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VIA EMAIL AND U.S. CERTIFIED MAIL, 7016 0910 0002 2817 0798

October 10, 2017

Regional Forester  
Objection Reviewing Officer, Pacific Northwest Region  
USDA Forest Service  
Attn: 1570 Objections  
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Portland, OR 97208-3623  
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RE: *Notice of Objection from League of Wilderness Defenders/Blue Mountains Biodiversity Project to Camp Lick Project*

Dear Objection Reviewing Officer,

League of Wilderness Defenders/ Blue Mountains Biodiversity Project (“LOWD/BMBP”) formally submits this Objection, under 36 C.F.R. part 218, to the Camp Lick Project Draft Decision Notice and Finding of No Significant Impact (“FONSI”) (collectively the “Draft Decision”).<sup>1</sup> The Forest Service official responsible for the project is Malheur National Forest Supervisor Steve Beverlin. The affected national forest is the Malheur National Forest.

LOWD/BMBP is a nonprofit environmental advocacy organization dedicated to the conservation of the natural ecosystems of the Pacific Northwest and the native flora and fauna they harbor. LOWD/BMBP and its members actively participate in governmental decision-making processes on public lands, including national forests, throughout Oregon.

These objections are being submitted on behalf of LOWD/BMBP by Paula Hood, Co-Director, LOWD/BMBP, who primarily drafted these Objections. For purposes of this Objection, LOWD/BMBP also is represented by legal counsel, the Earthrise Law Center, through Tom Buchele. Mr. Buchele’s mailing address, email address, and phone number are set forth above. Please direct all correspondence and responses to this Objection to LOWD/BMBP’s legal counsel, Mr. Buchele.

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<sup>1</sup> LOWD/BMBP’s Objection includes the Final Environmental Assessment (August 2017) (“FEA”) upon which the Decision Notice is based.

This Objection follows the guidelines established in 36 C.F.R. §§ 218.1–32. LOWB/BMBP has previously submitted timely, written comments regarding this project throughout the periods where public comments were requested.

Notice Published: The public notice regarding the Decision Notice was published on August 23, 2017. Therefore, under 36 C.F.R. § 218.7, this Objection is timely because LOWD/BMBP submitted it within 45 days of August 23, 2017 as that time is computed pursuant to 36 C.F.R. § 218.6.

LOWD/BMBP submits its Objection electronically via email with a list of supporting exhibits and in hard copy via certified U.S. mail with an attached CD containing electronic copies of the supporting exhibits.

LOWD/BMBP requests an Objection Resolution meeting to address the concerns raised in its Objection which are set forth below.

## **I. Issues Addressed in This Objection**

LOWD/BMBP has numerous objections to the Draft Decision and to the analysis contained in the FEA and supporting documents. Specifically, as is set out in more detail below, LOWD/BMBP raises the following objections:

- The Forest Service’s Proposed Amendments to the Malheur Forest Plan Violate NFMA;
  - The Forest Service’s site-specific amendments to the Eastside Screens are improper (*see e.g.*, Paula Hood’s PEA comments, page 25; Karen Coulter PEA comment page 1);
  - The Forest Service has not justified and cannot justify logging old, large trees in an area already suffering a deficit of such trees (*see e.g.*, Karen Coulter PEA comments page 1, 4, 8, 11, 13, 16–19, 21, 44);
  - The Forest Service failed to adequately analyze the cumulative effects of the site-specific amendments to the Malheur Forest Plan (*see e.g.*, Paula Hood PEA comments, page 25; Karen Coulter PEA comments, page 14, 46–48);
  - The Forest Service’s decision to allow logging in late and old structure stands is arbitrary and capricious (*see e.g.*, Paula Hood PEA comments, page 25, 31; Karen Coulter PEA comments, pages 2, 18–19, 45);
  - The Forest Service’s proposed amendments to the Malheur Forest Plan are significant; the Forest Service itself raised this issue by repeatedly insisting that these were non-significant amendments in its responses to public comments. FEA, Appendix D.
- The Forest Service should have prepared an environmental impact statement for the project (*see e.g.*, Paula Hood’s PEA comments, page 4; Karen Coulter PEA comments page 1, 46–48);
- The Proposed Action fails to protect management indicator species (MIS) (*see e.g.*, Paula Hood’s PEA comments, page 4; Karen Coulter PEA comments, pages 11, 46–48);

