more, the road-related Guidelines for MA 4B Riparian Management Areas actually allow construction of new roads and trails. *See* Umatilla LMP at 150 (RF-1G, allowing new roads and trails to be constructed within riparian management areas if no other feasible alternative exists), (RF-2G, allowing temporary roads, including stream crossings, in riparian management areas); Malheur LMP at 152; Wallowa-Whitman LMP at 155. This road management approach *within* riparian areas improperly prioritizes timber interests and motorized use above improving and maintaining watershed conditions. In light of best available science showing the extensive adverse impacts of forest roads to water quality, these plan components fail to ensure water quality is maintained, contrary to the 1982 planning regulations.

As another example, the land management plans lack any road-related plan components to prevent or reduce serious, long lasting hazards and damage from pest organisms as required by the 1982 planning regulations. 36 C.F.R. § 219.27(a)(3). Objective 1.5 (Invasive Species) states a goal to reduce current infestations of invasive plant species on 7,000 acres. Umatilla LMP at 125; Malheur LMP at 127; Wallowa-Whitman LMP at 130. This is the only objective addressing invasive species in the Umatilla and Wallowa-Whitman land management plans. The lack of any road-related objectives to prevent or reduce invasive species is alarming in light of best available science showing that forest roads are one of the main vectors of invasive species. *See, e.g.*, DEIS Comment, Appendix A at 124. Standard IS-6S requires equipment used outside the limits of the road prism to be weed- and pest-free, but it fails to address the spread of invasive species from forest roads. Umatilla LMP at 133; Malheur LMP at 137; Wallowa-Whitman LMP at 139. Similarly, the land management plans lack any road-related plan components to conserve soil resources. 36 C.F.R. § 219.27(a)(1). *See, e.g.*, Umatilla LMP at 126.

The 1982 planning regulations require forest plans include measures for preventing the destruction or adverse modification of critical habitat for threatened and endangered species. 36 C.F.R. § 219.27(a)(8). But the road-related land management plan standards and guidelines in these revised land management plans focus on protecting only *occupied* habitat, as opposed to *critical habitat* that has been designated because it is necessary to the recovery of ESA listed species (even if it is not currently occupied by those listed species). *See* Umatilla LMP at 133 (FLS-9S, "Road maintenance and new road construction shall be designed to minimize adverse effects to the occupied habitat of threatened, endangered, proposed, or candidate plant species."); *id.* (FLS-10G "New road construction should be designed to minimize adverse impacts to the occupied habitat of sensitive plant species to avoid a trend towards federal listing."). *See also* Malheur LMP at 135-136; Wallowa Whitman LMP at 137-138. What's more, these road-related standards and guidelines only require the Forest Service to minimize impacts to the occupied habitat, not prevent the destruction or adverse modification of this habitat.

None of the plan components in the land management plans address the requirement that forest plans provide that all roads are planned and designed to re-establish vegetative cover on the disturbed area within a reasonable period of time, not to exceed 10 years after the termination of a contract, lease or permit, unless the road is determined necessary as a permanent addition to the National Forest Transportation System. 36 C.F.R. § 219.27(a)(11).

B. The forest plans contain inadequate objectives

The rules define "objective" as a "concise, time-specific statement of measurable planned results that respond to pre-established goals" and "forms the basis for further planning to define precise steps to be taken and the resources to be used in achieving identified goals." 36 C.F.R. § 219.3. Objectives set forth in the revised land management plans are inadequate because, *inter alia*,

they lack time-specific parameters, fail to achieve or even work towards desired conditions, or are completely missing.

For example, Objective 1.1 (Watershed Function) sets a goal to increase aquatic habitat connectivity through culvert replacement of 75 culverts, 68 stream miles. Umatilla LMP at 124. *See also* Malheur LMP at 41 (setting an objective to replace 90 culverts, 143 stream miles); Wallowa-Whitman LMP at 129 (setting an objective to replace 90 culverts, 135 stream miles). These objective fails to include any timeframe for the goal, contrary to the definition of an objective. If these objectives are meant to apply over the life of the land management plan, they are woefully inadequate to work towards the forest's desired conditions. On the three forests, "more than 1,285 culverts block or impair access by aquatic species to more than 3,700 miles of streams within the three national forests in the Blue Mountains." Wallowa-Whitman LMP at 34. These objectives – meant to form the basis of achieving identified goals – would address less than 20% of the culverts blocking aquatic fish passage on the three forests.

Objective 1.1 (Watershed Function) sets a goal to treat 30-35 miles of road surface annually to reduce road-related sedimentation. Umatilla LMP at 123; Malheur LMP at 42; Wallowa-Whitman LMP at 128. Based on current conditions on the Blue Mountain national forests, these numbers are also woefully inadequate to work towards the forest's desired conditions and goals.

Objective 2.5 (Roads and Trails Access) sets a goal to "[m]aintain the road system for safe and efficient travel and for the protection, management, and use of National Forest System lands," with an objective road maintenance of 200 miles of ML 4 or 5 roads, 200 miles of ML 3 roads, and 140 miles of ML 2 roads on the Umatilla National Forest. Umatilla LMP at 126. The same objective on the Malheur National Forest sets an objective road maintenance goal of 250 miles of ML 4 or 5 roads, 38 miles of ML 3 roads, and 1,025 miles of ML 2 roads. Malheur LMP at 128. For the Wallowa-Whitman National Forest the objective road maintenance goal is 90 miles of ML 4 or 5 roads, 170 miles of ML 3 roads, and 150 miles of ML 2 roads. Compared to the number of system road miles that exist on these forests, this objective addresses only a tiny fraction of the road system and is thus extremely inadequate to maintain the road system for safe and efficient travel and for the protection, management, and use of National Forest System lands.

Although the number of system road miles on each of the forests is not disclosed in the Forest Service's analysis, but based on a Region 6 summary of the forest's travel analysis reports the Umatilla has 2,399 miles of open roads (ML 2-5) and 2,188 miles of closed roads; the Malheur has 5,757 miles of open roads and 3,870 miles of closed roads; and the Wallowa-Whitman has 4,574 miles of open roads and 4,451 miles of closed roads. Despite more than 10,000 miles of ML 1 roads existing on the three forests, ML 1 roads are conspicuously absent from Objective 2.5 and any other forest plan components. Closed roads remain on the landscape, continue to have adverse impacts, and do still requirement maintenance. Plus, it is unclear whether the

forests have adequate funding to even achieve the very low goals set in Objective 2.5. The allocated road maintenance budget provides approximately 20 percent of the required annual maintenance funds needed to adequately maintain the current open road system for national forests in the Blue Mountains. Malheur LMP at 83.

Finally, some plan components are completely missing. For example, the land management plans lack any objectives, or standards and guidelines to work towards Desired Condition 2.5 that "[r]oad systems are safe and responsive to public needs and desires, are affordable and efficiently managed, have minimal effect on aquatic and terrestrial systems, and are in balance with available funding." Umatilla LMP at 84 (including desired conditions to identify roads needed for the long term and investments are made to minimize negative impacts on the ecosystem; identify roads for long-term use but that are not currently funded for adequate maintenance to be stored; and meet anticipated future access requirements by using travel analysis reports to inform travel management decisions).

C. The forest plans do not establish adequate standards and guidelines for road density

The 1982 planning regulations require the establishment of qualitative and quantitative standards and guidelines to attain a plan's stated goals and objectives. 36 C.F.R. § 219.1 to 219.3. As noted elsewhere, because guidelines have not been interpreted as mandatory, standards are the only planning component that can adequately insure the protection mandated in NFMA.

Glaringly absent from any of the land management plans are standards for road density. *Compare* revised land management plans *with* FEIS at 28 (describing road density standards applied in the 1990 Forest Plans). Our comments highlighted our concerns about the lack of road density standards. DEIS Comment at 65. We noted that road density is a critical factor for wildlife, and that densities over 1 mile per square mile cause negative impacts to wildlife. *Id.* at 67-68. The Forest Service's own data reveals that road density on all three forests is much greater (2.4 mi/sq mi, 3.2 mi/sq mi, 4.2 mi/sq mi) than what is considered tolerable for ecological health (1 mi/sq mi). Omitting any standards or guidelines to address road densities is unreasonable, arbitrary and capricious, and contrary to the 1982 planning rules requiring forest plans provide for adequate fish and wildlife habitat to maintain viable populations of existing native vertebrate species and provide that habitat for species is maintained and improved to the degree consistent with multiple-use objectives. 36 C.F.R. § 219.27(a)(6).

The road-related standards that do exist fall short of what is required by the 1982 planning regulations, many of which are outlined above. For example, standard IS-6S requires equipment used outside the limits of the road prism shall be weed- and pest-free. Umatilla LMP at 133. Best available science shows that roads are major vectors for the spread of invasive species. By only

focusing on equipment operating outside the road prism, this standard is inadequate to prevent or reduce damage and spread of invasive species as required by 36 C.F.R. § 219.27(a)(3).

D. The proposed monitoring is inadequate

The 1982 planning regulations require monitoring and evaluation "to determine how well objectives have been met and how closely management standards and guidelines have been applied." 36 C.F.R. § 219.12(k). Monitoring requirements must provide for a quantitative estimate of performance; documentation of measured prescriptions and effects, including significant changes in productivity of the land; and documentation of costs associated with carrying out the planned management prescriptions as compared with the costs estimated in the land management plans. *Id.* § 219.12(k)(1)-(3). Our comments urged the Forest Service to improve the monitoring plan components for roads. DEIS Comment at 65. But the Forest Service's monitoring parameters for roads still fail to comply with the 1982 planning regulation's requirements.

For example, the proposed monitoring questions in Table 44, monitoring plan framework 7 for assessing watershed function are too vague and general to elicit any specific information to demonstrate improvements. Malheur LMP at 164 ("Are watershed/aquatic restoration projects (e.g., road decommissioning, passage improvements, riparian stream habitat improvements) being implemented at a rate consistent with Forest Plan objectives?"). *See also* Umatilla LMP at 163; Wallowa-Whitman LMP at 167. They fail to monitor for quantifiable, numeric results. And as noted elsewhere, these monitoring questions are based on inadequate objectives that lack numeric goals and do not work towards Desired Condition 2.5 ("Road systems are safe and responsive to public needs and desires, are affordable and effectively managed, have minimal effect on aquatic and terrestrial systems, and are in balance with available funding"). Without a numeric objective, standard or guideline to decommission a certain number of road miles annually, the parameter measuring "annual accomplishments" in terms of, "e.g., road miles decommissioned" is meaningless.

Requested Relief : Revise the road-related plan components to comply with the 1982 planning regulation requirements by providing necessary resource protection from roads, modifying objectives to be consistent with the purpose of an objective and to achieve desired conditions, revising standards and guidelines, and include a monitoring plan with meaningful timelines and parameters that enables the responsible official to determine if a change in plan components is needed.

E. The plan components are inconsistent with the Forest Service's own rules and policy regarding roads management

Planning criteria are meant to guide the forest planning process and may be derived from laws, Executive Orders, regulations, and agency policy as set forth in the Forest Service Manual. 36 C.F.R. § 219.12(c). Under subpart A of the agency's Travel Management Rules, the Forest Service has a duty to right-size its road system by considering road recommendations from travel analysis reports, identifying the minimum road system, and prioritizing unneeded roads for decommissioning. *See* 36 C.F.R. § 212, Subpart A (Administration of the Forest Transportation System).

We outlined in our comments how roads on the national forests in the Blue Mountains are economically and environmentally unsustainable, and that the Forest Service missed an opportunity to take needed steps to right-size its road system in the context of the forest plan revisions. DEIS Comment at 59. We applaud the Forest Service for including a reference to the forest's travel analysis reports. *See* Umatilla LMP at 83; Malheur LMP at 83; Wallowa-Whitman LMP at 83. However, the revised land management plan components still fail to meaningfully address the forests' road systems, fail to even mention the agency's duty to identify the minimum road system on each of the forests, and make misstatements regarding compliance with subpart A.

First and foremost, all three of the land management plans misstate that the travel analysis reports completed by the forests in 2015 identify the minimum road system. *See* Umatilla LMP at 83; Malheur LMP at 83; Wallowa-Whitman LMP at 83 ("This report assesses the current national forest transportation system and identifies the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of the National Forest System lands."). This is incorrect. The travel analysis reports are merely the first step towards compliance with subpart A, identifying recommendations for working towards the minimum road system. Travel analysis reports provide the information necessary for the Forest Service to make that identification in later site-specific projects with decisions subject to public scrutiny under NEPA. The Forest Service correct these misstatements in the final land management plans to clarify the forests have not yet identified the minimum road systems for each forest as required to complete compliance with subpart A.

Contrary to the purpose and intent of subpart A regulations and Forest Service policy, the revised land management plan components fail to meaningfully address the forests' road systems. The plan components lack direction to work towards a minimum road system, consistent with subpart A of the agency's own rules. Instead, throughout the land management plans the Forest Service focuses road-related plan components on *new* road construction. *See, e.g.*, Umatilla LMP at 133 (FLS-9S, "Road maintenance and new road construction shall be designed to minimize adverse effects to the occupied habitat of threatened, endangered, proposed, or candidate plant species."); *id.* (FLS-10G "New road construction should be designed to minimize adverse impacts to the occupied habitat of sensitive plant species to avoid a trend towards federal listing."); *id.* at 152

(RF-13S "Road maintenance and new road construction shall be designed to minimize adverse effects to threatened, endangered, proposed, or candidate aquatic species and their habitat."). *See also* Malheur LMP at 132, 135-136, 153; Wallowa-Whitman LMP at 134, 137-138, 156.

Ultimately the Forest Service's approach and focus on new roads runs contrary to the agency's own rules and policy. The lack of any objectives, standards or guidelines to address the over-sized and under-funded road systems on the three forests is inconsistent with existing conditions on the forest and Desired Condition 2.5 that "[r]oad systems are safe and responsive to public needs and desires, are affordable and efficiently managed, have minimal effect on aquatic and terrestrial systems, and are in balance with available funding." Umatilla LMP at 84. The Forest Service must comply with its own regulation and identify the minimum road system. By failing to address this duty in the revised plan components, and instead establishing road management direction that emphasizes construction of new roads, the Forest Service's direction is inconsistent with its own rules.

The revised plan also fails to prioritize unneeded roads for decommissioning. The plans only mention decommissioning roads as part of the climate change tactics to address hydrology, water resources, and infrastructure in the Part 1, vision, section. *See* Umatilla LMP at 22; Malheur LMP at 22; Wallowa-Whitman LMP at 22. The only plan components that actually mention road decommissioning is Objective 1.1 for improving watershed function. Umatilla LMP at 123; Malheur LMP at 125; Wallowa-Whitman LMP at 128. But even that objective hedges against decommissioning by suggesting the Forest Service consider closing or decommissioning roads, and lacks any corresponding numeric goal for decommissioning road miles. *Id.*

With a total of more than 4,500 miles of system roads on the Umatilla National Forest, over 9,600 miles on the Malheur National Forest, and over 9,000 miles on the Wallowa-Whitman National Forest, the lack of any plan components aimed at reducing the size of these road systems is unreasonable. It is also very disheartening, considering the plethora of harmful impacts forest roads cause to water quality, aquatic life including bull trout, wildlife like Rocky Mountain Elk and bighorn sheep, and wildlife habitat. It runs contrary to the Forest Service's own rules under subpart A and Forest Service policy. 36 C.F.R. § 212.5(b); 66 Fed. Reg. 3206 (Jan. 12, 2001) ("The intended effect of this rule is to help ensure that additions to the National Forest System network of roads are those deemed essential for resource management and use; that, construction, reconstruction, and maintenance of roads minimize adverse environmental impacts; and finally that *unneeded roads are decommissioned and restoration of ecological processes are initiated*.") (emphasis added).

Identifying a resilient future road network is one of the most important endeavors the Forest Service can undertake to restore aquatic systems, water quality, and wildlife habitat, facilitate adaptation to climate change, ensure reliable recreational access, and operate within budgetary

constraints. And it is a win-win-win approach: (1) it's a win for the Forest Service's budget, closing the gap between large maintenance needs and drastically declining funding through congressional appropriations; (2) it's a win for wildlife and natural resources because it reduces negative impacts from the forest road system; and (3) it's a win for the public because removing unneeded roads from the landscape allows the agency to focus its limited resources on the roads we all use, *improving* public access across the forest and helping ensure roads withstand strong storms.

Requested Relief: Revise land management plans to delete the claim that the forests' travel analysis reports have already identified the minimum road system for these forests. Revise road-related plan components to work towards a realistic desired road system that is economically and environmentally sustainable and can be managed along with plan components for ecological sustainability.

F. FEIS analysis fails to comply with NEPA

As highlighted throughout this objection letter, the land management plans and analysis in the FEIS is very disorganized and confusing. As just one example, the format and organization of the Umatilla land management plan changes throughout the document. At times, it appears that certain components are missing. *See, e.g.,* Umatilla LMP at 124-126 (appearing to omit Objectives 1.3 and 1.9).

1. Inaccurate baseline and lack of crucial information

Providing an accurate description of the baseline is essential to allowing for meaningful comparison of alternatives and impacts. *See, e.g., Ctr. for Biological Diversity v. U.S. Dep't of the Interior*, 623 F.3d 633, 642 (9th Cir. 2010) ("A no action alternative in an EIS allows policymakers and the public to compare the environmental consequences of the proposed action."); *Friends of Yosemite Valley v. Kempthorne*, 520 F.3d 1024, 1038 (9th Cir. 2008) (holding a "no-action" alternative invalid under NEPA because it improperly included decisions that had previously been found invalid). Our comments highlighted misrepresentations and inaccuracies of the Forest Service's approach to and the status of the road system on the three forests. *See, e.g.,* DEIS Comment at 64-65.