- The Proposed Action allows for harmful development in undeveloped and roadless areas (*see e.g.*, Karen Coulter PEA comments, page 2; Karen Coulter PEA comments, pages 8, 16);
- The Forest Service applied an overly narrow “purpose and need” section to unreasonable avoid analyzing alternatives in violation of 40 C.F.R. § 1508.9 (*see e.g.*, Paula Hood PEA comments pages 1, 2–4, 11; Karen Coulter PEA comments at 2, 7, 12, 45);
- The Forest Service inadequately considered alternatives by only considering the proposed action and the no-action alternative in violation of 40 C.F.R. § 1508.9 (raised in Paula Hood PEA comments page 3; Karen Coulter PEA comments, page 1);
- The Forest Service repeatedly applied science inaccurately throughout the analysis process in violation of 40 C.F.R. § 1500.1(b)
  - Snags (*see e.g.*, Paula Hood PEA comments, page 7; Karen Coulter PEA comments pages 35, 38, 40, 52–53)
  - Switching scale of analysis (*see e.g.*, Paula Hood PEA comments, page 22; Karen Coulter PEA comments 38–39);
  - Dismissing the No-action viability (*see e.g.*, Paula Hood PEA comments, page 3; Karen Coulter PEA comments, page 6);
  - Inaccurately concluding that the project would not result in a net-loss of LOS (*see e.g.*, Paula Hood PEA comments, page 28; Karen Coulter PEA comments pages 16–18, 42);
  - Headwater logging (*see e.g.*, Paula Hood PEA comments, page 16; Karen Coulter PEA comments, page 1, 30)
- The Forest Service’s Effects Analysis is Inadequate
  - The Forest Service inadequately considered the direct and indirect effects of the Proposed Action in violation of 40 C.F.R. §§ 1508.8 and 1508.25 (*see e.g.*, Paula Hood PEA comments, page 7, 13, 21–25)
  - The Forest Service inadequately considered the cumulative effects of the Proposed Action (*see e.g.*, Paula Hood PEA comments, page 3, 4, 7, 13, 16, 19, 25, 30); Karen Coulter PEA comments, pages 14, 16–18, 19, 24, 26, 33, 37, 39–40, 42, 44–48, 50–52)
- Violations of PACFISH/INFISH, Riparian Management Objectives, and Forest Plan Standards—16 U.S.C. § 1604(i) (*see e.g.*, Paula Hood PEA comments 8–19)
  - Grazing: Forest Plan and CWA issues (*see e.g.*, Paula Hood PEA comments, page 7–8, 13, 21; Karen Coulter PEA comments pages 23, 28, 46–48);
  - Clean Water Act (CWA) Violations (*see e.g.*, Paula Hood PEA comments, page 8; Karen Coulter PEA comments pages 27, 32);
  - Violations of the Endangered Species Act (ESA) (*see e.g.*, Paula Hood PEA comments, pages 3, 4, 7, 11–13, 15, 17, 21–22); Karen Coulter PEA comments pages 48, 50–52).
  - Best Management Practices (*see e.g.*, Paula Hood PEA comments, pages 9–11)
  - Roads and road-related issues: Forest Plan and CWA Violations (*see e.g.*, Paula Hood PEA comments, page 18).
  - Climate change issues: Failure to analyze cumulative impacts to RMOs and ESA-listed aquatic species; failure to protect the viability of MIS and special status species; CO2 emissions (*see e.g.*, Paula Hood PEA comments, page 28);

- Logging Trees  $\geq 21$ " dbh and the Van Pelt guidelines: Failure to use best available science (*see e.g.*, Paula Hood PEA comments page 4, 15);
- Additional objections (*see e.g.*, Karen Coulter PEA Comments, page 9–10, 14–15, and 28–31).

## II. Legal Background

### A. National Environmental Policy Act

Under NEPA, any major action that significantly affects the quality of the human environment requires a detailed statement on the environmental impact of the proposed action. 42 U.S.C. 4332(2)(C). The principal aims of NEPA are twofold: (1) require agencies to assess significance of the environmental impacts of every action; and (2) ensure that government agencies inform the public of the possible environmental impacts and the reason as to why the government chose to address those impacts. *LOWD/BMBP v. Connaughton* (“*Snow Basin*”), No. 3:12-cv-02271-HZ, 2014 WL 6977611, at \*5 (D. Or. Dec. 9, 2014). Two types of assessments can be made. The simpler of the two, called an environmental assessment or “EA”, is used to determine whether the more thorough assessment—an environmental impact statement—is necessary based on the action having a significant affect on the environment. If the EA shows that the proposed activity will result in a significant affect on the environment, the agency “must prepare an EIS.” *Native Ecosystem*, 892, 893; 40 C.F.R. §§ 1501.4(b), 1508.9.

### B. National Forest Management Act

NFMA requires a two-step process for forest planning. First, the Forest Service must develop a Land and Resource Management Plan—or Forest Plan—to guide management decisions for the entire national forest unit. Second, the Forest Service must apply the Forest Plan in management decisions within the national forest unit. While the Forest Plan is implemented on a site-specific level, it takes into account all activities in relation to the entire forest. This creates an integrated and connected plan that can be applied throughout the Forest. *Snow Basin*, 2014 WL 6977611, at \*27; 16 U.S.C. § 1604(f)(1). Once established, the Forest Plan can be amended in the manner the Forest Services chooses. However, if the Forest Service seeks to enact a site-specific amendment instead of an amendment that would apply forest-wide, the Forest Service must demonstrate a “rational connection between the facts found and the choice made.” *Lands Council v. Martin*, 529 F.3d 1219, 1228, 1227 (9th Cir. 2008). Environmental impact statements are required when an amendment to the Forest Plan produces a significant change. *Id.*

## IV. Objections

### A. The Forest Service’s Proposed Amendments to the Malheur Forest Plan Violate NFMA

The Proposed Action includes three amendments to the Malheur Forest Plan. *See* Decision Notice at 21–22. LOWD/BMBP is primarily concerned with two of these three amendments.

The first Forest Plan amendment that LOWD/BMBP objects to is the amendment to the Eastside Screens, Standard 6(d)(2)(a), which requires the Forest Service to “[m]aintain all remnant late and old seral and/or structural live trees greater than or equal to 21 inches DBH that currently exist within stands proposed for harvest activities.” FEA at 23. The amendment will allow the removal of large tree grand fir and Douglas-fir trees that are less than 150 years old in the stand improvement commercial thinning units within the Warm Dry plant association group. Decision Notice at 22. The second Forest Plan amendment that LOWD/BMBP objects to is the amendment to the Eastside Screens, Standard 6(d) Scenario A), which states: “Do not allow timber sale harvest activities to occur within LOS stages that are below HRV.” FEA at 23. The amendment will allow logging of large grand fir and Douglas-fir trees on approximately 380 acres within the Warm Dry plant association group, where the old forest single stratum are currently below HRV. Decision Notice at 22. Both amendments are site-specific and only apply for the duration of the Camp Lick project. Decision Notice at 22.

The Forest Service states in the Decision Notice that these amendments are necessary “to better reflect current conditions and scientific understanding regarding necessary restoration of the Camp Lick planning area.” Decision Notice at 41. According to the Forest Service, the large grand fir and Douglas-fir need to be removed because they were not a major component within the forest area, and are now competing with older ponderosa pine and western larch, “causing competition stress and increasing the risk that the older trees may die as a result of insects, drought, or wildlife.” Decision Notice at 41.

As an initial matter, the fact that the Forest Service is proposing to amend the Malheur Forest Plan to allow for logging of old large trees is shocking, although not surprising. Recognizing the lack of old forests and big trees on the Malheur National Forest due to past logging practices, in 1995 the Malheur Forest Plan was amended to prohibit logging in old growth forests outside of their historical range of variability and logging of trees 21 inches diameter at breast height (“dbh”) or greater. These amendments, known as the “Eastside Screens,” apply throughout the Malheur National Forest. Since 1995 the Forest Service has amended the Eastside Screens numerous times to allow for the logging of old, big trees, undermining the very protections that the Eastside Screens were intended to provide in the first place.

The Forest Service attempts to justify amending the Malheur Forest Plan by claiming that, even though the project will result in the logging of some big trees and old growth, ultimately the project will somehow result in an increase of big, old trees in the future, and that the project will “restore ecosystem structure and function.” Decision Notice at 43. **But the Forest Service acknowledges that it is not easy to replace large trees, and that it could “tak[e] decades if not hundreds of years to develop” the large trees that provide important nest and roost sites for cavity-dependent wildlife. FEA at 194.** Thus, the Forest Service’s conclusions that the project’s effects will not be significant because the large trees being removed as part of the project will be replaced by additional large trees, ignores the fact that it could be hundreds of years before such replacement happens (let alone the fact that the sheer number of old growth trees will be less because trees are being removed). The Regional Forester’s September 2015 guidance regarding plan amendment (attached as exhibit 8) is

incorrect in several legal respects, but it does acknowledge the current science regarding the importance of preserving large Grand Fir-science that the FEA and Draft DN/FONSI simply ignores. As described in further details below, for this and other reasons the Camp Lick project violates the NFMA.