The failure to disclose and analyze requisite information indicates that the action agency failed to take a "hard look" at the environmental consequences of its actions. *Klamath-Siskiyou Wildlands Ctr. v. Bur. of Land Mgmt.*, 387 F.3d 989 (9th Cir. 2004) (holding that requisite analysis must be in the environmental document). *See also Great Basin Res. Watch v. Bur. of Land Mgmt.*, 844 F.3d 1095, 1101 (9th Cir. 2016) ("Establishing appropriate baseline conditions is critical to any NEPA analysis. Without establishing baseline conditions which exist before a project begins, there is simply no way to determine what effect the project will have on the environment and,

consequently, no way to comply with NEPA.") (internal citation omitted). The purpose behind NEPA's hard look requirement is to "insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 C.F.R. § 1500.1(b).

The analysis fails to provide an accurate baseline and lacks crucial information, precluding meaningful public comment and the required "hard look" in violation of NEPA. For example, our comments noted that the Forest Service failed to disclose accurate costs of maintaining the forest road system, as well as the backlog of work (referred to as "deferred maintenance") costs. DEIS Comment at 64-65. In the FEIS, the Forest Service still fails to disclose crucial information, including the costs to maintain the anticipated forest road system on each forest, as well as the existing number of open and closed system road miles on each of the forests and costs to maintain those road systems. Failure to disclose the costs of the road system, while emphasizing new road construction, fails to ensure that any roads constructed through contracts, permits, or leases are designed according to standards appropriate to the planned uses, considering safety, cost of transportation, and effects upon lands and resources. 36 C.F.R. § 219.27(a)(10).

Reliance on an inaccurate baseline allows the Forest Service to ignore current circumstances, historic agency practices, and the latest science, precluding an accurate analysis of alternatives and meaningful comment. At bottom, the analysis fails to consider the latest information regarding the status of roads (i.e., baseline conditions) that is essential to understanding the impacts of the forest road system (see below).

2. Plan components are inconsistent with statement of purpose and need

The stated purposes and needs for these revised land management plans are to: (1) more adequately protect and restore terrestrial plant and animal species and their habitats; (2) address management of fuels and fire risk; (3) more adequately protect and restore watersheds and aquatic habitats; (4) address climate change; and (5) recognize the interdependency of social and economic components with national forest management. FEIS at 7-9. But the plan components fail to achieve the stated purpose and need for these plan revisions. As just one example, our comments noted that the Forest Service's own analysis recognized the need for limited management activity and low road density to achieve the third purpose and need to protect and restore watersheds and aquatic habitats. DEIS Comment at 61-62. Yet as noted throughout this objection, the revised land management plans provide minimal to no measures to make significant improvements in addressing the forest road system or its impacts on watersheds and aquatic habitats. Indeed, the Forest Service eliminates any plan components related to road density standards.

3. FEIS contains inadequate range of alternatives

The Forest Service's analysis fails to consider a reasonable range of alternatives related to road plan components, and fails to consider important factors that differ among the alternatives considered. We provided specific suggestions to improve the analysis of alternatives. DEIS Comment at 65-68 (e.g., requesting the Forest Service consider how the various alternatives will impact recreation-related jobs as part of the economic and social well-being goal; pointing out the flaw in equating reduced road maintenance with ecological resilience; suggesting the Forest Service consider road maintenance as an objective for protecting aquatic resources). Because public comments heavily focused on road issues, the Forest Service should have considered a range of alternatives for road management.

4. FEIS fails to consider impacts

The Forest Service's analysis fails to take the required "hard look" at the direct, indirect, and cumulative impacts of the forest road system. Our comments provided recent scientific information for the agency to consider demonstrating the forests' forest road systems are economically and environmentally unsustainable, and highlighted the harmful impacts of forest roads to, *e.g.*, water quality, erosion and sedimentation, wildlife, aquatic species, connected wildlife habitats, and safe public access. DEIS Comment at 58-60. We urged the Forest Service to consider and disclose the significant impacts associated with the forests' road systems. But it fails to do so in this FEIS.

In its analysis of the estimated effects of alternatives, the Forest Service must address not only direct, indirect, and cumulative impacts (as required by NEPA regulations 40 C.F.R. § 1502.14 and 1502.16), but also: (1) expected outputs for planning periods; (2) relations of expected outputs to the RPA Program objectives; (3) direct and indirect benefits and costs; and (4) significant resource tradeoffs and opportunity costs associated with achieving alternative resource objectives. 36 C.F.R. § 219.12(g). Analysis of the direct and indirect benefits and costs must be in sufficient detail to estimate: (i) expected real-dollar costs, including investment, administrative, and operating costs required to manage the forest up to the point where the outputs are valued and the environmental consequences are realized; (ii) expected real-dollar value of all outputs attributable to each alternative; (iii) economic effects of alternatives; and (iv) monetary opportunity costs. *Id.* The Forest Service fails to comply with these 1982 planning regulations or the NEPA regulations by failing to disclose direct, indirect, and cumulative impacts of the road systems on the three forests.

As noted throughout this objection, the Forest Service fails to disclose, consider, or address in the revised land management plans the direct and indirect benefits and costs of the forests' road systems. It fails to assess or disclose the significant resource tradeoffs and opportunity costs associated with achieving alternative resource objectives. The Forest Service also fails to consider how its proposed road management approach will affect plant and animal diversity on

the forests. 36 C.F.R. § 219.26 ("For each planning alternative, the interdisciplinary team shall consider how diversity will be affected by various mixes of resource outputs and uses, including proposed management practices."). In particular, the analysis ignores and downplays many of the direct, indirect, and cumulative impacts that will result from the omission of any road density standards in these land management plans. The Forest Service fails to consider cumulative impacts of the road system when combined with effects from climate change. And the Forest Service fails to evaluate many impacts of the road system under the different alternatives, as required by 36 C.F.R. § 219.12(h).

5. Decision unsupported by analysis

The Forest Service must articulate "a rational connection between the facts found and the conclusions made." *Or. Natural Res. Council v. Lowe*, 109 F.3d 521, 526 (9th Cir. 1997). It fails to do so here for many of its management decisions regarding roads. Numerous revised plan components weaken protections from the 1990 forest plans. As just one example, the Forest Service seeks to remove road density standards, despite best available science showing road density is a reliable and crucial measure for preventing harmful impacts to wildlife, wildlife habitat, aquatic life, and water quality. Given that existing road densities in each of the forests is already much greater than what is tolerable for ecological health, the Forest Service's decision is unsupported by its own analysis and unreasonable.

Requested Relief : Revise the analysis in the FEIS to accurately disclose the current road system baseline, include an accurate and complete inventory of roads, and disclose the current costs and anticipated costs of maintaining the future road system to allow for meaningful analysis and comparison of alternatives under NEPA. Revise the analysis in the FEIS to a "hard look" at the direct, indirect, and cumulative impacts from forest roads, including climate change stressors and forest roads, and to consider a reasonable range of alternatives related to road management. Revise the plan components and draft ROD to show a rational connection between the facts found and the conclusions made.

G. The Forest Service fails to ensure the road-related plan components comply with the ESA

Section 7 of the ESA imposes a substantive obligation on federal agencies to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of" habitat that has been designated as critical for the species. 16 U.S.C. § 1536(a)(2); *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 924 (9th Cir. 2008).

Here, the USFWS prepared a May 29, 2018 Biological Opinion assessing the impacts of the revised land management plans on threatened bull trout and its critical habitat, and threatened Spalding's catchfly. FWS also informally consulted regarding the impacts of the revised land management plans on endangered gray wolf and conferenced regarding impacts to wolverine (proposed for listing). FWS agreed with the Forest Service that the land management plans are framework programmatic actions, and therefore did not provide an incidental take statement. FWS concluded the revised land management plans will not jeopardize the continued existence of bull trout, and will not result in the destruction or adverse modification of bull trout critical habitat. May 29 2018 Biological Opinion at 151-153. FWS concluded the revised land management plans are not likely to jeopardize the continued existence of Spalding's catchfly. May 29 2018 Biological Opinion at 167. FWS determined the land management plans may affect, but are not likely to adversely affect the gray wolf. May 29 2018 Biological Opinion at 9. And FWS concluded the revised land management plans are not likely to jeopardize the continued existence of the wolverine. May 29 2018 Biological Opinion at 188.

The National Marine Fisheries Service (NMFS) prepared an April 20, 2018 Biological Opinion assessing the impacts of the revised land management plans on Snake River Basin steelhead, Middle Columbia River steelhead, Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, Snake River sockeye salmon, and designated critical habitat. NMFS determined the revised land management plans are not likely to jeopardize the continued existence of Snake River Basin steelhead, Middle Columbia River steelhead, Snake River spring/summer Chinook salmon or adversely modify the species' designated critical habitat. It also determined the revised land management plans are not likely to adversely affect Snake River fall Chinook salmon, Snake River sockeye salmon, or these species' designated critical habitat.

We were unable to comment earlier on the veracity of the FWS's analysis in the May 29 2018 Biological Opinion or NMFS's analysis in the April 20 2018 Biological Opinion because these documents were not available during the public notice and comment period. Best available science demonstrates that forest roads negatively impact wildlife and aquatic life, including bull trout, Snake River Basin steelhead, Middle Columbia River steelhead, Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, Snake River sockeye salmon, and these species' designated critical habitat, in numerous ways. Given the deficiencies in the road-related land management plan components identified above, the Forest Service fails to ensure the activities authorized under its revised land management plans – including the road-related plan components that authorize the construction of new system roads and temporary roads within riparian management areas and do not set any road density standards or guidelines – will not harm listed wildlife or degrade its critical habitat.

FWS's May 29 2018 Biological Opinion and NMFS's April 20 2018 Biological Opinion are flawed because they (1) rely on an inaccurate baseline; (2) mischaracterize or ignore best

available science; (3) rely on flawed assumptions; (4) fail to consider analyze or explain key aspects of the agency's analysis; and (5) improperly eliminate road density standards previously determined to be necessary to protect wildlife and wildlife habitat. The Forest Service has an independent legal duty to ensure the revised land management plans comply with the ESA. Its reliance on the flawed FWS Biological Opinion, flawed NMFS Biological Opinion, and concurrence determinations is unreasonable.

Requested Relief: Refrain from any final decision related to the revised land management plans unless and until the flaws related to Section 7 consultation identified above have been addressed in revised Biological Opinions.

H. Road-related plan components do not comply with the Clean Water Act

The Clean Water Act (CWA) establishes a comprehensive program "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" by reducing and eventually eliminating the discharge of pollutants into those waters. 33 U.S.C. § 1251(a). The CWA program includes a regulatory scheme of permits, technology controls, and water quality-based pollution controls. States are responsible for developing water quality standards to protect the desired conditions of each waterway within a state's regulatory jurisdiction. 33 U.S.C. § 1313(c). A water quality standard includes three elements: (1) one or more designated uses, such as fish propagation; (2) numeric and narrative criteria specifying the water quality condition necessary to protect the designated uses; and (3) an antidegradation policy that ensures that uses are protected and that high quality waters will be maintained and protected. 33 U.S.C. §§ 1313(c)(2), 1313(d)(4)(B); 40 C.F.R. §§ 131.6, 131.10-12. Waters that do not meet water quality standards are deemed "water quality-limited" and placed on the CWA's § 303(d) list. States must develop total maximum daily loads (TMDLs) for all § 303(d)-listed waterbodies to bring them back into compliance with applicable water quality standards.

All federal agencies must comply with state water quality standards, including a state's antidegradation policy. 33 U.S.C. § 1323(a), *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146 (9th Cir. 1998). Here the Forest Service fails to ensure that the land management plans will comply with the CWA by not causing or contributing to a violation of Oregon's water quality standards.

Our comments highlighted how roads are the primary cause of water quality degradation on the national forests in the Blue Mountains. GHCC et al. DEIS Comment at 58. Yet the road-related standards and guidelines in these land management plans create exceptions and allowances for road building activities that will cause or contribute to a violation of water quality standards. For example, RF-1G allows new roads and trails to be constructed within riparian management areas if no other feasible alternative exists. *See, e.g.*, Umatilla LMP at 150. This guideline does not

explain what the Forest Service would have to show to demonstrate that no other feasible alternative exists. As a guideline instead of a standard it also fails to hold the Forest Service to any required action in a site-specific project. And ultimately this guideline improperly prioritizes timber interests and motorized use above improving and maintaining watershed conditions. Similarly, RF-2G allows temporary roads, including stream crossings, in riparian management areas. *See, e.g.,* Umatilla LMP at 150. Here the land management plans do not even require the Forest Service to consider whether other feasible alternatives exist. In light of the best available science showing forest roads – both system and temporary roads - are the primary cause of water quality degradation on the three forests, the Forest Service's approach under these guidelines is inconsistent with the science and fails to ensure water quality will be maintained.

Other examples include RF-3S, which directs the Forest Service to avoid side-casting in riparian management areas. *See, e.g.,* Umatilla LMP at 150. Side-casting in these areas should be prohibited to ensure protection of water quality and compliance with the Clean Water Act. Standard RF-5S directs the Forest Service to avoid disruption of natural hydrologic flow paths when constructing or reconstructing roads or landings inside of or outside of riparian management areas. Umatilla LMP at 151. Standard RF-8S states that "[w]here physically feasible, construction or reconstruction of stream crossings will avoid diversion of streamflow out of the channel and down the road in the event of a crossing failure." Umatilla LMP at 151. Guideline RF-6G instructs the Forest Service to avoid wetlands when reconstructing existing roads or constructing new roads, but also allows the agency to simply minimize impacts when avoidance is "not practical." Umatilla LMP at 151. These standards and guidelines are insufficient to ensure land management activities on the three forests will not cause or contribute to violations of water quality.

Requested Relief : Revise the road-related plan components in the revised land management plans to ensure the road-related plan components comply with the Clean Water Act.

VI. Objection points related to motorized recreation

A. The motorized recreation plan components fail to comply with NFMA or the 1982 planning regulations.

The Forest Service notes that since the late 1980s and early 1990s, off-highway vehicle (OHV) of national forests has increased and with advancing technologies, OHVs are able to ride further into previously inaccessible and remote areas. *See* Umatilla LMP at 170; Malheur LMP at 171; Wallowa-Whitman LMP at 174. Our comments highlighted the Forest Service's duties under the Travel Management Rule and Executive Orders 11644 and 11989 to consider and locate motorized designations with the objective of minimizing impacts to forest resources, disruption of wildlife habitat and harassment of wildlife, and conflicts among uses. GHCC et al. DEIS

Comment at 68. By failing to provide meaningful direction for managing motorized recreation, the revised plan components fail to comply with the 1982 planning regulations.

1. The forest plans fail to provide resource protection as required by NFMA planning regulations

The 1982 planning regulations contain numerous management prescriptions requiring forest plans to provide for resource protection. 36 C.F.R. § 219.27. The road-related plan components in the Umatilla, Malheur, and Wallowa-Whitman revised land management plans fail to provide those resource protections in violation of the regulations.

For example, the land management plans lack any motorized recreation plan components related to the 1982 planning regulations requirement that forest plans conserve water resources and protect streams, streambanks, shorelines, lakes, wetlands, and other bodies of water. 36 C.F.R. §§ 219.27(a)(1), 219.27(a)(4). The land management plans also lack any motorized recreation plan components to prevent the destruction or adverse modification of critical habitat for threatened and endangered species as required by the 1982 planning regulations. 36 C.F.R. § 219.27(a)(8). Indeed, it is unclear from the analysis and lack of explanation for determining suitability and ROS settings (see below) whether the Forest Service even considered the existing overlap of off-highway vehicle use and designated critical habitat, much less made suitability determinations or designated ROS settings so as to prevent motorized recreation impacts to that habitat in the future.

As another example, the land management plans lack any motorized recreation plan components to provide for and maintain diversity of plant and animal communities to meet overall multiple-use objectives, or provide for adequate fish and wildlife habitat to maintain viable populations of existing native vertebrate species and wildlife species as required by the 1982 planning regulations. 36 C.F.R. § 219.27(a)(5), (6). In particular, the standards and guidelines for Rocky Mountain elk are insufficient to protect these species from the adverse impacts of motorized recreation. *See* Umatilla LMP at 137 (RME-1S: "There shall be no net loss of elk security measured within watersheds (5th-field HUC) through building of new motorized routes or reopening of closed motorized routes for public travel."); Malheur LMP at 139 (similar); Wallowa-Whitman LMP at 141 (similar).

By setting a "no net loss" standard when building new motorized routes in elk security habitat, the Forest Service simply maintains status quo without assessing whether current elk security habitat is sufficient for sustaining elk populations on the national forests. Best available science shows that elk respond negatively to motorized recreation. A "no net loss" approach also ignores the cumulative impacts of cutting multiple motorized routes through elk security habitat. Even if previous routes are no longer open to motorized use, the old routes will continue to act as a vector for spreading invasive weeds and cause other impacts that fragment elk security habitat.

In the cumulative, this approach will not provide for adequate wildlife habitat to maintain viable populations of Rocky Mountain elk.

2. Inadequate objectives

The rules define "objective" as a "concise, time-specific statement of measurable planned results that respond to pre-established goals" and "forms the basis for further planning to define precise steps to be taken and the resources to be used in achieving identified goals." 36 C.F.R. § 219.3. Objectives set forth in the revised land management plans are inadequate because, *inter alia*, they lack time-specific parameters, fail to achieve or even work towards desired conditions, or are completely missing. As one glaring example, despite the fact that the Malheur and Wallowa-Whitman National Forests have yet to comply with the 2005 Travel Management Rule, and a statement in the analysis that these "forests will commence with their subpart B travel management planning" once the revised forest plans are in place, FEIS at 16, neither of these forests' land management plans include concise, time-specific objectives related to this goal (which is also in the desired condition 2.5 for Roads and Trails).

3. Inadequate standards and guidelines

The 1982 planning regulations require the establishment of qualitative and quantitative standards and guidelines to attain a plan's stated goals and objectives. 36 C.F.R. § 219.1 to 219.3. As noted elsewhere, because guidelines have not been interpreted as mandatory, standards are the only planning component that can adequately insure the protection mandated in NFMA.

The land management plans lack any objectives, or standards and guidelines to work towards desired condition 2.5 (Roads and Trails Access) to identify a system of roads, trails, and areas for nonmotorized and motor vehicle use. Umatilla LMP at 84; Malheur LMP at 84; Wallowa-Whitman LMP at 84 (directing that "[m]otor vehicle use occurs on roads, trails, and areas open to motor vehicle use in compliance with Travel Management Rule (36 CFR 212).").

Desired condition 2.5 also states:

> Trails for motor vehicle use provide a variety of recreational experiences, including various difficulty levels and trail lengths, access to scenic areas, and routes through assorted ecosystems while minimizing impacts to natural resources and user conflicts. Loop trails and trailhead developments meet the needs of increased recreation use. Snowmobile use is managed to provide varying challenges and distances while respecting ecological systems and other uses.

Id. This emphasis on providing motorized vehicle trails for a variety of experiences, while omitting any concerns about minimizing impacts to wildlife, wildlife habitat, or aquatic species

despite best available science and historic practices showing the harmful impacts of OHV use is unreasonable. This is especially true for the Malheur and Wallowa-Whitman National Forests, which have yet to complete travel management plans closing cross-country motorized travel.

For the Umatilla National Forest, RT-1G directs the Forest Service to "[l]imit motorized vehicles to roads, trails, and areas that are designated for use in the Umatilla National Forest Motorized Access and Travel Management Plan." Umatilla LMP at 138. Given that Forest Service regulations require motorized use be consistent with a forest's Travel Management Plan, this guideline should be a standard.

The guideline for protecting Rocky Mountain elk and other resources from motorized recreation during certain seasons is also inadequate. Guideline RME-2G sets seasonal closures for motorized travel on system roads, trails and areas. Umatilla LMP at 137; Malheur LMP at 139; Wallowa-Whitman LMP at 141. First, the seasonal dates are insufficient to protect Rocky Mountain elk based on elk calving and rutting seasons, when elk are most vulnerable. Second, these suggested seasonal closure dates are inadequate to protect elk because they are written as a guideline instead of a standard and they provide for exceptions creating a major loophole. RME-3G is likewise insufficient. Umatilla LMP at 137; Malheur LMP at 139; Wallowa-Whitman LMP at 141.

4. Suitability

Forest Plans "guide all natural resource management activities and establish management standards and guidelines for the National Forest System," including determining "the availability and suitability of lands for resource management." 36 C.F.R. § 219.1(b). Suitability is defined as "[t]he appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses forgone." *Id.* § 219.3. Forest plans must identify "[t]he physical and biological characteristics that make land suitable for recreation opportunities." *Id.* § 219.21(a)(1).

Contrary to the 1982 planning rules, the Forest Service fails to identify the suitability of various areas on the three forests for motorized or non-motorized use based on the physical and biological characteristics that make land suitable for recreation opportunities. The Forest Service's analysis refers generally to suitability determinations for road access tailored to each management area. FEIS at 51. However, the only location listing road access suitability determinations anywhere in the agency's analysis or the land management plans themselves is Table 31 in the land management plans. Umatilla LMP at 122; Malheur LMP at 124; Wallowa-Whitman LMP at 127 (Table 29). The Forest Service fails to provide a map showing the suitability determinations for various areas of the forest, or explain how it made these suitability determinations. The agency goes on to rely on the suitability determinations (that are never disclosed) as providing protection through acreages determined not suitable for uses (roads,

grazing, timber production) that present potential risk to aquatic and riparian habitats and aquatic species. FEIS at 62.

As a result, the proposed suitability determinations do not reflect the physical and biological characteristics that make land suitable for recreation opportunities. Instead, the Forest Service's approach assumes the current levels and locations of motorized recreational use are appropriate without considering the impacts to the physical and biological characteristics of the land. We are especially concerned about proper suitability determinations because suitability is very likely to influence the summer travel management planning that has yet to occur on the Malheur and Wallowa-Whitman National Forests, and winter travel planning that must occur on all three forests (explained below).

5. Recreation opportunity spectrum settings

The 1982 planning rules require land management plans to identify the recreational preferences of user groups and the settings needed to provide quality recreation opportunities, and recreation opportunities on the National Forest System lands. 36 C.F.R. § 219.21(a)(2), (3). The Forest Service's land management plans fail to provide the recreation opportunity spectrum (ROS) settings necessary to provide quality recreation opportunities, and recreation opportunities on the National Forest System lands.

The Forest Service states that in response to comments on the draft revised land management plans and DEIS, an additional forestwide guideline was developed to provide additional management direction for recreation-related projects to maintain consistency with mapped classes and setting descriptions in the ROS. FEIS at 421. Guideline REC-1G states, "Recreation-related project-level decisions and implementation activities should be consistent with mapped classes and setting descriptions in the recreation opportunity spectrum." Umatilla LMP at 137; Malheur LMP at 138; Wallowa-Whitman LMP at 140. This guideline should be a standard. Otherwise, the land management plans lack any standards to ensure application of or compliance with ROS settings.

The Forest Service states that its recreation opportunity spectrum inventory identified five physical and social settings on the three forests: primitive, semi-primitive nonmotorized, semi-primitive motorized, roaded natural, rural, and urban. Umatilla LMP at 168 (Table 50). It does not explain in the FEIS analysis or in the land management plans *how* it identified those settings, and it fails to provide a map illustrating where those settings occur across the forest. *See, e.g.*, FEIS at 422 (noting that "[c]orresponding recreation opportunity spectrum classes appropriate to each management area are described in management area descriptions and desired conditions and establish expectations for recreation setting characteristics" without explaining how it determined each ROS class was appropriate). This lack of information precludes meaningful

public comment in violation of NEPA, and fails to demonstrate compliance with the 1982 planning regulations.

The Forest Service's planning directives (Forest Service Manual and Handbook) require it to develop plan components necessary to close the gap between existing and desired ROS settings in a specific amount of time. But here it appears the Forest Service relied on existing conditions to establish its ROS settings, rather than describing *desired* ROS settings based on legal and practical suitability of the desired conditions for those lands. The revised land management plans ignore any need to close the gap between existing and desired ROS. This approach fails to comply with the agency's own planning directives. By simply continuing the status quo the Forest Service fails to develop a coherent system of sustainable and socially compatible recreation opportunities, as required by the planning directives.

Other than the guideline noted above, the only plan components referring to ROS settings are the desired conditions for specific management areas. *See, e.g.*, Umatilla LMP at 108; Malheur LMP at 110; Wallowa-Whitman LMP at 110 (desired condition for MA 1A (Wilderness) stating that the recreation opportunity spectrum is primitive). And the Forest Service completely fails to identify ROS settings for some management areas. *See, e.g.*, Umatilla LMP at 111 (stating that for MA 2B Research Natural Areas, the desired condition states the recreation opportunity spectrum "depends on the surrounding management areas.").

6. Monitoring

The 1982 planning regulations require monitoring and evaluation "to determine how well objectives have been met and how closely management standards and guidelines have been applied." 36 C.F.R. § 219.12(k). Monitoring requirements must provide for a quantitative estimate of performance; documentation of measured prescriptions and effects, including significant changes in productivity of the land; and documentation of costs associated with carrying out the planned management prescriptions as compared with the costs estimated in the land management plans. *Id.* § 219.12(k)(1)-(3). Our comments urged the Forest Service to improve the monitoring plan components for access management. GHCC et al. DEIS Comment at 65. But here the Forest Service's monitoring parameters for motorized recreation fail to comply with the 1982 planning regulation's requirements.

According to Forest Service directives, the objective of a plan monitoring program is to, *inter alia*, enable the responsible official to determine if a change in plan components or other plan content applicable to the plan area may be needed, and to inform the management of resources on the plan area, through means such as testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress toward achieving the plan's desired conditions or objectives. FSH 1909.12, ch. 30.2.

The Forest Service's monitoring parameters for motorized recreation fail to comply with these requirements. This is unsurprising, given the lack of plan components that address motorized recreation (see above). For example, the monitoring question asking whether watershed and aquatics standards and guidelines and best management practices are being implemented at project sites (e.g., range, roads, recreation, and vegetation management). Umatilla LMP at 157; Malheur LMP at 159; Wallowa-Whitman LMP at 161. This monitoring parameter does not provide for a quantitative estimate of performance. And because it is predicated on inadequate plan components, it is insufficient to determine how well objectives have been met and how closely management standards and guidelines have been applied.

Requested Relief: Revise the motorized recreation plan components to include standards or guidelines to comply with the 1982 planning regulations. Reconsider ROS settings and the analysis in the FEIS to disclose existing ROS settings, identify desired ROS settings based on suitability determinations (instead of existing conditions), and revise sustainable recreation plan components to close the gap between existing and desired ROS settings in a specific amount of time. Include a clear commitment to site-specific summer and winter travel planning within the areas deemed suitable for motorized use, within a specific time frame. We suggest the Malheur and Wallowa-Whitman National Forests commit to site-specific summer travel management planning within one year of completing these forest plan revisions. And we suggest the Umatilla, Malheur, and Wallowa-Whitman National Forests commit to site-specific winter travel planning within three years of completing these forest plan revisions. Revise the motorized recreation monitoring plan questions and indicators to track whether recreational uses on the forest are sustainable, and require annual reporting of enforcement and compliance issues.

B. The motorized recreation plan components in the Malheur and Wallowa-Whitman land management plans fail to ensure compliance with subpart B of the Travel Management Rule.

Uncontrolled motorized use across the Malheur and Wallowa-Whitman National Forests has resulted in significant environmental damage to the landscape. Unmanaged recreational motor vehicle use upsets the natural balance of the forest. It damages the soil and water resources, degrades fish habitat, and harms wildlife. It also intrudes on the freedom of quiet solace many non-motorized users seek on these public lands. Here the Forest Service is missing a major opportunity to restore a balance to the forest and commit to complying with subpart B of the 2005 Travel Management Rule. 36 C.F.R. §§ 212.50-212.57 (Subpart B—Designation of Roads, Trails and Areas for Motor Vehicle Use) (commonly referred to as the 2005 Travel Management Rule).

Our comments highlighted the Forest Service's duties under the Travel Management Rule and Executive Orders to consider and minimize effects from motorized routes and areas on forest

resources, wildlife, and conflicts with other uses. GHCC et al. DEIS Comment at 68. The Umatilla National Forest completed its Travel Management Plan as required by the 2005 Travel Management Rule, but the Malheur and Wallowa-Whitman National Forests have not. FEIS at 16. The Forest Service fails to include any plan components to ensure the Malheur and Wallowa-Whitman National Forests will come into compliance with the 2005 Travel Management Rule. After more than 10 years of ignoring this legal duty, omitting an objective, standard or guideline related to this legal duty is unreasonable, arbitrary and capricious.

Requested Relief : Given the unreasonable delay in working towards its duty to close cross-country travel and designate motorized use consistent with the 2005 Travel Management Rule, the Forest Service must revise the land management plans for the Malheur and Wallowa-Whitman National Forests to include a time-specific objective to initiate summer travel management planning within one year of completing these forest plan revisions.

C. The motorized recreation plan components are inconsistent with the agency's own rules under Subpart C of the Travel Management Rule.

Courts have made clear there is no basis for excluding over-snow vehicles (OSVs) from travel management decisions. *See, e.g., Winter Wildlands Alliance v. U.S. Forest Serv.*, No. 1:11-CV-586-REB, 2013 U.S. Dist. LEXIS 47728 (D. Idaho Mar. 29, 2013) (explaining "there is no authority for the Forest Service to delay the making of such designations for OSVs, under the guise of 'preserving the authority' to do so at some future date."). Although the Forest Service finalized its 2015 OSV rule after the close of the last public notice and comment period on these plan components, our comments did urge the Forest Service to demonstrate application of the minimization criteria when designating management areas and making suitability classifications for winter motor vehicle use in forest planning. GHCC et al. DEIS Comment at 68-69. Yet here the Forest Service makes no mention of completing winter travel planning required by subpart C. By excluding winter travel management planning from the land management plans, the Forest Service continues to allow the unlawful winter management approach of "open unless designated closed," contrary to its own rules.

The land management plans contain plan components directing management of winter motorized use, but fail to ensure compliance with the 2015 OSV rule or minimization criteria. *See, e.g.*, Umatilla LMP at 84 (stating in Desired Condition 2.5 that "Snowmobile use is managed to provide varying challenges and distances while respecting ecological systems and other users.").

Requested Relief: Revise the land management plans for all three forests to include a time-specific objective to initiate winter travel management planning within three years of completing these forest plan revisions.

D. The Forest Service's analysis of the motorized recreation plan components in the FEIS fails to comply with NEPA

The FEIS fails to consider an accurate baseline, fails to disclose essential information, contains plan components that are inconsistent with the plan's stated purpose and need, fails to consider impacts and best available science, and fails to consider significant new information. Further, the draft ROD is inconsistent with the FEIS analysis. Unfortunately, these issues are not limited to the motorized plans components and analysis but are pervasive throughout the FEIS and proposed plans.

1. Inaccurate baseline

The Forest Service must accurately inform the public about applicable rules, regulations and policies impacting its action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment. 40 C.F.R. § 1500.1(c). NEPA directs the Forest Service must "to the fullest extent possible . . . [e]ncourage and facilitate public involvement in decisions which affect the quality of the human environment." 40 C.F.R. § 1500.2(d). Here, the Forest Service paints an inaccurate picture of the regulatory framework within which the agency must act.

Related, providing an accurate description of the baseline is essential to allowing for meaningful comparison of alternatives and impacts. *See, e.g., Ctr. for Biological Diversity v. U.S. Dep't of the Interior*, 623 F.3d 633, 642 (9th Cir. 2010) ("A no action alternative in an EIS allows policymakers and the public to compare the environmental consequences of the proposed action."); *Friends of Yosemite Valley v. Kempthorne*, 520 F.3d 1024, 1038 (9th Cir. 2008) (holding a "no-action" alternative invalid under NEPA because it improperly included decisions that had previously been found invalid).

Here, the Forest Service fails to provide an accurate baseline of motorized recreation on the three forests. As just one example, the analysis fails to disclose that none of the forests have complied with the 2015 OSV rule requiring forests to designate roads, areas and trails for winter motorized use consistent with the minimization criteria, and prohibit winter motorized travel outside of those areas. *See* FEIS at 16 (noting the 2013 court order to amend the previous travel management rule making winter designations discretionary, but lacking any information about the 2015 final rule or that the three forests are not in compliance); 19-20 (explaining the status of summer travel management plans, but omitting any information about winter travel management plans); 72.

2. Failure to accurately disclose essential information

The failure to disclose and analyze requisite information indicates that the action agency failed to take a "hard look" at the environmental consequences of its actions. *Klamath-Siskiyou Wildlands Ctr. v. Bur. of Land Mgmt.*, 387 F.3d 989 (9th Cir. 2004) (holding that requisite analysis must be in the environmental document). *See also Great Basin Res. Watch v. Bur. of Land Mgmt.*, 844 F.3d 1095, 1101 (9th Cir. 2016) ("Establishing appropriate baseline conditions is critical to any NEPA analysis. Without establishing baseline conditions which exist before a project begins, there is simply no way to determine what effect the project will have on the environment and, consequently, no way to comply with NEPA.") (internal citation omitted). The purpose behind NEPA's hard look requirement is to "insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 C.F.R. § 1500.1(b).

The Forest Service fails to accurately disclose the nature of its proposed actions related to motorized recreation, precluding meaningful public comment in violation of NEPA. This is closely related to the failure to establish an accurate baseline. In addition to failing to disclose the current status of summer and winter motorized travel management (or lack thereof) on the three forests, the Forest Service fails to disclose or otherwise explain how it made its suitability determinations (see above), fails to provide a map of those suitability determinations, and fails to disclose how it determined the ROS settings.

3. Plan components inconsistent with statement of purpose and need

The stated purposes and needs for these revised land management plans are to: (1) more adequately protect and restore terrestrial plant and animal species and their habitats; (2) address management of fuels and fire risk; (3) more adequately protect and restore watersheds and aquatic habitats; (4) address climate change; and (5) recognize the interdependency of social and economic components with national forest management. FEIS at 7-9. But the motorized recreation plan components fail to achieve the stated purpose and need for these plan revisions. For example, the motorized recreation plan components simply continue the status quo of recreation management on the forests, and in no way provide for or work towards addressing the documented negative impacts of motorized recreation – especially cross-country motorized travel – on terrestrial plant and animal species and their habitats, or watersheds and aquatic habitats.

4. Fails to consider impacts and best available science

The Forest Service's analysis fails to take the required "hard look" at the direct, indirect, and cumulative impacts of summer and winter motorized recreation on the forests. "In formulation and analysis of alternatives . . . interactions among recreation opportunities and other multiple uses shall be examined," including consideration of "the impacts of the proposed recreation

activities on other uses and values and the impacts of other uses and activities associated with them on recreation opportunities, activities, and quality of experience." 36 C.F.R. § 219.21(d).

Our comments outlined the numerous harmful impacts from winter motor vehicle use on the environment, and urged the Forest Service to take a hard look at those impacts. GHCC et al. DEIS Comment at 68-71. *See also* Switalski, Snowmobile Best Management Practices for Forest Service Travel Planning: A Comprehensive Literature Review and Recommendations for Management, 12 Journal of Conservation Planning 13 (2016) (Attached as Exhibit D). The Forest Service's analysis fails to acknowledge or disclose all of these direct, indirect, and cumulative impacts.

5. Decision unsupported by analysis

The Forest Service must articulate "a rational connection between the facts found and the conclusions made." *Or. Natural Res. Council v. Lowe*, 109 F.3d 521, 526 (9th Cir. 1997). But here it fails to explain its largely non-existent approach to managing winter and summer motorized use on the forests in light of the agency's own analysis and best available science showing motorized recreation has very real, harmful impacts on forest resources, wildlife and wildlife habitat, and non-motorized uses.