### **1. The Forest Service's Proposed Site-specific Amendments to the Malheur Forest Plan are improper**

The Forest Service's proposed site-specific amendments to the Malheur Forest Plan are improper. Forest plans, under NFMA, apply to the forest as a whole, based on documented needs and conditions for the overall health and longevity of the particular forest. 16 U.S.C. § 1604(b) and (f). In the FEA, the Forest Service proposes to use site-specific amendments "to improve the resiliency, processes, and functions of the [Project area]." FEA at 1. The amendments described in the FEA would be exceptions to the Eastside Screens—a rule adopted in forests east of the Cascades prohibiting the Forest Service from authorizing timber companies to harvest trees exceeding 21 inches dbh. While NFMA provides that the Forest Service may amend an existing forest plan in "any manner whatsoever," 16 U.S.C. § 1604(f)(4), courts have recognized that there must be "at least some characteristics unique to a site to support a site-specific amendment." *Snow Basin*, 2014 WL 6977611, at \*30, quoting *Lands Council*, 529 F.3d at 1228.

The FEA fails to identify any unique characteristics in the Camp Lick area that justify a site-specific amendment to the Eastside Screens. The Forest Service primarily attempts to rationalize the amendment as a means to reduce competition for older ponderosa pine and western larch. FEA at 23. According to the Forest Service, "[t]he combination of timber harvest and fire suppression gradually converted the dry forests from primarily long-lived, early-seral species (ponderosa pine and western larch) to a higher proportion of late-seral species (grand fir and Douglas-fir)." FEA at 395. However, these conditions are not unique to the Camp Lick site. In fact, similar site-specific amendments have been included in multiple other projects in the Malheur National Forest. *See, e.g.*, Elk 16 Landscape Restoration Final Environmental Assessment at 51 (suggesting a nearly identical amendment because the "establishment and crowding of some younger grand fir and Douglas-fir trees has increased the risk that old trees may die as a result of the stresses of competition[.]). The Forest Service itself concedes that this amendment is not unique. FEA at 400 ("Recent [amendments to the Eastside Screens] have been proposed to shift species composition, *protect old ponderosa pine and western larch*[.]") (emphasis added). LOWD/BMBP raised this issue in their objections to the PEA. (*See, e.g.*, Paula Hood Comment at 25; Karen Coulter Comment at 1). However, after reviewing the changes to the section of the FEA discussing the amendments, it is clear that the Forest Service made no attempt to address LOWD/BMBP's concerns.

From the multiple proposed site-specific amendments, it is easy to infer that the Forest Service believes current management practices codified in the Eastside Screens are inadequate to keep the forest healthy and protect its resources from insect infestation and wildfires. Regardless of whether that is the case, the Forest Service cannot address this issue with site-specific Forest Plan amendments creating a patchwork of separate management practices throughout the forest as opposed to the unified Forest Plan that NFMA requires. Furthermore, this piecemeal erosion of a publicly ratified environmental decision is precisely the type of hodgepodge policymaking

that the comprehensive review process envisioned by NEPA is intended to prevent. By failing to establish the unique character of the site that would justify the use of site-specific amendments instead of a forest-wide amendment, the Forest Service has violated NFMA, undermined NEPA, and disregarded Ninth Circuit precedent.

## **2. The Forest Service Has Not Justified and Cannot Justify Logging Old, Large Trees in an Area Already Suffering a Deficit of Such Trees**

LOWD/BMBP is very concerned by the proposed forest plan amendment that would log large trees equal to and greater than 21 inches dbh in violation of existing forest plan direction to protect large tree structure due to the severe regional deficit in large tree structure from past logging of large trees. The Forest Service knows that old, large trees are necessary for wildlife and that there is a significant deficit of such trees in the Camp Lick area. **Further, the Forest Service in the FEA that the large trees that will be removed as part of the project “provide important nest and roost sites for cavity-dependent wildlife and are not easily replaced, taking decades if not hundreds of years to develop.”** FEA at 194. Yet, despite this clear acknowledgement of the harm in removing large, old trees in an area where such trees are already sorely lacking, the Forest Service is proposing to amend the Malheur Forest Plan to allow more logging of large, old trees in the area.