Indeed, the Forest Service states that the "management area allocations provide opportunity for increased motorized vehicle use, compared to the preferred Alternative E within the 2014 draft Forest Plan for the three National Forests" resulting "from changes to Management Areas 1B, 3A, 3B, and 4A." FEIS at 73. These changes move the forests towards allowing *more* motorized use, despite best available science and data from these forests showing motorized vehicle use causes very real, harmful impacts to water quality, soils, wildlife, wildlife habitat, aquatic species, and non-motorized uses. The agency's change in approach is unsupported by its own analysis, and is arbitrary and capricious.

6. Significant new information

There is a wealth of significant new information since the Forest Service completed its analysis of the land management plans that requires the agency to prepare a supplemental analysis. Given the land management plans and the analysis of impacts is almost five years old, the agency's analysis does not account for new scientific information on sensitive wildlife and other forest resources and how they are affected by ORV use. It does not account for current recreational use trends and increasing conflict between motorized and non-motorized users. It does not account for the current and predicted impacts of climate change in the context of impacts from winter motorized use, which is, among other things, reducing and altering snowpack and increasing the vulnerability of wildlife and other resources to impacts from winter motorized use. *See, e.g.*,

Exhibit D. This issue is not limited to the analysis of impacts from motorized uses and is pervasive throughout the FEIS - this is just one example.

Laws have changed. The last notice and comment period ended in 2014, before the Forest Service finalized its 2015 OSV rule requiring the Forest Service to designate routes, areas and trails for winter motorized use. And the existing summer travel management decisions on the Umatilla likely do not account for the increased speed, power, and other capabilities of current off-road vehicle use technology (summer and winter), which allows ORVs to travel further and faster into the backcountry and to access remote areas that were previously inaccessible.

Requested Relief: Revise the analysis in the FEIS to accurately disclose the current status of winter and summer travel planning on each of the forests, and include information necessary to illustrate how the Forest Service made its suitability determinations and ROS settings. Revise the analysis in the FEIS to a "hard look" at the direct, indirect, and cumulative impacts from motorized recreation. Revise the plan components and draft ROD to show a rational connection between the facts found and the conclusions made. In light of the new information since the last public notice and comment period (including changes in the agency's own rules, and new understandings of best available science showing the impacts of winter motorized use), the Forest Service needs to revise its plan components related to winter motorized travel management and prepare a supplemental EIS. Prepare a supplemental analysis to account for the significant new information since 2014.

E. The Forest Service fails to ensure the motorized recreation plan components comply with the ESA

As explained in the section on road management, the Forest Service has a substantive obligation on federal agencies to "insure that any action authorized, funded, or carried out by such agency...is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of" habitat that has been designated as critical for the species. 16 U.S.C. § 1536(a)(2); *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 924 (9th Cir. 2008). FWS's May 29 2018 Biological Opinion and NMFS's April 20 2018 Biological Opinion are also flawed because they (1) fail to acknowledge the lack of compliance by these forests with the 2005 summer Travel Management Rule and 2015 OSV rule, (2) ignore best available science, including the impacts of summer and winter motorized recreation on listed species and designated critical habitat; (3) rely on flawed assumptions, including that the forest plans ensure that the forests will "maintain a system of roads, trails, and areas for non-motorized and motor vehicle use available for public use" (*see* NMFS's April 20 2018 Biological Opinion at 6); and (4) fail to consider, analyze or explain key aspects of the agency's analysis.

Requested Relief: Refrain from any final decision related to the revised land management plans unless and until the flaws related to Section 7 consultation identified above have been addressed in revised Biological Opinions.

F. The Forest Service fails to ensure the motorized recreation plan components comply with the CWA

As noted in the section on road plan components, all federal agencies must comply with state water quality standards, including a state's antidegradation policy. 33 U.S.C. § 1323(a), *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146 (9th Cir. 1998). Here the Forest Service fails to ensure that the land management plans will comply with the CWA by not causing or contributing to a violation of Oregon's water quality standards. While the road-related plan components are insufficient to ensure no violations of water quality standards from road management authorized by the forest plans, any motorized recreation plan components to address the impacts of motorized recreation on water quality are non-existent.

Requested Relief: Revise the land management plans to include motorized recreation plan components that ensure the summer and winter motorized use on the forests will not cause or contribute to a violation of water quality standards.

VII. Deficiencies in the Final Environmental Impact Statement and forest plans related to carbon storage and climate change

The Forest Service has a legal duty to address the impacts of climate change in the FEIS. In addition to a genuine analysis of impacts, it is also imperative that the Forest Service craft strategies for addressing and adapting to impacts from climate change. The agency has failed to do so here as described below.

A. The proposed land management plans are not informed by an up-to-date resource assessment with regard to carbon

The FEIS and the proposed LMPs violate NFMA because they were not informed by a proper resource assessment. In particular, there was no inventory of carbon storage and no disclosure and analysis of the increased carbon emissions caused by widespread density-reduction logging, doubling the timber targets in the Blue Mountain National Forests, and 7 new loopholes allowing logging of large and old trees that, among other things, serve as important stores of carbon.

The National Forest Management Act (NFMA) requires the Forest Service to prepare a resource assessment and maintain an ongoing inventory of resources on the national forests. Carbon stored in forests helps to mitigate global warming and ocean acidification and is a perfect

example of what Congress had in mind when it said "This inventory shall be kept current so as to reflect changes in conditions and identify new and emerging resources and values." 16 USC §1603.

This resource assessment should inform the Forest Service as it makes decisions on plan revisions like these. Public comments on the DEIS asked the Forest Service to develop a proper inventory of stored carbon and carbon emissions and urged consideration of a concrete plan to increase carbon storage in forests in order to mitigate climate change.

Enhancing the natural processes that remove CO_2 from the atmosphere is one of the most cost-effective means of reducing atmospheric levels of CO_2. There are two fundamental approaches to sequestering carbon in terrestrial ecosystems: (1) protection of ecosystems that store carbon so carbon stores can be maintained or increased; and (2) manipulation of ecosystems to increase carbon sequestration beyond current conditions. Despite the opportunity to do both on National Forest System lands, a recent report from the U.S. Government Accountability Office (GAO) finds that federal resource agencies (including the Forest Service) have not done enough to incorporate climate change mitigation and adaptation into their management. Out of 155 National Forests and 20 National Grasslands only 12 have land management plans that address climate change. GAO urged that all forest plans be amended to address climate change. GAO, 2007.

How the forests are managed has a real and substantial impact on how much carbon is stored. Management-driven deviations from business-as-usual can lead to significant increases or decreases in carbon storage. The NEPA analysis for the forest plans should include inventory of current carbon storage and develop a clear and coherent plan to increase carbon storage in the Blue Mountains. The forest plans must establish plan components that address carbon storage including desired conditions. Forest management should not *retard* the natural rate of carbon accumulation in the absence of management. All management scenarios must be compared to the natural rate of uptake and all management related rate reductions must be fully disclosed and mitigated. The forest plans must also contain standards that ensure timely progress toward the established goals. The plans must prohibit activities that continue to transfer net carbon from the land to the atmosphere and avoid actions that would delay or retard the natural process of recapture and recovery of carbon storage.

As outlined in our scoping comments, recommended carbon storage strategies include:

- Letting forests grow more and logging them less, by protecting all mature and old growth forests and large trees, adopting much longer harvest rotations (i.e. letting forests grow larger and longer between harvests).

- Retain more live and dead trees during harvest, so that stand level carbon stores are not depleted as dramatically during harvest.
- Focus on thinning small diameter fuels in forests with frequent fire regimes.
- Avoid carbon losses from soil by reducing soil disturbance from roads, logging equipment, and grazing.

GHCC et al DEIS Comments.

The FEIS failed to respond meaningfully to these comments. Even if the Forest Service thinks they considered alternatives that would log less than Alternative E-modified and might store more carbon, the FEIS never disclosed the differential carbon consequences (carbon storage vs emissions) of the different alternatives. FEIS (pp 67-68) contains a brief discussion of carbon sequestration but fails to provide meaningful analysis to supports its conclusions (some of which are contrary to the best available science), fails to quantify carbon consequences of logging, and fails to compare alternatives.

The Forest Service failed to prepare an inventory of carbon and failed to consider the carbon consequences of large-scale logging and doubling timber targets under these proposed forest plans. The 2004 Analysis of the Management Situation (AMS) supporting this plan amendment briefly mentions carbon cycling as an ecological process and identifies "carbon sequestration" as an ecological function that supports ecological integrity. The "desired condition" being: "Nutrient capital on forest and rangelands has been maintained at acceptable levels." The LMPs, and FEIS fail to include this desired condition. The AMS, LMPs and FEIS fail to quantify "acceptable" levels of carbon sequestration to support a healthy climate and oceans. These are serious violations in light of the requirement that the USFS "maintain[] air quality at a level that is adequate for the protection and use of National Forest System resources" 36 CFR 219.27(12). Every ton of carbon that is not stored in the forest is either in the atmosphere or on an accelerated path to the atmosphere where it will contribute to the cumulative over-saturation of greenhouse gases and serious adverse effects from climate change that will, in turn, adversely affect the Blue Mountain National Forests and other critical resources.

B. The desired conditions fail to mitigate climate change

The USFS failed to make carbon storage part of the purpose and need or desired conditions even though meeting NFMA requirements is best accomplished within the context of a stable Holocene climate, which requires the Forest Service to do all it can to reduce the ongoing and increasing threat of climate change. The 1982 Planning Regulations do not mention carbon, but the 2012 Regulations recognize carbon storage as an important "ecosystem service" that helps regulate the climate that supports wildlife, water, and other services provided by our public

lands. Carbon serves such a critically important ecosystem service that it must be an explicit part of the desired condition or the revised plans will not meet their other legally required goals. For instance:

- Climate change is altering disturbance regimes, increasing thermal stress, and decoupling seasonal wildlife relationships, etc., so the Forest Service cannot "maintain viable populations" (36 CFR 219.19), nor can the Forest Service "provide for diversity of plant and animal communities and tree species consistent with the overall multiple-use objectives" (36 CFR 291.26) in a changing climate unless the Forest Service does its part to store carbon, reduce logging-related greenhouse gas (GHG) emissions, and ameliorate climate change;

- Climate change is amplifying the hydrologic cycle and increasing the severity of both droughts and precipitation events, so the Forest Service cannot comply with the requirements of the Clean Water Act and "minimize risk of flood loss, ... restore and preserve floodplain values, and ... protect wetlands" (36 CFR 219.23) in a changing climate unless the Forest Service does its part to store carbon, reduce logging-related GHG emissions, and ameliorate climate change;

- The Forest Service cannot meet many of the many management requirements in 36 CFR 219.27 (e.g., "Conserve soil and water resources and not allow significant or permanent impairment of the productivity of the land; Consistent with the relative resource values involved, minimize serious or long-lasting hazards from flood, wind, wildfire, erosion, or other natural physical forces ... prevent or reduce serious, long lasting hazards and damage from pest organisms... Protect streams, streambanks, shorelines, lakes, wetlands, and other bodies of water ... Provide for and maintain diversity of plant and animal communities ...; Provide for adequate fish and wildlife habitat to maintain viable populations of existing native vertebrate species ... [P]revent[] the destruction or adverse modification of critical habitat for threatened and endangered species ... Assure that lands can be adequately restocked ... ") in a changing climate unless the Forest Service does its part to store carbon, reduce logging-related GHG emissions, and ameliorate climate change;

- And most importantly, the 1982 NFMA Regulations require the FS to "maintain[] air quality at a level that is adequate for the protection and use of National Forest System resources." (36 CFR 219.27).

Nothing could be clearer. The Forest Service cannot meet its NFMA obligations unless it establishes desired conditions for carbon storage that help reduce the effects of climate change. The Forest Service failed to fulfill this obligation. For instance, desired conditions for stand density (e.g., Malheur LMP, pp. 53-55) does not address the relationship of stand density to

carbon storage. It emphasizes reducing stand density to increase tree vigor, but does not address the trade-offs such as reduced carbon storage, reduced dead wood habitat, etc.

The FEIS failed to harmonize carbon storage and other goals. The desired conditions do not reflect the need to store carbon. Managing for resilience tends to reduce carbon storage. The FEIS failed to take a hard look at this trade-off by considering alternatives that would retain more trees for carbon storage and disclosing the adverse carbon impacts of widespread tree removal. Increasing the "pace and scale" of density reduction, doubling the timber targets for the three National Forests, and creating 7 new exceptions to the requirement to retain large trees also have significant carbon consequences which were not address in the FEIS. In particular, density reduction treatments, if needed, could be distributed across time in such a way to either accelerate or slow climate impacts. Instead of increasing the pace and scale of logging, which would increase climate impacts in the short-term when emissions reduction is most critical, a better alternative would be to reduce the pace and scale of logging in order to allow forests to grow and absorb more carbon in the short-term while we figure out how to decarbonize our fossil fuel economy. This reasonable alternative was not considered in the EIS.

Furthermore, the trade-offs related to stand density reduction were raised in scoping comments but not addressed in the FEIS. From our scoping comments:

> The proposed action suggests that forest density needs to be reduced to increase climate adaptation. This proposal may be warranted in some cases but must be carefully evaluated. Any effort to increase climate resilience by reducing the density of trees must consider several factors:
> …
> - Logging to reduce density will transfer carbon to the atmosphere thus exacerbating climate change, and
> - Logging will add to the cumulative stress of climatic change (such as watershed impacts).
>
> The Plan Revision must adopt standards to balance all of these aspects of the issue.

Even if carbon storage is not an explicit part of the 1982 NFMA procedures that govern this plan revision, the recognition of the important role of carbon in the new rules and the emergence of climate change as a critical issue facing humanity (especially since the Forest Service manages vast forests that are critical parts of the global carbon cycle) means that carbon cannot be ignored in this process. If it is not mandated by NFMA, it is mandated by NEPA. The Forest Service has a duty to fully and accurately disclose impacts of logging on carbon storage and develop a full range of alternatives, such as an alternative that makes increasing carbon storage an explicit part of the desired conditions. Considering a plan with more explicit carbon goals will help the Forest

Service make better decisions that maintain higher basal area, retain more and larger trees, forego logging in unroaded areas and connectivity areas, use alternative tools such as prescribed fire instead of logging, etc.

The FEIS claims to have incorporated carbon storage into the desired conditions for these forest plans. For example:

> Response to Comments (RTC) (p. 191-192): "The Forest Service's desired conditions are informed in part by a need to use carbon sequestration as a potential climate change mitigation benefit. The goals and desired conditions of the Plans must also address a myriad of other essential ecosystem services. Forest management activities and strategies over the life of the Plans will be guided largely by the desired conditions. ... The Forest Service believes that restoring and maintaining landscapes within this natural range of variation represents our best chance to balance potential conflicts between ecosystem services, including climate mitigation, while maintaining ecological integrity and sustainability over time."

However, there is no evidence that the Forest Service actually considered alternatives and mitigations to store more carbon and harmonize climate mitigation with other goals.

C. The FEIS has a misleading description of the relationship between carbon storage, logging, and natural disturbance processes

The FEIS asserting that managing for more carbon storage will lead to undesired disturbance and greater emissions of greenhouse gases.

> RTC (p. 192): "...we recognize that old trees and mature forests play an important role in providing carbon storage, as well as providing other desired ecosystem characteristics. ... Managing for climate mitigation and ecosystem services like carbon storage will be best served by restoring and maintaining diverse and resilient forest conditions within their natural range of variation at the landscape scale. The Forest Service's strategy will not attempt to maintain forest ecosystems in an unstable and unnaturally dense condition. These conditions would not be sustainable and would threaten other desired ecosystem services. Promoting unnaturally high levels of dense forest conditions would only lead to future releases of large amounts of stored carbon as natural disturbance agents like wildfire and insect and disease outbreaks would inevitably affect the areas and produce massive tree die-offs."

> RTC (p. 194-195): "The Forest Service believes that the best balance between the goals of climate mitigation via increased carbon storage, versus adapting forest conditions to anticipated climatic conditions is achieved by restoring and maintaining resilient forest

> conditions within their natural range of variability. Attempting to maintain forest ecosystems in an unstable and unnaturally dense condition as a way to store additional carbon would not be sustainable, and would also neglect other desired ecosystem services. These conditions would lead to future releases of large amounts of stored carbon, as natural disturbance agents like wildfire and insect and disease outbreaks inevitably return and produce severe die-offs of trees."

This analysis is inaccurate and misleading: First, the analysis failed to recognize that the natural range of variability for carbon storage is wide. There are conditions within the natural range that store more carbon and less carbon, and the Forest Service could help reduce GHG emissions and help mitigate climate change by managing for conditions *within* the natural range that store more carbon. This would be entirely consistent with the goals of these plans and better address climate concerns. The Forest Service failed to consider such alternatives. Second, the analysis is misleading to the extent it implies that storing more carbon will lead to increased carbon emissions from disturbance. This is not supported by the evidence. In fact, the best available science indicates that logging to reduce disturbance emits more carbon than disturbance alone.

The FEIS (p. 68) says "thinning to reduce risk of stand-replacing wildland fire or insect disturbances, or to reduce moisture stress on the remaining trees ... may reduce carbon stocks in the short term, but can have long-term benefits for carbon sequestration (Zhang et al. 2010). Management approaches designed to increase carbon storage by reducing harvest levels or lengthening harvest intervals involve uncertainty because disturbances would be more likely to occur in forests with higher carbon stores, and the risk of deforestation may increase in the long term." This is inaccurate and misleading. The best available science, summarized below, indicates that logging, even if well intentioned, is likely to reduce carbon storage and increase carbon emissions in both the short-term and long-term.

> Law & Harmon (2011)[24] conducted a literature review of this issue and concluded …Thinning forests to reduce potential carbon losses due to wildfire is in direct conflict with carbon sequestration goals, and, if implemented, would result in a net emission of CO2 to the atmosphere because the amount of carbon removed to change fire behavior is often far larger than that saved by changing fire behavior, and more area has to be harvested than will ultimately burn over the period of effectiveness of the thinning treatment.

[24] Law, B. & M.E. Harmon 2011. Forest sector carbon management, measurement and verification, and discussion of policy related to mitigation and adaptation of forests to climate change. Carbon Management 2011 2(1). http://terraweb.forestry.oregonstate.edu/pubs/lawharmon2011.pdf.

> Campbell and Agar (2013)[25] conducted a sensitivity analysis and found robust results indicating that fuel reduction does not increase forest carbon storage.… we attempt to remove some of the confusion surrounding this subject by performing a sensitivity analysis wherein long-term, landscape-wide carbon stocks are simulated under a wide range of treatment efficacy, treatment lifespan, fire impacts, forest recovery rates, forest decay rates, and the longevity of wood products. Our results indicate a surprising insensitivity of long-term carbon stocks to both management and biological variables. After 80 years, … a 1600% change in either treatment application rate or efficacy in arresting fire spread resulted in only a 10% change in total system carbon. This insensitivity of long-term carbon stocks is due in part by the infrequency of treatment/wildfire interaction and in part by the controls imposed by maximum forest biomass. None of the fuel treatment simulation scenarios resulted in increased system carbon.

There are now web tools available that can help the agencies deal with uncertainty surrounding the efficacy of fuel reduction. For instance, this web-based spreadsheet (http://getguesstimate.com/) allows users to create models with confidence intervals around input variables. Then it runs thousands of Monte Carlo simulations to come up with estimates of model behavior. The agencies could use this to better estimate the improbability that fuel treatments would interact with fire and estimate the improbable carbon benefits of fuel reduction logging.

The FEIS is attributing carbon benefits to fuel reduction logging without considering opposing science such as:

- John L Campbell, Mark E Harmon, and Stephen R Mitchell. 2011. Can fuel-reduction treatments really increase forest carbon storage in the western US by reducing future fire emissions? Front Ecol Environ 2011; doi:10.1890/110057 http://forestpolicypub.com/wp-content/uploads/2011/12/campbell-2011.pdf. (Results suggest that the protection of one unit of carbon (C) from wildfire combustion comes at the cost of removing three units of C in fuel treatments.)

- Mitchell, Harmon, O'Connell. 2009. Forest fuel reduction alters fire severity and long-term carbon storage in three Pacific Northwest ecosystems. Ecological Applications. 19(3), 2009, pp. 643–655. http://www.fs.fed.us/pnw/pubs/journals/pnw_2009_mitchell001.pdf. ("…reducing the fraction by which C is lost in a wildfire requires the removal of a much greater amount of C, since most of the C stored in forest biomass (stem wood, branches, coarse woody debris) remains unconsumed even by high-severity wildfires. For this reason, all of the fuel reduction treatments simulated for the west Cascades and Coast Range

[25] Campbell, J, Agar, A (2013) Forest wildfire, fuel reduction treatments, and landscape carbon stocks: A sensitivity analysis. Journal of Environmental Management 121 (2013) 124-132 http://fes.forestry.oregonstate.edu/sites/fes.forestry.oregonstate.edu/files/PDFs/Campbell_2013_JEM.pdf

ecosystems as well as most of the treatments simulated for the east Cascades resulted in a reduced mean stand C storage…. We suggest that forest management plans aimed solely at ameliorating increases in atmospheric CO2 should forego fuel reduction treatments …")

- Reinhardt, Elizabeth, and Lisa Holsinger 2010. Effects of fuel treatments on carbon-disturbance relationships in forests of the northern Rocky Mountains. Forest Ecology and Management 259 (2010) 1427–1435. http://www.fs.fed.us/rm/pubs_other/rmrs_2010_reinhardt_e002.pdf ("Although wildfire emissions were reduced by fuel treatment, the fuel treatments themselves produced [carbon] emissions, and the untreated stands stored more carbon than the treated stands even after wildfire. … Our results show generally long recovery times …")

- Law, B. & M.E. Harmon 2011. Forest sector carbon management, measurement and verification, and discussion of policy related to mitigation and adaptation of forests to climate change. Carbon Management 2011 2(1). http://terraweb.forestry.oregonstate.edu/pubs/lawharmon2011.pdf ("Thinning forests to reduce potential carbon losses due to wildfire is in direct conflict with carbon sequestration goals, and, if implemented, would result in a net emission of CO2 to the atmosphere because the amount of carbon removed to change fire behavior is often far larger than that saved by changing fire behavior, and more area has to be harvested than will ultimately burn over the period of effectiveness of the thinning treatment.")

- Restaino, Joseph C.; Peterson, David L. 2013. Wildfire and fuel treatment effects on forest carbon dynamics in the western United States. Forest Ecology and Management 303:46-60. http://www.fs.fed.us/pnw/pubs/journals/pnw_2013_restiano001.pdf ("… C costs associated with fuel treatments have can exceed the magnitude of C reduction in wildfire emissions, because a large percentage of biomass stored in forests (i.e., stem wood, branches, coarse woody debris) remains unconsumed, even in high-severity fires (Campbell et al., 2007; Mitchell et al., 2009). … Wildfire occurrence in a given area is uncertain and may never interact with treated stands with reduced fire hazard, ostensibly negating expected C benefits from fuel treatments. Burn probabilities in treated stands in southern Oregon are less than 2%, so the probability that a treated stand encounters wildfire and creates C benefits is low (Ager et al., 2010).)"

- Goslee, K., Pearson, T., Grimland, S., Petrova, S., Walls, J., Brown, S., 2010. Final Report on WESTCARB Fuels Management Pilot Activities in Lake County, Oregon. California Energy Commission, PIER. DOE Contract No.: DE-FC26-05NT42593. http://uc-ciee.org/downloads/Fuels_Management_LakeCo.pdf; AND Pearson, T.R.H., Goslee, K., Brown, S., 2010. Emissions and Potential Emission Reductions from Hazardous Fuel Treatments in the WESTCARB Region. California Energy Commission, PIER. CEC-500-2014-046. http://www.energy.ca.gov/2014publications/CEC-500-2014-046/CEC-500-2014-046-AP.pdf. (Summarized by Restaino & Peterson (2013) as follows: "Pearson et al. (2010)

and Goslee et al. (2010) developed methodologies to evaluate C dynamics associated with fuel treatment projects in low to mid-elevation forest in northern California and Oregon. The authors, with consultation from teams of scientists, quantify C storage and release within the context of a six-point conceptual framework: annual fire risk, treatment emissions, fire emissions, forest growth and re-growth, re-treatment, and the shadow effect (i.e., treatment effect outside the treated area). Results indicate that the mean annual probability of wildfire for the study region is less than 0.76%/year, and treatments reduce C stocks by an average of 19%. Where timber is removed, 30% of extracted biomass is stored in long-lasting wood products. Wildfire emissions in treated stands, quantified with the Fuel Characteristic Classification System, are reduced by 6% relative to untreated stands. Growth estimates for a 60-year simulation horizon, derived from FVS, indicate that in the absence of wildfire, untreated stands sequester 17% more C than treated stands. However, in simulations that include wildfire, treated stands sequester 63% more C than untreated stands. The shadow effect is unlikely to be large enough to affect net GHG emissions. In summary, initial reductions in C stocks (e.g., thinning), combined with low annual probability of wildfire, preclude C benefits associated with fuel treatments, even if harvest residues are used for biomass energy.")

- Chiono, Lindsay 2011. Balancing the Carbon Costs and Benefits of Fuels Management. Research Synthesis for Resource Managers. Joint Fire Science Program Knowledge Exchange. http://static1.squarespace.com/static/545a90ede4b026480c02c5c7/t/5527ebd9e4b0f620d0cb5b58/1428679641640/CFSC_Chiono_Carbon_and_Fuel_Mngmt.pdf ("[T]he net carbon impact of fuel treatments is further complicated by the probabilistic nature of wildfire occurrence and the impermanence of post-treatment stand conditions … [T]reatment activities produce an immediate carbon emission while future wildfire emissions are uncertain … Depending on the intensity of treatment, the quantity of carbon removed may be substantial enough to negate gains from avoided wildfire emissions. … cumulative emissions from fuels reduction activities repeated in order to maintain low hazard conditions over time can overwhelm avoided wildfire emissions, resulting in a net carbon loss.")

- Dina Fine Maron 2010. FORESTS: Researchers find carbon offsets aren't justified for removing understory (E&E Report 08/19/2010, reporting on the WESTCARB Project) https://pacificforest.org/pft-in-the-media-2010-climatewire-8-19-10.html. ("'The take-home message is we could not find a greenhouse gas benefit from treating forests to reduce the risk of fire,' said John Kadyszewski, the principal investigator for the terrestrial sequestration projects of the West Coast Regional Carbon Sequestration Partnership. WESTCARB, ... Since there is a relatively low risk of fire at any one site, large areas need to be treated -- which release their own emissions in the treatment process. The researchers have concluded that the expected emissions from treatments to reduce fire risk exceed the projected emissions benefits of treatment for individual projects.")

- Rachel A. Loehman, Elizabeth Reinhardt, Karin L. Riley 2014. Wildland fire emissions, carbon, and climate: Seeing the forest and the trees – A cross-scale assessment of wildfire and carbon dynamics in fire-prone, forested ecosystems. Forest Ecology and Management 317 (2014) 9–19. http://www.fs.fed.us/rm/pubs_other/rmrs_2014_loehman_r001.pdf ("… management of carbon in fire-prone and fire-adapted forests is more complex than simply minimizing wildfire carbon emissions and maximizing stored carbon in individual stands. The stochastic and variable nature of fires, the relatively fine scale over which fuels treatments are implemented, and potentially high carbon costs to implement them suggest that fuel treatments are not an effective method for protecting carbon stocks at a stand level (Reinhardt et al., 2008; Reinhardt and Holsinger, 2010).")

- Jim Cathcart, Alan A. Ager, Andrew McMahan, Mark Finney, and Brian Watt 2009. Carbon Benefits from Fuel Treatments. USDA Forest Service Proceedings RMRS-P-61. 2010.

- Chiono, L. A., D. L. Fry, B. M. Collins, A. H. Chatfield, and S. L. Stephens. 2017. Landscape-scale fuel treatment and wildfire impacts on carbon stocks and fire hazard in California spotted owl habitat. Ecosphere 8(1):e01648. 10.1002/ecs2.1648. http://onlinelibrary.wiley.com/doi/10.1002/ecs2.1648/full ("We used a probabilistic framework of wildfire occurrence to (1) estimate the potential for fuel treatments to reduce fire risk and hazard across the landscape and within protected California spotted owl (Strix occidentalis occidentalis) habitat and (2) evaluate the consequences of treatments with respect to terrestrial C stocks and burning emissions. Silvicultural and prescribed fire treatments were simulated on 20% of a northern Sierra Nevada landscape in three treatment scenarios … [A]ll treatment scenarios resulted in higher C emissions than the no-treatment scenarios.")

The FEIS fails to account for the best available science cited above. For instance, RTC (p. 193-194) says:

> **Concern Statement**: The Forest Service should not claim that the desired landscape will provide a better contribution to carbon storage because only a small fraction of the treated areas will actually experience fire or insects. The loss of carbon from logging would be greater than emissions from fire and insects alone.
>
> **Response**: The opinion that wildfire and insect disturbances only potentially affect a small portion of the forest landscape is not supported by the best available science information. Disturbances play a very large role in forest ecosystem carbon dynamics. All of the national forests of the Blue Mountains have evolved within an environment that has been, and will continue to be heavily influenced by the occurrence of natural disturbances like wildfire and outbreaks of native insects. ... Several forest scientists studying these particular issues have found that high severity fire has a larger impact on

> ecosystem carbon uptake and storage than thinning activities or prescribed fire. In wildfire prone forests, overall tree-based carbon stocks will be best protected by management treatments that produce low-density structure dominated by large, mature, fire-resistant species (Hurteau and North 2008; Dore et al. 2010; Wiedinmyer and Hurteau 2010; Schaedel et al. 2017).

This is misleading and inaccurate. The comment is about carbon storage. The analysis fails to recognize that carbon benefits from logging to reduce fire effects are only realized if fuel treatments interact favorably with fire during the period before fuels regrow, yet such interactions are rare events.

The FEIS failed to respond to credible opposing viewpoints cited above and failed to use high quality information and accurate scientific analysis as required by the NEPA implementing regulations. Recent iterations of the NFMA implementing regulations require the consideration of the "best available science" for all site-specific projects. 36 C.F.R. § 219.11 (2008); 36 C.F.R. § 219.35(d)(2000). Under the 2008 NFMA regulations, this requires documenting "how the best available science was taken into account in the planning process within the context of the issues being considered;" and "that the science was appropriately interpreted and applied." 36 C.F.R. § 219.11(a).]

RTC (p. 217) says "The potential negative side effects of harvesting and other forestry treatments are addressed in relevant resource area sections of the Final Environmental Impact Statement covering topics such as soil, water, aquatic resources and terrestrial wildlife habitat." The FEIS erred by failing to disclose the negative effects of logging on carbon storage. goals.

D. The FEIS failed to respond to substantive public comments about climate change

RTC (p. 189): Public comments asked the Forest Service to consider "the increased importance of core habitat on national forestlands. In addition, the Forest Service should consider the synergistic effects of roads, grazing and logging, and climate change on aquatic resources." The Response to this Comment focused on peak flows and failed to meaningfully address these comments.

Public comments asked the Forest Service to adjust timber targets downward to ensure that goals such as carbon storage are met. RTC (p. 230): "**Concern Statement**: The Forest Service should lower the allowable sale quantity to account for expected losses from wildfire, to store carbon, and to support viability of species associated with dense forests and dead wood. ... **Response**: ... All of the alternatives (with the exception of Alternative E-Modified Departure) were designed to harvest volumes within the long-term sustained yield capacity of each respective National

Forest....” This is non-responsive. The FEIS failed to recognize that logging anywhere close to the sustained yield capacity would leave the landscape far short of large trees, large snags, carbon, wildlife cover, connectivity, etc. because the rate of disturbance and biomass removal would cause unacceptable impacts to these resource values.

E. The FEIS failed to take a hard look at role of wood products in carbon storage

Several passages in the FEIS are misleading to the extent they suggest that wood products play a beneficial role in carbon sequestration, such as:

> RTC (p. 193): “The Forest Service appreciates the role forest products play in storing carbon. In the U.S., forest products are stored in two major forest product “pools,” products that are in use, and those held in landfills. Current additions of carbon to these pools from trees harvested in the U.S. are greater than decomposition losses from these pools, so carbon stored in these pools is increasing over time (Ryan et al. 2010). Forest products also play a role in carbon dynamics when they are used in place of more energy intensive materials like plastic, metal, and concrete. Carbon emissions are reduced because forest products require less amounts of fossil fuels to produce than many other substitute materials”

The FEIS fails to take a hard look at the carbon emissions from logging. The FEIS claims that wood products help reduce carbon emissions because (1) the wood products carbon pool is increasing, and (2) using wood produces less emissions than alternative materials. The analysis is incomplete and misleading because (1) the forest carbon pool is adversely affected to a greater degree than the wood products carbon pool is benefited. To add an increment of carbon to the wood products pool requires removing a far greater increment of carbon from the forest pool (because only a small fraction of the carbon from logged forests is transferred to the wood products pool. Most of the carbon in a logged forest make an accelerate transfer to the atmosphere), AND logging results in forgone carbon sequestration because logging kills trees, logging stops carbon accumulation via photosynthesis, and logging initiates and accelerates decomposition. The FEIS fails to take a hard look at the total carbon emissions from logging and wood products. Also, the benefits of substituting wood products for other materials is a minor effect and often vastly overestimated. Law et al. (2018)[26] said:

> Increased long-term storage in buildings and via product substitution has been suggested as a potential climate mitigation option. Pacific temperate forests can store carbon for

[26] Beverly E. Law, Tara W. Hudiburg, Logan T. Berner, Jeffrey J. Kent, Polly C. Buotte, Mark E. Harmon. 2018. Land use strategies to mitigate climate change in carbon dense temperate forests. Proceedings of the National Academy of Sciences Mar 2018, 201720064; DOI: 10.1073/pnas.1720064115
http://www.pnas.org/content/pnas/early/2018/03/13/1720064115.full.pdf

> many hundreds of years, which is much longer than is expected for buildings that are generally assumed to outlive their usefulness or be replaced within several decades (7). By 2035, about 75% of buildings in the United States will be replaced or renovated, based on new construction, demolition, and renovation trends (31, 32). Recent analysis suggests substitution benefits of using wood versus more fossil fuel-intensive materials have been overestimated by at least an order of magnitude (33). Our LCA accounts for losses in product substitution stores (PSSs) associated with building life span, and thus are considerably lower than when no losses are assumed (4, 34). While product substitution reduces the overall forest sector emissions, it cannot offset the losses incurred by frequent harvest and losses associated with product transportation, manufacturing, use, disposal, and decay. Methods for calculating substitution benefits should be improved in other regional assessments.