The cumulative effects analysis states that the past logging “targeted and removed many of the largest diameter trees reducing old forest structures (old forest multi-strata and old forest single-stratum) in the Warm Dry biophysical environment” and that “large green replacement trees removed during this time reduced future snag potential and subsequent snag densities throughout the planning area.” FEA at 205. Given this acknowledged great loss of large tree structure and the consequent loss of old growth structure, future large snag potential, and subsequent large snag density “throughout the planning area,” FEA at 205, the Camp Lick project’s additional large tree targeting and logging through a forest plan amendment is not justified. Large tree/snag abundance and density have been depleted compared to historical conditions. There is no ecologically sound rationale for further logging of large trees in the Camp Lick area.

It is not just the age of trees that matter but their size. LOWD/BMBP is concerned by the loss of large structure trees (of all species) for wildlife, fish, carbon sequestration, soil nutrient cycling, shading, and moisture retention for diverse plants and micro-fauna, and for recreational and scenic values. Not using the 21-inch diameter dbh limit, which is science-based, results in losing significant large structure that is at a great deficit compared to historical conditions across the Malheur and other eastern Oregon forests. The Forest Service must follow the Malheur Forest Plan, as amended by the Eastside Screens. The mandate to conserve large trees is still well-founded and an important policy priority.

Why is large tree and late and old structure (LOS) stand logging planned if “reduce old growth and more early to mid-seral stands” contribute to the upland restoration rating of “functioning-at-risk”? FEA at 67.

Further, LOWD/BMBP does not agree with the Forest Service's purported justifications provided for amending the Malheur Forest Plan. The Forest Service appears to believe that the increased prevalence of grand fir and Douglas-fir trees in the Malheur National Forest places undue strain on the forest's resources. But there is no evidence that large grand fir and Douglas-fir would cause the death and loss of older ponderosa pine and western larch, or that they would unnaturally compete with older ponderosa pine and western larch. Old trees are subject to far more competition stress from young small trees (up to 8-12-14 inches dbh) that are far more numerous due to past logging and fire suppression than large 90 to 150-year-old Douglas-fir and grand fir.

In addition, LOWD/BMBP is opposed to the logging of any trees greater than or equal to 21 inches DBH throughout the Camp Lick planning area, including in aspen stands, as plenty of successful restoration has been done on the Malheur without removing large trees over 21 inches. Further, most trees that could be considered "encroaching" on aspen are much smaller, and the trees around aspen that are over 21 inches DBH are at least 100 years old, and therefore not a product of widespread effective fire suppression, which likely only dates to about the 1950s at most. Retaining large conifers that exist in and near aspen is also thought to triple the biodiversity of the aspen stands as habitat for wildlife.

### **3. The Forest Service Failed to Adequately Analyze the Cumulative Effects of the Site-specific Amendments to the Eastside Screens**

The Camp Lick project's site-specific amendments to the Eastside Screens are not the first such amendments but part of a long history of amendments proposed and implemented by the Forest Service in the area. The Decision Notice and FEA fail to adequately consider the cumulative impacts that the proposed site-specific amendments in connection to the past, present and likely future amendments to the environment. 40 C.F.R. § 1508.7.

Cumulative impacts are impacts on "the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions..." 40 C.F.R. § 1508.7. Additionally, "[c]umulative impacts can result from individually minor but collectively significant actions taking place over a period of time." *Id.* Therefore, an agency cannot discount impacts as irrelevant simply because they are minor. *See, e.g., Neighbors of Cuddy Mountain*, 137 F.3d at 1378 (citing *City of Tenakee Springs v. Clough*, 915 F.2d 1308, 1312 (9th Cir. 1990)). When analyzing cumulative impacts, the agency must take a "hard look" at all "past, present, and reasonably foreseeable future actions" connected to the proposed project and even an "EA's analysis of cumulative impacts 'must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment.'" *Gifford Pinchot Task Force v. Perez*, 2014 WL 3019165, at \*34 (D. Or. July 3, 2014) (citing *Lands Council v. Powell*, 395 F.3d 1019, 1028 (9th Cir. 2005)). Agencies must also provide quantified and detailed information to support their analysis. "Without such information, neither the courts nor the public ... can be assured that the [agency] provided the hard look that it is required to provide." *Neighbors of Cuddy Mountain*, 137 F.3d at 1380. Finally, "[t]he analysis must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and



future projects.” *Klamath-Siskiyou Wildlands Center*, 387 F.3d at 994 (internal quotations and citations omitted).

In the FEA, the Forest Service only analyzes the amendments whose effects overlap with the Camp Lick Project both temporally and geographically. FEA at 399. The Forest Service erred by construing these two elements too narrowly in order to avoid any substantial cumulative effects analysis. The cumulative effects analysis is inadequate for numerous reasons.

First, the Forest Service's analysis in the FEA of the cumulative effects of all similar Eastern Screens amendments is little more than a list of all previous amendments and their total acreage. FEA at 403. This calculation of affected acres is a necessary but insufficient element of the cumulative impacts analysis. A complete analysis must actually describe and compare the environmental effects of all these similar amendments. *See Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 995 (9th Cir. 2004).

Second, in an effort to avoid analyzing pre-existing amendments' impacts the Forest Service narrowly defined temporal overlap to ignore the effects of any Eastern Screens exception that was enacted over twenty years ago. FEA at 400, 403. This decision is entirely unreasonable considering the fact that direct impacts of large timber sales can certainly still be noticed several decades after-the-fact. This timeline is even more extended for indirect impacts.

Third, the Forest Service also inadequately considered cumulative impacts by writing-off the majority of similar amendments as "located in different geographic areas than the Camp Lick Project." This narrow construction of geographic overlap is unreasonable. In enacting NFMA, Congress clearly intended the Forest Service to make management decisions at a forest-wide level, so the proper geographic scope for cumulative impacts is the entire National Forest unit in which the amendment is proposed. *See Snow Basin*, 2014 WL 6977611, at \*9. By limiting the cumulative impacts analysis of multiple amendments to a specific area, the Forest Service fails to analyze potential significant impacts.

As the court in *Snow Basin* recognized when considering the cumulative impacts of past amendments, these considerations should take into account the entire forest, not just the assessment area. 2014 WL 6977611 at \*9. Here, the Forest Service is doing the same thing as it did in *Snow Basin* by attempting to circumvent the established amendment process and applying an unreasonably narrow scope of analysis. By proposing site-specific amendments, the Forest Service has failed to consider the cumulative effect the proposed amendments would have on the Malheur National Forest as a whole, in conjunction with the effects of the previous, ongoing, and reasonably foreseeable future site-specific amendments. Without further analysis into the cumulative impacts these proposed amendments would have, the Forest Service reasonably determine whether the proposed activity would result in a significant impact to the environment. 40 C.F.R. § 1508.27.

The Forest Service's failure to adequately consider the cumulative impacts of the Proposed Action's amendments to the Malheur Forest Plan is especially acute here, where the Camp Lick project is part of a broader package of projects associated with the Forest Service's accelerated restoration efforts and Eastside Restoration Strategy. The Camp Lick project may

also be included in the 10-year Stewardship Contract, which was awarded in 2013 to treat, as part of a series of accelerated restoration projects, between 180,000 and 500,000 acres on the Malheur National Forest over a 10-year period. FEA at 369.<sup>2</sup> The accelerated restoration projects cover a significant part of the Malheur National Forest, and many involve or will involve the same amendments as those included in the Camp Lick project; that is, many of these projects already do or will likely involve the logging of old, large trees, including in LOS-dedicated areas where such trees are already below the historic range of variability (including, *e.g.*, the Big Mosquito, Elk 16, Soda Bear, Ragged Ruby projects). These accelerated restoration projects are already ongoing or are reasonably foreseeable, as are the Forest Plan amendments that are included as part of the projects. The Camp Lick Decision Notice and FEA fail to adequately consider the effects of the Camp Lick project Forest Plan amendments in combination with similar amendments from the ongoing and reasonable foreseeable future amendments that will be part of the other accelerated restoration projects.

Ultimately, a clear trend in lowering or failing to meet standards can be seen throughout the Forest Service's discussion of the cumulative effects of the amendments. The discussion shows each amendment as placed in an abstract vacuum, which fails to take into account the impacts and results of the previous amendments implementation. The Forest Service's discussion acknowledges that there are forest wide standards, recognizes previous, current, and reasonably foreseeable future amendments in other projects that lower or loosen these standards, and then fails to take into account the effects of these other amendments when considering the effects of the amendments proposed as part of the Camp Lick project.