Shafer et al. (2011)[27] state:

> An alternative to increasing carbon stores within the forest is to harvest wood and store some of this carbon within wood products (Perez-Garcia et al., 2005). Under current manufacturing, use, and disposal practices this alternative is unlikely to increase the overall carbon store of the forest sector, which includes the forest and wood products derived from the forest (Harmon et al., 2009). Manufacturing, use, and disposal of harvested wood all entail significant carbon losses that are either as large as or larger than those in the forest itself (Krankina and Harmon, 2007). Wood products carbon offsets associated with biofuels and substitution of wood for more energy intensive building materials, such as steel and concrete, can theoretically increase the carbon "stores" of wood products beyond that stored in the forest itself (Perez-Garcia et al., 2005; Lippke et al. 2010). However, **several issues need to be recognized regarding these offsets. First, most analyses have presented theoretical maximum product substitution offsets** and ignored the effects of additionality (i.e., degree to which practices differ from business as usual or statutory requirements), permanence and replacement of existing wood products, and enduser preferences for building materials. If these factors are included, then **substitution effects are substantially lower than the theoretical maximum and unlikely to surpass carbon stores in forests for many centuries if at all**. **Second**, depending on the starting condition of the forest, both product **substitution and forest-related biofuels can create carbon debts that delay carbon benefits**. For example, biofuels harvested from existing forests could offset fossil fuel releases of carbon, but recent studies have indicated that carbon debts associated with the energy used during biofuel harvests, decreased carbon stores in forests, and differences in carbon

[27] Sarah L. Shafer, Mark E. Harmon, Ronald P. Neilson, Rupert Seidl, Brad St. Clair, Andrew Yost 2011. Oregon Climate Assessment Report (OCAR) http://occri.net/ocar Chapter 5. The Potential Effects of Climate Change on Oregon's Vegetation. http://occri.net/wp-content/uploads/2011/04/chapter5ocar.pdf

> to energy ratios could persist for decades to centuries, implying a significant temporal lag in net carbon uptake (Fargione et al., 2008; Searchinger et al., 2009). **Third**, being offsets, the **effectiveness of both biofuel and product substitution will vary with the duration of the offset**; the longer the delay in releasing fossil fuel carbon, the more effective offsets become: An offset with a 1 year delay would have little impact on atmospheric CO2 concentrations, whereas an offset of hundreds of years would have a much greater impact. **Unfortunately, the duration of offsets is not well understood at this point, but it is unlikely to be infinite as tacitly assumed in many current analyses**. Finally, while offsets are often counted as carbon stores, they are difficult to directly inventory because they are not physically in an identifiable location, whereas carbon stored in forests can be more directly inventoried and quantified.

Law and Warning (2015)[28] literature review and synthesis concluded:

> … benefits attributed to product substitution are commonly overestimated. Substituting wood for aluminum and steel can displace fossil fuel emissions, but the displacement period needs to be part of the accounting. Displacement occurs until the building is replaced, and then the substitution can be renewed by a new building or it can be lost by using a material with a higher energy cost. In addition, it is often assumed that product substitution will reduce the demand for fossil fuel. However, due to human behavior and current economic systems that ignore adverse externalities, reducing resource consumption through substitution or improvements in efficiency rarely reduce fossil fuel use (York, 2012). Therefore, benefits may be substantially lower and the payback period much longer and smaller for the carbon debt from intensified management and avoided fossil fuel combustion than commonly assumed (Haberl et al., 2013).

Law & Harmon[29] conducted a literature review and concluded …

> Most LCA [life cycle analysis] studies rely heavily on wood product substitution for GHG benefits, and these have been grossly overestimated, with many ambiguous assertions that gloss over forest carbon dynamics; for example:
>
> - Biofuel emissions are assumed to be zero because they are balanced by net growth, yet this would depend on the state of the preceding forest system – they could be positive, neutral or negative;

[28] Law, B.E., Waring, R.H. 2015. Review and synthesis - Carbon implications of current and future effects of drought, fire and management on Pacific Northwest forests. Forest Ecology and Management 355 (2015) 4–14. http://terraweb.forestry.oregonstate.edu/pubs/law.fmec.2015.pdf

[29] Beverly Elizabeth Law & Mark E Harmon 2011. Forest sector carbon management, measurement and verification, and discussion of policy related to mitigation and adaptation of forests to climate change. Carbon Management 2011 2(1). http://terraweb.forestry.oregonstate.edu/pubs/lawharmon2011.pdf.

- Old forests are assumed to always be carbon sources, while young forests are always assumed to be carbon sinks, contrary to forest carbon dynamics findings;
- Dead wood and soil carbon stores are either not included or assumed to be constant;
- In one LCA, dead wood is not present in older forests, contrary to findings in the extensive ecological literature;
- The wood product pool is assumed to be an increasing carbon stock over time.

…

Substitution of more energy-intensive building materials with a less energy intensive one can, in theory, result in a fossil fuel offset; for example, when wood replaces a construction material with higher emissions (e.g., concrete or steel), the fossil CO2 emission avoided by choosing wood is credited as an offset. Thus, harvest of forest carbon and placement into buildings can impact the overall carbon balance of the forest sector [33,42]. However, several additional factors need to be considered. First, changes in the carbon stores of the forest ecosystem have to be considered relative to a base case that includes a lower level of harvests. As noted above, decreasing the interval between harvests, or increasing harvest intensity will lower the carbon store in the forest [9–11,31]; the question is whether stores in forest products combined with substitution offsets surpass losses from shorter rotations. Since the forest has a maximum carrying capacity, just the growth in carbon stores and offsets would seem to eventually exceed old forest carbon, although it could take centuries to happen, even using the most generous substitution effects. With more realistic substitution effects, it may never happen. In some cases, the amount of live and dead biomass in unharvested forests was grossly underestimated leading to an overestimation of the relative benefits of substitution. Second, in substitution effects calculations, it is often tacitly assumed that wood that is removed from forests and used in long-term wood products, specifically buildings, continues to accumulate infinitely over time. While building carbon stores have increased in many areas (e.g., the USA), this is largely because more forest area is being harvested and not because the harvest-related stores per harvest area are increasing. The trend that is being used as evidence of increasing building stores is based on the fact that because a greater area has been harvested, the total store has increased. This is not the same thing as the increase associated with a particular area of forest. A fixed per area basis is how substitution effects have largely been evaluated in the past, so arguing on an expanding area basis is inappropriate. The reason that wood products saturate is that housing and other wood products have a finite lifespan and are eventually replaced [43]. Although there can be some reuse of wood, essentially assuming an infinite lifespan or 100% reuse of wood products is completely unrealistic. Carbon is always lost as wood products are used or disposed of, which means release of CO2 to the atmosphere. Since long-term storage in forest products saturates over time (i.e., eventually does not

increase), the effect of substituting wood for fossil fuel energy is also likely to saturate. Third, in most cases, the substitution offset was calculated based on the assumption that each time a house is to be built, the preference is for nonwood materials. This results in an estimate of the maximum substitution effect possible, but does not account for actual preferences for building materials. Granted, preferences vary by region and over time, but without accounting for these one cannot possibly estimate realistic substitution benefits. Fourth, current substitution accounting appears to violate a key principle of carbon offsets, namely permanence. In fact the ever-increasing substitution offset presented in these analyses appears to depend on impermanence of wooden buildings. Fifth, most, if not all, current analyses of substitution effects ignore the effects of additionality and whether wooden buildings are initially present. Given that many forests have already been harvested to produce wood products, replacing wooden buildings with more wooden buildings results in no additional substitution effect. Finally, these studies assume that it is a permanent benefit to GHG removal from the atmosphere. That is, they assume there is a continual increase in the carbon credit, and maintenance of a sustainable productive forest dedicated to providing substitutes for nonwood fuels and materials [44].

These caveats all suggest that while there is likely to be some building material substitution effect that is valid, it is far lower than generally estimated and as subject to saturation as other forest-related carbon pools. In summary, the substitution effect appears to have been grossly overestimated. Substitution is an offset, not a store. Offsets depend on the use of appropriate accounting rules. Until rules such as permanence, additionality and leakage are followed, the values being presented in many analyses are not credible.

…

Life cycle analysis (including substitution, proposed considerations)

…

Substitution of more energy intensive building materials with less energy intensive ones can in theory result in a fossil fuel offset, but important considerations suggest that the substitution effect is substantially lower than estimated, and is subject to saturation.

Part of the FEIS takes a more cautious approach but still fails to take a hard look. The FEIS (p. 68) says "... wood products are unlikely to provide for substantial increases in stored carbon under current manufacturing, use, and disposal practices." This statement is true, but the FEIS should explain why this is true: logging to produce wood products kills trees, stops carbon uptake via photosynthesis, initiates decay and combustion processes that transfer of carbon from the forest to the atmosphere. Only a small fraction of the carbon from a logged forest ends up stored (temporarily) in wood products, while most of the carbon in logged forests is put on an accelerated path to the atmosphere. This needs to be explained in the FEIS.

F. The FEIS fails to take a hard look at the carbon emissions from biomass burning

RTC (p. 193): "The use of forest biomass energy reduces carbon emissions that would otherwise be released from fossil fuel use. Energy produced from fossil fuels releases carbon into the atmosphere that had been stored within the earth for millions of years. While not carbon neutral, biomass energy is a renewable source that is largely fueled from recycling carbon that is already within the atmosphere. It uses far less of the carbon stored within the earth than the production and consumption of fossil fuels. ... In the dry upland and mixed conifer forests of the Blue Mountains, biomass utilization technology can help support many of the kinds of treatments that are necessary to implement climate adaptation strategies and restore more resilient forest conditions."

The FEIS seems to be saying that biomass might release more carbon, but its good carbon, not bad fossil fuel carbon. This is inaccurate and misleading. The FEIS fails to take a hard look at the carbon consequences of biomass energy: First, a molecule of CO2 has the same impact on the climate whether it is from fossil fuel or biomass. Second, biomass has a low energy content and emits more GHG than fossil fuels per unit of energy. Third, the FEIS says biomass is part of a strategy to make forests more adapted to the new climate. This implies that the Forest Service has concluded that it is more important to address the effects of climate change rather than take steps to address the root causes of climate change. This conclusion is not supported by any evidence in the record, and fails to recognize that there are unexamined alternatives that would better harmonize climate adaptation (such as focusing density reduction on the smallest trees, using restoration methods that rely more on prescribed fire rather than logging) versus climate mitigation (storing more carbon in larger trees, avoided logging emissions). The FEIS fails to address the trade-off that logging to reduce stand density and make forests more resilient actually increases carbon emissions and exacerbates climate change. This trade-off is expressed as increase warming with adverse consequences not only in the forests of the Blue Mountains but ecosystems and communities around the world. The FEIS fails to take a hard look at this fundamental trade-off.

The FEIS fails to provide an accurate scientific analysis and fails to account for opposing viewpoints. Gunn et al. (2012)[30] cautions against the view that biogenic carbon emissions are preferable to fossil fuel emissions:

> The physics of the greenhouse effect is indifferent as to the origin of the pollutant. Once a molecule of CO2 is in the atmosphere its heating capacity is the same regardless of its

[30] John S. Gunn, David J. Ganz, and William S. Keeton 2012. Biogenic vs. geologic carbon emissions and forest biomass energy production. GCB Bioenergy (2012) 4, 239–242, doi: 10.1111/j.1757-1707.2011.01127.x http://www.manomet.org/sites/default/files/publications_and_tools/BiogenicGeologic%20August%202011.pdf

source. It is the overall C budget and the net atmospheric concentration of greenhouses gases that are of concern. If greater use of wood energy has the unintended consequence of contributing to an increase in atmospheric CO2 concentrations, then decisions to switch to biogenic fuels should be guided by careful accounting to determine net carbon fluxes to and from the atmosphere.

An earlier letter to the US House of Representatives and US Senate (Schlesinger et al., 2010) from 90 American scientists stated that 'Although fossil fuel emissions are reduced or eliminated, the combustion of biomass replaces fossil emissions with its own emissions (which may even be higher per unit of energy because of the lower energy to carbon ratio of biomass)'. More research is needed to determine which biomass energy technology scenarios and forest ecosystems are most likely to result in greater biogenic emissions than the equivalent fossil fuel energy source. But recent work in the United States and Europe supports the Schlesinger et al.(2010) statement (e.g. Walker et al., 2010; Bird et al., 2011; McKechnie et al., 2011). In addition, if biomass harvests involve living trees that would otherwise have remained alive and growing, the short-term net impact on the atmosphere will be greater than if logging residue or waste wood were used. All wood is not equal in terms of temporal impact to atmospheric GHG levels. Therefore, the use of wood for energy needs a strong quantitative basis ensuring policy based on evidence rather than opinion.

Wood energy harvests encompass a wide range of silvicultural treatments, but have the potential to increase the overall intensity and frequency of harvesting. This can reduce the net amount of carbon stored in forest biomass at any moment in time at landscape scales, particularly in natural forest systems with low risk of catastrophic disturbances and relatively slow growth rates. If overall harvesting intensity increases to meet new demand for wood energy, carbon stocks on the landscape can be depressed to a lower equilibrium storage condition therefore increasing overall atmospheric CO2 even when considering the substitution benefits (Harmon et al., 1990; Smithwick et al., 2006; McKechnie et al., 2011).

… When we also consider the amount of biogenic C remaining in the atmosphere as a result of historical global conversion of forests, prairies, peatlands and wetlands (Birdsey et al., 2006; Rhemtulla et al., 2009; van der Werf et al., 2009), it becomes clear that all sources of additional C emissions should be evaluated based upon their near term contribution to the atmosphere and their potential for re-sequestration by new biological growth. This historical debt also negates the argument that biogenic carbon can be banked in advance of consumption for energy (e.g. Sedjo, 2011). Again, what matters is the amount of CO2in the atmosphere, regardless of the source.

> One rationale for increasing the use of forest biomass for energy is that the biogenic carbon cycle is in balance as long as trees are growing and sequestering carbon somewhere else within other forests (Lucier, 2010). While this argument makes sense when considering the sustained yield of wood products, it fails to consider the complete basis for calculating net GHG effect on the atmosphere of switching from fossil fuels to biomass. Moreover, when applied to carbon, this approach implies that the biogenic carbon cycle is separate from a global carbon cycle. …
>
> What matters most in our climate change mitigation efforts is the movement of C from any pool into and out of the atmosphere (i.e. the net effect on atmospheric carbon concentrations).
> … There is an immediate need to deal with the complexity of carbon accounting as it relates to wood-derived bioenergy.

VIII. Concerns regarding old growth, snag retention and the plans effect on fire behavior

A. The proposed forest plans fail to protect large and old trees

The Draft ROD (p. 12) explains that old trees will no longer be protected by an enforceable standard:

> The selected alternative does not prohibit the harvest of trees greater than 21 inches in diameter, as mandated by the Eastside Screens amendment to the 1990 land management plans. Instead, the revised land management plans incorporate a forest wide guideline (OF-1G) for old forest and large tree management that specifies the circumstances where old trees, large trees and legacy trees may be harvested. These circumstances include: to move stands towards their desired conditions for species composition or density when removal of small trees alone cannot meet goals; to control or limit insects and diseases; to reduce fuels within the wildland-urban interface; to provide important instream structure; or for safety reasons.

The Response to Comment further explains the Forest Service's new approach to conservation of large trees. RTC (p. 222):

> The final revised Forest Plans do not include a firm age-limit, but do contain a guideline that generally requires retention and recruitment of old trees, large trees and legacy trees, with specific exceptions to allow for progress toward other related desired conditions of forest vegetation. Plan components in the final revised Forest Plans are designed to allow sufficient management flexibility in order to address desired conditions for forest

> vegetation structure class, density and species composition as well as those pertaining to old forest.

The FEIS does not explain why it is necessary to demote conservation of large trees from a standard to a guideline. The FEIS fails to provide a compelling justification for all of the loopholes. For instance, why are restoration of species composition and stand density now more important than conservation of large trees? There is a wide range of sand density and species composition that are natural and acceptable within eastside forests. The draft ROD fails to explain how Forest Service decision-makers will determine how and when ecologically important large trees will cause an acceptable landscape condition to become unacceptable, thus requiring the removal of large trees that take more than 100 years to replace. Why can't species composition and stand density be adequately restored by focusing on trees smaller than 21" diameter at breast height (dbh)? Why is it unacceptable for large trees to compete and even die as a result of such competition? Mortality is an important ecological process that helps recruit valuable snag habitat and helps select for the most fit genes within the ecosystem.

The FEIS fails to acknowledge the controversy that will be generated by projects that remove large trees. The Eastside Screens helps reduce conflict and controversy over old growth logging. Removing this standard, or demoting it to a guideline with 7 new loopholes, will create unnecessary social conflict. This was not addressed in the FEIS.

Large tree removal is unjustified. FEIS (p 224) acknowledges that removal of large trees will make it much more difficult to meet goals related to large snags, saying:

> ... removing large trees affects not only size class distributions of forest stands, but also the recruitment of snags over time and would reduce the density of large snags on a landscape basis. Given the existing conditions, large tree removal on or off National Forest System lands would affect distribution of the large tree component and future snags and coarse woody debris at a landscape scale. Therefore, the retention and future development of these critical components on National Forest System lands would be essential to providing habitat elements needed by many species. Improvements to these components would cumulatively affect and improve the conditions within the lower-elevation ponderosa pine, dry upland forest potential vegetation groups.

However, the FEIS never explains how adding 7 new loopholes for large tree removal is consistent with goals related to restoration of large trees and large snags.

In 1993, Congress convened the Eastside Forests Scientific Society Panel to examine the health of old-growth forests east of the Cascade crest in Oregon and Washington. In "A Report to the Congress and President of the United States," the Panel concluded that "all remaining LS/OG

[late-successional/old-growth] blocks and fragments are ecologically significant." The Panel recommended that the federal government halt logging of all Eastside old growth forests and all individual trees older than 150 years or larger than 20 inches in diameter as an interim measure in order to "protect [ ] the resources remaining on the Eastside until, and only until, a long-term strategy of protection and restoration can be developed." The Panel found that "[f]urther reduction in LS/OG is likely to jeopardize many components of the biological diversity of eastside forests and increase numbers of threatened, endangered, and extinct species, ..." The Panel further found that "[p]rotecting ponderosa pines must be a high priority independent of the size of the patch where the trees are located." *Western Land Exchange Proj. v. Dombeck*, 47 F. Supp.2d 1196, 1198 (D. Or. 1999).

In 1994, the Eastside Forests Scientific Society Panel published a number of recommendations for the management of Oregon's and Washington's eastside forests in their report to Congress (Henjum et al. 1994). These recommendations were amazingly prescient and are still valid today—if anything, there is now even more scientific justification for the recommendations they made 24 years ago.

The Panel's recommendations included the following:

- Protect old growth stands, including patches of 5,000 acres or more, and small, isolated patches as well.
- Cut no tree over 150 years or with a dbh of 20 inches or greater--with no distinction between live or dead trees.
- Reduce roads within old growth patches to less than 1 mile per square mile.
- Prohibit logging of dominant or co-dominant Ponderosa pine from any forest.
- Establish science panels similar to the one proposed in this legislation.
- Develop a comprehensive monitoring program.
- Salvage cuts should be severely limited.