LOWD/BMBP is concerned that repeated Forest Plan amendments that effectively violate existing Forest Plan standards, such as the amendments to log large trees and within late and old structure forest, are being repeated across the Malheur National Forest and are causing significant cumulative loss of large tree structure and complex old growth habitat. The U.S. Forest Service is repeatedly undermining and circumventing its own standards and regulations include repeated use of site-specific Forest Plan amendments to log trees greater than or equal to 21 inches dbh and to log in late and old structure (LOS) below the historical range of variability.

#### **4. The Forest Service's decision to Allow Logging in Late and Old Structure Stands is Arbitrary and Capricious**

Late and old structure (LOS) classification on the Malheur National Forest is directly dependent on the number of large live trees, large snags, and large logs. Over time under the proposed action, fewer stands would qualify as LOS. The Forest Service's statement that "the goal is not to reduce LOS stands to less than 10 trees per acre of trees greater than or equal to 21 inches DBH," *see* FEA at 71, does not reassure LOWD/BMBP that LOS overall will not be reduced below that, due to the possibility of remaining trees becoming snags and falling down. Even if the Forest Service were correct that LOS stands would not be reduced to less than 10

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<sup>2</sup> *See also* Exhibit 3 (map showing accelerated restoration projects on the Malheur from 2017-2014 and beyond); Exhibit 1 (Malheur National Forest Press release regarding awarding of stewardship contract); Exhibit 2 (Forest Service Eastside Restoration FAQs, stating that accelerated restoration will be accomplished through stewardship contracting).

trees per acre of trees greater than or equal to 21 inches dbh, LOWD/BMBP would still oppose logging in LOS and removing large trees because this degrades the habitat quality and suitability for LOS-associated wildlife species.

**5. The Forest Service's Proposed Amendments to the Malheur Forest Plan are Significant.**

For the same reasons as those expressed above and throughout these Objections, the Forest Service's proposed amendments to the Malheur Forest Plan are significant amendments under 16 U.S.C. § 1604(f)(4) and the Forest Service violated NFMA by not following 16 U.S.C. § 1604(d) for these amendments. *See American Wildlands v. U.S. Forest Serv.*, 1999 U.S. Dist. LEXIS 22243 (D. Mont. 1999). As such, LOWD/BMBP objects to the Decision Notice on this ground.

**B. The Forest Service Should Have Prepared an Environmental Impact Statement for the Project**

A federal agency must prepare an EIS for “major federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C). *See, e.g., Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1185 (9th Cir. 2008) (“If there is a substantial question whether an action ‘may have a significant effect’ on the environment, then the agency must prepare an Environmental Impact Statement (EIS)”) (citation omitted). CEQ regulations define “significantly” as requiring consideration of both context and intensity, with ten significance factors listed under the latter. 40 C.F.R. § 1508.27. Because of the context and intensity of the Camp Lick Project, the Forest Service should have completed an EIS for the project. As such, LOWD/BMBP objects to the Forest Service's failure to complete and EIS for the Project.

With regard to context, “the significance of an action must be analyzed in several contexts, such as society as a whole (human, national), the affected region, the affected interests, and the locality.” 40 C.F.R. § 1508.27(a). “Significance varies with the setting of the proposed action” and “[b]oth short- and long-term effects are relevant.” *Id.* Here, as evidenced by the numerous issues raised throughout these objections, the context of the Proposed Action mandates that the Forest Service complete an EIS for the project. The Forest Service, in support of its decision to not do an EIS and instead issue an EA/FONSI, considered the context of the Camp Lick Project in a vacuum, without referencing any of the other past, ongoing, or reasonably foreseeable future projects in the Malheur National Forest—including other projects directly adjacent to or otherwise near by the Camp Lick project area. Decision Notice at 59. Similarly, the context analysis simply is only quantitative, focusing on the percentages of certain resources that will be affected by the Camp Lick project, in comparison to those resources across the entire Malheur National Forest and Blue Mountain Ranger District. *Id.* For example, the Forest Service states, “In context, silvicultural treatments will impact less than 2 percent of the Blue Mountain Ranger District and less than 1 percent of the Malheur National Forest.” *Id.* But the Forest Service must look not only at the quantitative context, but also the *qualitative* context, and ask whether—in the context of the many other previous, ongoing, and reasonably foreseeable future projects—the Camp Lick project is likely to significantly affect the *quality* (not simply quantity)

of the environment. Because the Forest Service failed to adequately analyze the context of the Camp Lick project, the Decision Notice is flawed and arbitrary and capricious.