Between 1993 and 1995, the Forest Service developed interim measures to preserve late-successional/old-growth forests pending completion of the Columbia Basin EISs,[31] this was part of the larger Interior Columbia Basin Ecosystem Management Project (ICBEMP). The first of these measures, was the Revised Interim Standards for Timber Sales on Eastside Forests (Regional Forester Amendment #2), commonly referred to as the Eastside Screens, which consists of a series of procedures for screening proposed timber sales. *Prairie Wood Prods. v. Glickman*, 971 F. Supp. 457, 461 (D. Or. 1997). The Eastside Screens was originally announced in a memorandum issued by the Regional Forester on August 18, 1993. On May 20, 1995 the

[31] 62 Fed.Reg. 2176 (Jan. 15, 1997). The Lower Columbia River Basin EIS would address Oregon and Washington, and the Upper Columbia River Basin would cover Idaho and parts of Montana, Utah, Nevada, and Wyoming. Old-growth forests west of the Cascade crest are managed under the Northwest Forest Plan.

Forest Service issued a final EA and FONSI. The Regional Forester amended the affected forest plans but did not amend the regional guide. *Id*. The screens were designed to ***maintain*** habitat options for species that were considered to be associated with eastside old growth forests. The intent of the screens was to retain key habitat features and management options until a larger-scale analysis and EIS could be completed and provide new direction. They were not designed to *restore* habitat for species that were no longer viable due to past logging activities.

The Eastside Screens incorporated just a portion of the Science Panel recommendations, and actually weakened many provisions, such as: raising the dbh limit to 21 inches or greater, limiting the application to live trees only, and rather than outright protection of old growth stands, they generally allowed for activities to occur within old growth stands provided 'no net loss' of old growth (late old structure) resulted. Outside of late old structure, the Screens directed forests to be managed to maintain or enhance old growth components. Although not as widely protective of old growth stands as the Eastside Scientific Society Panel recommendations, the Screens did incorporate measures that allowed for connectivity between old growth patches and protection of goshawk habitat.

The Eastside Screens were intended to be in place until the completion of the ICBEMP. Although volumes of data had been collected for the ICBEMP, the project was never officially completed and so the Screens remain in place several years after their anticipated expiration. The science generated by the ICBEMP process further supported the approach taken by the Screens.

These forest plans get rid of the protections of the Eastside Screens, and the Screens had previously weakened the original recommendations to Congress by the Eastside Forests Scientific Society Panel; they were only designed to maintain what little old growth habitat we have left, not to restore this forest component which is essential to a healthy and thriving Blues. There is absolutely no scientific support for this approach. The plans also fail to follow best available science and create a separate designation for old growth forests in which timber production is not emphasized. The lack of an accurate baseline of our old growth stands along with inadequate monitoring of the plans' impacts on old growth exacerbates the issue. There is no measurable and repeatable system for monitoring of old growth within the plans. Without these required plan components we will continue to see the logging of our last remaining old growth to the detriment of migratory birds, marten, goshawk and other species that rely upon this forest component for their viability.

The importance of old growth on Oregon's eastside cannot be overstated. It has been reduced to dangerously low levels due to past logging activity. As a result old growth dependant species have become unviable. For example, researchers have found that old growth forests and historic ecosystem processes (including wildfire) are integral to the survival of migratory birds in the

Pacific Northwest. The past and continuing logging-oriented management of the forests of Oregon and Washington, which provide nesting and fledgling habitat for numerous migratory birds, has resulted in severe ongoing population declines in forest canopy-dependent migratory and native birds. Sharp, 1996[32]. American marten and goshawk are just a few of the other species that rely our legacy forests.

In our scoping and DEIS comments we asked that detailed standards and guidelines be developed that protect old growth habitat in order to "insure" wildlife viability and to protect wildlife diversity as required by NFMA. The plans fail to do so and thus the plans' approach to old growth is a violation of NMFA's viability requirement and NEPA's requirement to follow best available science. As such the USFS's proposed ROD for the Malheur, Umatilla, and Wallowa-Whitman National Forests' revision LMPs are arbitrary and capricious.

Requested Relief:

1. Measurable Standards--such as retention of the 21" rule--for the protection of all old trees, regardless of whether they are dead or alive. In many ways, old dead trees are more important for old growth-dependant species that live trees. To exclude dead trees would be to greatly diminish the impact of any old growth habitat restoration strategy.

2. Stand-level protections for old growth forests. Old growth is not defined solely by old trees – that is just one factor. Any logging activity in these stands – even if just the logging of younger trees – will place the integrity of the old growth stands at risk. Do this by creating a specific management area designation for old growth stands including small isolated patches. Reduce roads within old growth patches by developing a standard requiring decommissioning of such roads at the site specific level.

B. The FEIS has a flawed analysis of snags and post-fire habitat

The Blue Mountain Forest plans need to adopt a new science-based strategy for conservation and recruitment of snags and dead wood habitat. The old snag standards based on 'potential population' are scientifically discredited and out-of-date (Rose et al. 2001). The FEIS does not appear to rely on any coherent strategy to ensure that the needs of snag-associated wildlife are met. The best available science (with some caveats) is probably contained in the DecAID Advisor, but that tool does not appear to have been used in the NEPA analysis. The RTC (p. 227) says "The desired conditions in the final revised Forest Plans were developed using a science-based analysis of plot data contained in the DecAID database." But the word DecAID does not show up in a word search of the FEIS, so the public does not know how this tool was used. Malheur LRMP Tables 13 and 14 cite DecAID but do not explain how it was used, which

[32] Sharp, B.E. 1996. Avian population trends in the Pacific Northwest. Bird Populations. 3: 26-45.

species were considered, which tolerance levels (for which species) are being captured in the desired conditions, etc. Furthermore, the DecAID Advisor itself cautions that its reference conditions probably under-estimate historic snag density because post-disturbance plots are under-represented in the database. Desired conditions based on landscape averages will discriminate against natural patches of high snag density that species evolved with. This is not acceptable NEPA disclosure and analysis, nor will this approach ensure provision of habitat for viable populations of snag-associated wildlife.

RTC (p. 226) says:

> Salvage logging guidelines have changed between the Draft and Final Environmental Impact Statement to reflect an approach that is informed by the best available science and the historical range of variability. Plan components included in the final revised Forest Plans related to snag retention and salvage harvesting avoid using many of the wholesale restrictions that were included in the draft Forest Plan. The final revised Forest Plans are designed to balance habitat and salvage needs by using a comparison of the current condition (i.e. post-fire condition) to the desired conditions for snags on the landscape in order to inform what level of salvage harvesting would be appropriate in an area.

The FEIS analysis fails to recognize that legitimate restoration of the natural range of variability for snags would not allow any salvage logging, except possibly removal of uncharacteristic "in-growth" of small trees. Snag associated wildlife evolved with shifting patches of abundant snags from disturbance and other mortality. Increased flexibility to conduct salvage logging is not supported by science, not consistent with restoration of the historic range of variability, nor maintaining viable populations of species.

C. The FEIS failed to take a hard look at the needs of wildlife that prefer abundant snags

The FEIS admits that there is a notable shortage of large snags, but the proposed plans do not establish goals for snag habitat that will meet the needs of snag-associated species (e.g., Table 14 of the proposed Malheur LRMP indicates that only a small fraction of the landscape will be expected have more than a few snags per acre). And widespread logging and road building under these proposed plans will "capture mortality" and significantly reduce recruitment of large snags over the long-term. See Heiken, D. 2012. Thinking About Dead Wood in Managed Landscapes https://www.dropbox.com/s/5gofctjdglx5t3t/dead%20wood%20slides%202012.pdf?dl=0

Table 15 in the proposed Malheur NF LMP shows a very low desired proportion of the landscape with abundant snags from high-severity fire:

Table 15. Desired proportion of the potential vegetation groups containing post-fire habitat created by recent (less than 10 years ago) high-severity fire[1]

Potential Vegetation Group	Medium and Large Size Forest (diameter 10 to 20 inches)	Old Forest (diameter greater than 20 inches)
Cold upland forest	Not less than 2.0%	Not less than 0.4%
Moist upland forest	Not less than 2.0%	Not less than 0.3%
Dry upland forest	Not less than 1.3%	Not less than 0.6%

1. High-severity fire means average vegetation top-kill estimated to be at least 75 percent.

If post-fire habitat and snags persisted for just one year post-fire, 0.5% of the landscape would represent a 200-year severe-fire return interval, but snags and post-fire habitat tend to persist much longer than 1 year. If "recent fire" means within 10 years, 0.5% of the landscape would correspond to a 2,000 year fire return interval. This makes no ecological sense. Oftentimes snags will persist for 20-40 years post-fire, and fires were mixed-severity, so a much larger proportion of the landscape was historically covered in patches of abundant snags. The FEIS failed to use high quality information and accurate scientific analysis to determine an appropriate level of post-fire habitat.

The Forest Service appears to be adopting new standards based on snag levels in "reference" stands. These reference snag levels are averaged across broad areas. The DecAID advisor cautions that data from reference stands may under-represent areas with abundant snags because post-disturbance stands are not well represented in the reference stand data set. This new approach to snag habitat will not meet the needs of a wide range of snag-associated species that find optimal habitat where snags are much more abundant than average reference conditions (as shown in the DecAID Advisor).

While it is true that there may be patches of high snag abundance retained under the new standards, these snag patches are too few and far between to support snag-associated wildlife. Under the new Blue Mountain Forest Plans snags will be abundant on only a small subset of the landscape that is both unmanaged and not near roads (where snags will be removed for safety and firewood). Historically, snag patches were much more abundant across the landscape, representing a subset of the entire forest landscape, not just unroaded/unmanaged areas. Patches of abundant snags from unroaded/unmanaged areas are simply insufficient to meet the needs of wildlife that evolved with access to patches of abundant snags recruited from the entire forest landscape. The snag standards violate NFMAs mandate for species conservation. The FEIS fails to take a hard look at this issue. See Korol et al. (2002), which highlighted the fact that unroaded areas are unique in their contribution to dead wood habitat because they are one of the few places on the landscape where we allow natural processes of forest growth (and mortality) to proceed without intervention by commercial logging. Korol et al. (2002) estimated that even if we apply enlightened forest management on federal lands in the Interior Columbia Basin for the next 100

years, we will still reach only 75% of the historic large snag abundance, and most of the increase in large snags will occur in roadless and wilderness areas.[33]

D. The FEIS fails to take a hard look at the fact that accelerated salvage logging will exacerbate the "snag gap"

The FEIS (Vol. 2, p 177) says "In the case of Alternative E-Modified, the extent and intensity of future salvage harvesting could be scaled up if the underlying disturbance events have been shown to be uncharacteristically large or severe, and salvaging would be constrained during periods, or within areas where tree mortality events have been uncommon." The FEIS fails to disclose that accelerated salvage logging will result in significant and unacceptable cumulative adverse effects on snag habitat. This is because stand-replacing fires represent a short-term *pulse* of snags and a long-term *shortage* of snags, due to the fact that stand-replacing fire severely reduces the population of green trees available for large snag recruitment and this shortage lasts for 100 years or more. Salvage logging will make this shortage worse because it will unavoidably remove snags that would otherwise persist into the "snag gap." The FEIS emphasizes the near-term effects of fire (more snags for a short time) while ignoring the long-term effects of fire (fewer snags for a long time).

This issue is touched-upon in the FEIS (Vol. 2, p. 269) "The increase in fire associated with climate change could create a short-term gain in snag habitat followed by a long-term reduction (80-100 years, Harrod et al. 1998) as snags attrition occurs." Increased fire, plus increased salvage logging will have an even more significant adverse effect on snag habitat. The FEIS looked at the effect of climate-induced fire but not the added effect of accelerated salvage logging, so it failed to take a hard look at this issue.

In Congressional testimony in July 2004[34], Jerry Franklin said:

> It is sometimes argued that following a stand-replacement fire in an old-growth forest that snags and logs are present in "excess" of the needs of the site, in terms of ecosystem recovery. In fact, the large pulse of dead wood created by the disturbance is the only significant input of woody debris that the site is going to get for the next 50 to 150 years—the ecosystem has to "live" off of this woody debris until the forest matures to the

[33] Jerome J. Korol, Miles A. Hemstrom, Wendel J. Hann, and Rebecca A. Gravenmier. 2002. Snags and Down Wood in the Interior Columbia Basin Ecosystem Management Project. PNW-GTR-181. http://www.fs.fed.us/psw/publications/documents/gtr-181/049_Korol.pdf

[34] Dr. Jerry F. Franklin, Professor of Ecosystem Studies, College of Forest Resources, University of Washington. July 15, 2004. TESTIMONY FOR THE RECORD ON OVERSIGHT HEARING ON "RESTORING FORESTS AFTER CATASTROPHIC EVENTS" BY HOUSE COMMITTEE ON RESOURCES, SUBCOMMITTEE ON FOREST AND FOREST HEALTH. http://www.signaloflove.org/clearcutting/reports/fire3/Franklin%20Jerry%20July%202004%20testimony.pdf.

point where it has again produced the large trees that can become the source for new snags and logs (Maser et al. 1988).

The shortage of snags in the decades following stand replacing fire is acknowledged by the Forest Service on page 136 of the Wallowa-Whitman National Forest's Trail Vegetation Management Project EA (October 2012). http://www.fs.usda.gov/project/?project=34482. The snag gap is really exacerbated by salvage logging in two ways — first by targeting removal of the large and most persistent component of the snag population, and second by accelerating the rate that remaining snags fall and are lost from the snag population. New science from Idaho reveals that Ponderosa pine snags persist longer in unlogged areas.[35]

E. The FEIS makes inaccurate claims that logging will restore snag habitat

The FEIS provides a rosy prediction that wide-spread logging under Alternative E-modified will restore snag habitat. For instance, FEIS (Vol. 2, p 252) says that Alternative E-Modified has "desired conditions based on the historical range of variability for closed-canopy, multi-layered forest habitats would result in viability outcomes that would be maintained at relatively high levels ... [S]nags should be managed within the historical range of variability in vegetation management treatments. ... [Alternative E-Modified] does not explicitly prohibit the harvest of 21-inch trees. However, Alternatives E-Modified and E-Modified Departure do include a *guideline* for the retention and recruitment of old trees, large trees, and legacy trees, with some exceptions for insects, disease, fuel reduction, hazards, density management, and species composition."

FEIS (Vol. 2, p. 262) "Alternatives E Modified and E-Modified Departure include desired conditions and guidelines to restore the abundance and spatial arrangement of snags that are 10-20 inches diameter and larger than 20 inches diameter. The desired conditions are based on estimates of the range of variability for each habitat type (Mellen-McLean et al. 2009) applied at the landscape scale and commensurate with the disturbance regimes. Over time, these alternatives should restore large snags to their historic levels."

This analysis is misleading and inaccurate. Widespread commercial logging will make it virtually impossible to restore historic levels of large snags, especially when timber targets are doubled and large trees are removed and repeated entries are contemplated, will capture and export mortality, greatly reduce the population of green trees from which snag can be recruited, and increase the vigor of trees, so fewer will experience competition and mortality. The Forest

[35] Russell, R.E., Saab, V.A., Dudley, J.G., and J.J. Rotella. 2006. Snag longevity in relation to wildfire and postfire salvage logging. Forest Ecology and Management 232 (2006) 179-187. http://www.fs.fed.us/rm/pubs_other/rmrs_2006_russell_r001.pdf ("The predicted half-life of a ponderosa pine snag was 7-8 years in salvage logged plots and 9-10 years in unlogged plots.")

Service failed to take a hard look at this issue by conducting stand simulations on representative stands to show how many snags are expected over time after so many trees are removed by commercial logging at the rate specified in these plans. Quantitative models are available for this purpose, such as: https://web.archive.org/web/20120907194130/http://www.for.gov.bc.ca/hre/deadwood/DTmod.htm.

Prior modelling of stands universally show that logging will significantly reduce recruitment of large snags and this effect is long-lasting. For instance, the analysis shown below shows that heavy thinning delays attainment of snag objectives by 60 years or more. When density reduction treatments are multiplied and repeated across the landscape, the cumulative adverse effects on snag habitat will become very significant. The FEIS failed to conduct a quantitative analysis disclosing the adverse effects of widespread logging on snag habitat that would show whether this concern is valid or not.

Curran-Junetta, Cottage Grove RD

Umpqua NF, Oregon

40-60 year old stands thinned to 40-60 tpa

Heavy thinning delays by more than 60 years the attainment of habitat objectives for large snags (i.e. mid-point of the gray band representing 30-80% tolerance level).

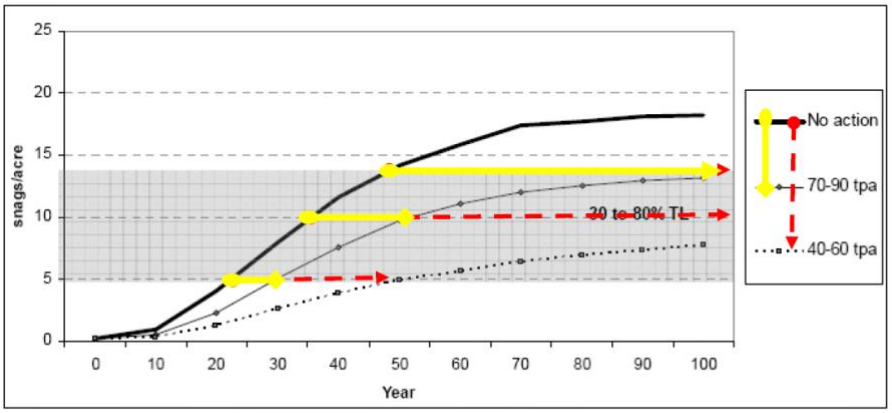
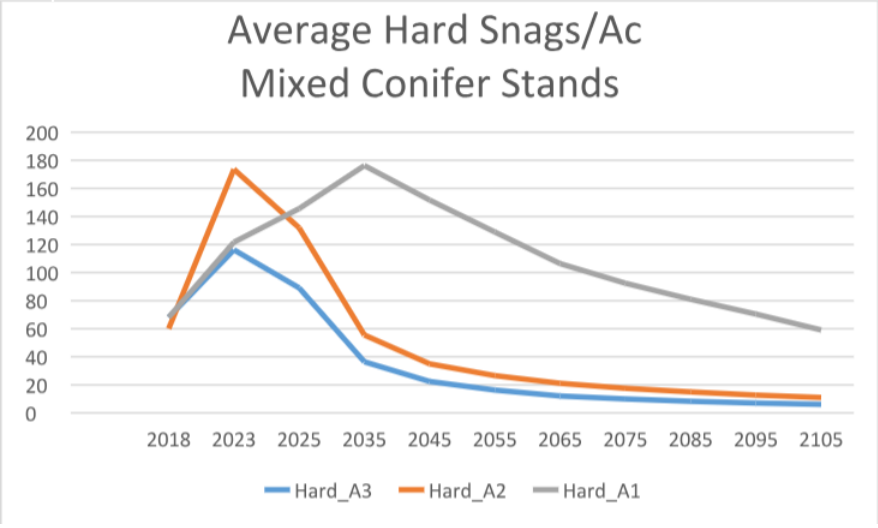
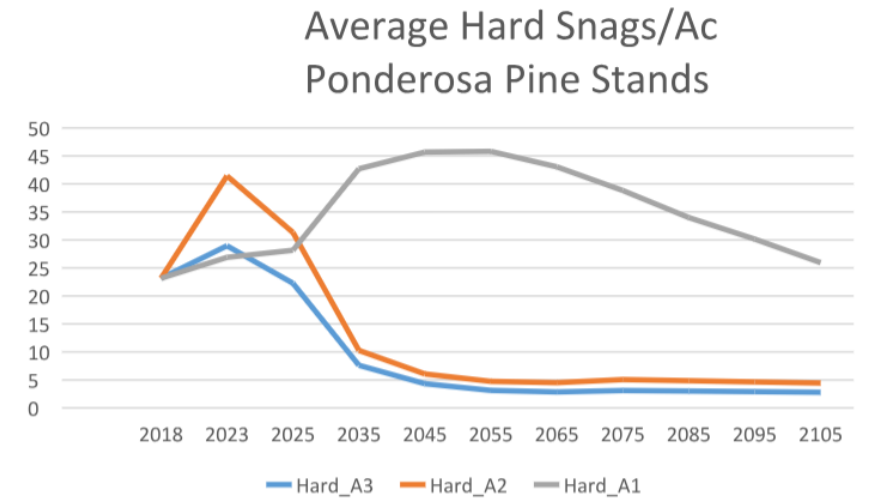


Figure 15. Short and long-term changes to ≥20" dbh snags.

The table above is from westside forest types, but similar effects are apparent on the eastside, such as these graphs from the Fremont-Winema's East Hills Project. (Note: These graphs show "all" snags, not just large snags, so the numbers on the Y-axis are misleading, but the relative levels of snags from Alt 1 (no action) compared to logging under A2 and A3, are instructive.)





The FEIS (Vol. 2, p. 263) makes an inaccurate and unsupported claim that more logging will help restore large trees faster and therefore more large snags. "These alternatives should provide the greatest benefit to species associated with large snags in the long term because forest vegetation treatments will accelerate the development of large trees, which will eventually make large snags." This is inaccurate and misleading. Logging captures mortality and reduces the population of green trees available for recruitment of large snags. See Heiken, D. 2012. Thinking About Dead Wood in Managed Landscapes.[36]

Logging might produce the first large tree faster, but it will produce fewer of them. Also, snags come from trees that experience competition or disturbance. These plans are designed to reduce those things. Snag associated wildlife need abundant snags, not fast snags.

F. The FEIS failed to take a hard look at the unavoidable adverse effects of commercial logging on snags and dead wood habitat

[36] https://www.dropbox.com/s/5gofctjdglx5t3t/dead%20wood%20slides%202012.pdf?dl=0

Public comments raised concerns that logging does not mimic natural processes, so it has undesired trade-offs related to snag habitat, carbon storage, etc. The FEIS presents a rosy picture of logging, suggesting that logging methods have advanced and no longer cause significant adverse effects on resource values such as snags and carbon. RTC (p. 232) says "It is true that most commonly used forest harvesting techniques were originally developed as part of classic silvicultural systems primarily concerned with producing and harvesting mature crops of timber products. Modern approaches to forest management now view timber harvest and other silvicultural techniques as restoration tools that can be used to modify stand structures, species composition, stand density, landscape patterns and potential fire behavior. This approach is sometimes referred to as 'ecological forestry,' or 'emulation of natural disturbance,' as it attempts to fully incorporate an understanding of natural disturbance and stand development processes. This concept of using forest management to emulate natural disturbance has been discussed within a growing body of science literature and is often recommended as a technique to help restore resilient forest conditions." RTC (p. 217) makes a similar statement.

The FEIS failed to take a hard look at the fact that logging does not "fully incorporate an understanding of natural disturbance and stand development processes " and does not mimic natural disturbance. Snag habitat will be greatly depleted by widespread logging because so many green trees are exported from the forest before they can be recruited as snags. In a natural forest, nearly 100% of trees live and die and decay in the forest. In a logged forest, many trees only exist in the forest until they are logged and removed, truncating their critical role as snags and down wood habitat. The FEIS erred by failing to disclose that commercial logging does not emulate natural disturbance with respect to snags and dead wood habitat. Fire and insects kill trees but the trees stay in the forest and provide habitat and other ecological services such as carbon storage. Logging kills trees and removes the dead tree habitat from the forest. This adverse effect of logging has significant ecological implications, is unavoidable and cannot be fully mitigated. The FEIS failed to take a hard look at this issue.

FEIS page 252 says "Thinning as a traditional forestry tool is fundamentally a density management technique that manages the trade-offs between stand-level productivity and individual tree vigor (Long 1985)." This is a tacit acknowledgement that logging focused on increasing tree vigor and resilience has a cost in terms of stand productivity, which means fewer snags, less carbon storage, fewer large trees in the long-term, etc. The FEIS failed to carry forward the analysis and disclose the full ecological consequences and trade-offs that will be caused by widespread logging aimed in reducing stand density and increasing tree vigor. The FEIS over-emphasizes the benefits of logging (pp 252-253), but fails to fully acknowledge the adverse effects of logging. In fact, the FEIS (p. 254) is dismissive of adverse effects that were raised in comments.

RTC (p 221) says:

"**Concern Statement**: The Forest Service should prevent logging in mature forests to allow these stands to age and replace old forests lost to disturbance.

Response: Management activities, including carefully designed harvesting treatments, are not necessarily incompatible with the continued development of forest stands into old forest structural stages."

This is misleading and non-responsive. This analysis is flawed because it fails to recognize that mature forests are at a developmental stage when they should be accumulating biomass and recruiting snags. Mature stands are on the cusp of turning into old growth which has abundant dead wood as one of its defining characteristics.[37] Logging won't help mature forests become old growth. To the contrary, logging will retard or prevent mature forests from becoming fully functional old growth with a full complement of snags and dead wood. Commercial logging (especially under a plan with doubled timber targets and 7 new loopholes allowing removal of large trees) will *unavoidably* capture and export mortality and greatly delay or prevent the mature forest from recruiting optimal levels of snag habitat which is a defining characteristic of old forests. The FEIS analysis is misleading and inaccurate.

Requested Relief: Develop plan components, including standards, that prohibit logging of large and old dead and live trees.

G. The FEIS failed to take a hard look at the impacts of increased logging on fire behavior

The FEIS relies on serious inaccuracies and mischaracterization of fire and forest density science to justify increased logging in the Blue Mountains. It repeatedly claims that increased logging, including clearcutting, will somehow curb fire behavior. This is contrary to the findings of the most comprehensive analysis ever conducted on this issue which concluded that increased logging results in higher, not lower, fire severity. Bradley et al. 2016.[38] The FEIS also includes multiple claims that post-fire logging and tree plantation establishment reduces future fire severity, but offers no scientific citations to support this statement, which is flatly contradicted by empirical science. Thompson et al. 2007.[39] Furthermore, it bases conclusions about higher fire intensity potential on the Fire Regime Condition Class concept (i.e., the assumption that long-unburned forests will burn unnaturally severely), but offers no empirical evidence to support this

[37] See USDA/USDI. ICBEMP SDEIS. Appendix 17a – Definitions of Old Forest. https://web.archive.org/web/20161221104651/http://www.icbemp.gov/pdfs/sdeis/volume2/appendix17a.pdf

[38] Bradley, Curtis M.; Hanson, Chad T.; DellaSala, Dominick A. 2016. Does increased forest protection correspond to higher fire severity in frequent-fire forests of the western United States? *Ecosphere* 7(10): e01492.10.1002/ecs2.1492 https://doi.org/10.1002/ecs2.1492

[39] Thompson, J. R., T. A. Spies, and L. M. Ganio. 2007. Reburn severity in managed and unmanaged vegetation in a large wildfire. Proceedings of the National Academy of Sciences of the United States of America 104:10743–10748.

claim, and ignores empirical studies that consistently find it is incorrect. Odion and Hanson 2006[40], 2008[41], van Wagtendonk et al. 2012[42], Miller et al. 2012[43].

The FEIS relies on an proposition that current Blue Mountain forests are 2.5 times more dense than historical forests (Stine et al. 2014, p. 108)[44], despite the fact that the studies Stine et al. used to reach this conclusion were found to have severely underestimated historical forest density by excluding key data, and by failing to correct for well-documented under-estimations in forest density (under-estimations the Forest Service itself acknowledged in multiple reports). See e.g. Baker and Hanson 2017[45], Baker et al. 2018.[46] Historical references by the explorer John Fremont[47] (who ventured into the Blue Mountains in 1845) describe highly variable forests with many medium to high density areas. Of approximately 18 references to forest density in Fremont's journals, 12 of them (67%) describe dense/heavy/dark/thick/close forests, while only 6 describe open/bald conditions. In approximately half of the locations in which dominant tree size is discussed, the trees were small, while large overstory trees dominated in other locations. Williams and Baker (2012)[48] found these historic forests to be dominated by mixed-severity fire effects (40% of forests were characterized by low-severity fire effects, while 60% were characterized by mixed/high-severity fire) based on late 19th century General Land Office field data. These historical references indicate highly variable historical and often dense forest conditions very unlike the relatively homogeneous conditions that the Scoping Notice assumes to have occurred.

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[40] Odion, D. C., and C. T. Hanson. 2006. Fire severity in conifer forests of the Sierra Nevada, California. *Ecosystems* 9:1177–1189.

[41] Odion, D. C., and C. T. Hanson. 2008. Fire severity in the Sierra Nevada revisited: conclusions robust to further analysis. *Ecosystems* 11:12–15.

[42] van Wagtendonk, J. W., K. A. van Wagtendonk, and A. E. Thode. 2012. Factors associated with the severity of intersecting fires in Yosemite National Park, California, USA. Fire Ecology 8:11–32.

[43] Miller, J. D., and A. E. Thode. 2007. Quantifying burn severity in a heterogeneous landscape with a relative version of the delta normalized burn ratio (dNBR). Remote Sensing of Environment 109:66–80.

[44] Stine, Peter; Hessburg, Paul; Spies, Thomas; Kramer, Marc; Fettig, Christopher J.; Hansen, Andrew; Lehmkuhl, John; O'Hara, Kevin; Polivka, Karl; Singleton, Peter; Charnley, Susan; Merschel, Andrew; White, Rachel. 2014. The ecology and management of moist mixed-conifer forests in eastern Oregon and Washington: a synthesis of the relevant biophysical science and implications for future land management. Gen. Tech. Rep. PNW-GTR-897. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.

[45] Baker, W. L., and C. T. Hanson. 2017. Improving the use of early timber inventories in reconstructing historical dry forests and fire in the western United States. Ecosphere 8:e01935. https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/ecs2.1935

[46] Baker, W. L., C. T. Hanson, and M. A. Williams. 2018. Improving the use of early timber inventories in reconstructing historical dry forests and fire in the western United States: Reply. *Ecosphere* 9(7):e02325.10.1002/ecs2.2325 https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.2325

[47] http://www.archive.org/stream/expeditionsofjoh01fr/expeditionsofjoh01fr_djvu.txt

[48] Williams, M.A. and Baker, W.L. 2012. Spatially extensive reconstructions show variable-severity fire and heterogeneous structure in historical western United States dry forests. Global Ecology and Biogeography http://forestpolicypub.com/wp-content/uploads/2012/02/12williamsbaker_preprint1.pdf

Logging is not a replacement for natural processes. Nowhere does the FEIS's sections regarding natural range of variability, resilience, or desired conditions meaningfully acknowledge the unique wildlife habitat created by high-intensity fire or patches of high snag recruitment from cycles of drought and native bark beetles—a habitat type known as "snag forest habitat", or more technically as "complex early seral forest." DellaSala et al. 2014.[49] Many native wildlife species depend upon this important and distinct forest habitat type, which current science concludes is comparable to old forest in terms of native biodiversity and wildlife abundance. DellaSala et al. 2014, DellaSala and Hanson 2015.[50] Instead, the FEIS Vol. 1, p. 254, and elsewhere, erroneously claims that various forms of clearcutting "emulat[e]" the habitat conditions created by patches of high-intensity fire, but offers no citations to scientific sources to support this claim. Current science clearly concludes that snag forest habitat, or complex early seral forest, is defined by an abundance of snags, downed logs, patches of native shrubs and forbs, and natural regeneration of conifers and hardwoods, and that even-aged logging does not ecologically mimic this habitat (Swanson et al. 2011[51], DellaSala et al. 2014) for the simple and obvious reason that clearcutting and its variants remove all or nearly all of the trees, and typically remove shrubs through mastication or herbicides. In fact, over 50% of the plant and animal forest species are either partially or predominantly associated with this "naturally regenerating early-seral" habitat (Swanson et al. 2014[52]). This is a significant issue, particularly due to the fact that current Blue Mountains forests have a significant deficit of high-severity fire relative to natural historical levels (Baker 2015[53]), along with a deficit of low/moderate-severity fire too (Baker 2017[54]).

The FEIS's description of "ecological resilience" (Vol. 1, p. 249) fails to discuss the fact that ecological resilience requires natural disturbance processes, operating within the natural range of variability, creating the full range of habitat types and successional stages and thus providing ample habitat for the complete complement of native biodiversity (Thompson et al. 2009[55]). Ecological resilience is not the suppression of natural disturbance processes; nor is clearcutting

[49] DellaSala, D. A., M. L. Bond, C. T. Hanson, R. L. Hutto, and D. C. Odion. 2014. Complex early seral forests of the Sierra Nevada: What are they and how can they be managed for ecological integrity? Natural Areas Journal 34:310–324.

[50] DellaSala, D. A., and C. T. Hanson, editors. 2015. The ecological importance of mixed-severity fires: nature's phoenix. Elsevier Inc., Waltham, Massachusetts, USA.

[51] Swanson, M. E., J. F. Franklin, R. L. Beschta, C. M. Crisafulli, D. A. DellaSala, R. L. Hutto, D. Lindenmayer, and F. J. Swanson. 2011. The forgotten stage of forest succession: early-successional ecosystems on forest sites. Frontiers in Ecology and the Environment 9:117–125.

[52] Swanson, M.E., et al. Biological associates of early-seral pre-forest in the Pacific Northwest. Forest Ecol. Manage. (2014), http://dx.doi.org/10.1016/j.foreco.2014.03.046

[53] Baker, W. L. 2015. Are high-severity fires burning at much higher rates recently than historically in dry-forest landscapes of the Western USA? PLoS ONE 10:e0141936.

[54] Baker, W. L. 2017. Restoring and managing low-severity fire in dry-forest landscapes of the western USA. PLoS ONE 12:e0172288.

[55] Thompson, I.D., Mackey, B., McNulty, S. and Mosseler, A., 2009. Forest resilience, biodiversity, and climate change. A synthesis of the biodiversity/resilience/stability relationship in forest ecosystems. Technical Series no. 43. Montreal: Secretariat of the Convention on Biological Diversity.

forests, and erroneously conflating clearcuts and snag forest habitat as "stand initiation" (e.g., Vol. 2, p. 112), consistent with the science on ecological resilience.

The FEIS (Vol. 1, p. 251) grossly misrepresents Haugo et al. (2015)[56], inaccurately claiming that, according to that study, the "vast majority [of forests in the Blue Mountains] will need either active intervention or a combination of active intervention followed by additional successional development to return to some semblance of natural forest structural conditions." However, Haugo et al. (2015) only claimed that 38% of the National Forest forestland is outside of the natural range of variation—not the "vast majority." Furthermore, the authors clearly stated that this 38% could be brought into the natural range through fire and natural succession alone. Specifically, all three categories analyzed by the authors—Disturbance only, Disturbance then succession, and Succession only—can include *either* some form of forest management or natural processes like fire (i.e., without any logging).

For these reasons the Forest Service's analysis fails to take the required "hard look" at the direct, indirect, and cumulative impacts of the plan's increased logging on fire behavior and forest health.

Conclusion

The USFS must withdraw the Draft ROD and reinitiate the planning process for the Malheur, Umatilla, and Wallowa-Whitman National Forests under the 2012 Planning Rule. When doing so it must develop and analyze a broader range of alternatives that respond the concerns raised within this objection and address our specific requests for relief.

We respectfully submit this objection to the Forest Service and look forward to having the opportunity to discuss resolutions to points raised in this objection with the reviewing officer.

[56] Haugo, R., Zanger, C., DeMeo, T., Ringo, C., Shlisky, A., Blankenship, K., Simpson, M., MellenMcLean, K., Kertis, J., Stern, M., 2015. A new approach to evaluate forest structure restoration needs across Oregon and Washington, USA. For. Ecol. Manag. 335, 37–50.