With regard to intensity, the Forest Service must consider ten factors to determine whether the intensity, or severity of impact of a project, mandates an EIS as opposed to an EA/FONSI. 40 C.F.R. § 1508.27(b). The Camp Lick Project implicates many of these factors. As described below, the project will result in significant effects due to, among other things, the extremely large geographic scope of the project, the likely significant negative effects to Endangered Species Act (ESA)-listed species such as Mid- Columbia River steelhead, potential downward trends or loss of viability for ESA, management indicator species (MIS), and sensitive and at-risk species, and the risk of significantly negatively affecting terrestrial and aquatic ecosystems and the species that depend on them. Because there is a high likelihood that this project will significantly affect the human and ecological environments, the Forest Service's determination that the overall project will not significantly affect the human environment and therefore does not need an EIS is arbitrary and capricious, and lacks sufficient evidence, quantification, or justification. As such, the Decision Notice is arbitrary and capricious and the Forest Service should have prepared an EIS for the Project.

**Factor 1:** Impacts that may be both beneficial and adverse

The Proposed Action will have numerous effects on the environment. These effects, which are addressed throughout the FEA and also in these Objections, include both beneficial effects and adverse effects. The fact that the Forest Service believes that on balance the project will ultimately benefit the environment has no bearing on whether the effects of a project are "significant" enough to warrant an EIS. Here, the FEA is clear that the Project will have numerous effects that, regardless of their beneficial or adverse nature, are significant.

**Factor 4:** The degree to which the effects on the quality of the human environment are likely to be highly controversial.

LOWD/BMBP's objections demonstrate the highly controversial nature of the effects of the Proposed Action on the quality of the human environment. As evidenced throughout these Objections, as well as LOWD/BMBP's scoping comments and comments on the PEA, there are significant disputes regarding much of the science and data on which the Forest Service relied in selecting the Proposed Action. Further, the fact that the Forest Service is proposing to amend Eastside Screens to allow for the very logging against which the Eastside Screens were intended to protect demonstrates the highly controversial nature of the Proposed Action.

**Factor 6:** The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The Camp Lick Project has established a precedent for future actions with significant effects, and represents a decision in principle about a future consideration.

Further, flowing from the *Snow Basin* decision, if the Forest Service was able to continue without providing an EIS it would effectively ignore the precedent set in the case. Furthermore, the Forest Service's continued attempts to create site-specific exclusions to the Malheur Forest Plan establishes a stronger precedent each time a timber sale is permitted with the minimal review conducted for this sale.

**Factor 7:** Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

The Camp Lick Project warrants a full environmental impact statement due to likely significant impacts to ecological functioning and wildlife species from its large scale, cumulative impacts with other similar adjacent and nearby timber sales. These include the Magone, Ragged Ruby, Big Mosquito, and County Road 18 timber sales, which are all being implemented within the same general areas of the Blue Mountain Ranger District, often with adjacent or nearly adjacent boundaries, and within the same general timeline for implementation, creating extensive cumulative effects that are not being analyzed.

As previously stated, the Forest Service failed to assess the cumulative impacts of past, present and future impacts of the site-specific amendments to the Camp Lick Project area. Failure to recognize that—while many of the previous amendments to the area could, if viewed in isolation, be seen as insignificant—when viewed with the understanding of the interconnected and cumulative capacity of an active biosphere, individually insignificant impacts can become significant impacts when their cumulative impacts are examined. Failure to look at the past, present and future amendments to the project area clearly meet the intensity standard NEPA requires.

The Forest Service has implemented nearly identical site-specific amendments in ten previous timber sales within the Malheur National Forest. FEA at 400. While the Forest Service attempts to justify its failures to consider the cumulative impacts of such sales by falsely claiming that the sales do not overlap geographically or temporally, any reasonable observer would realize that this piecemeal undermining of the approved Forest Plan will certainly cause cumulative impacts to forest management practices. Such changes require the thorough analysis of an EIS.

Further, the Camp Lick Project is part of the Forest Service's Eastside Restoration Strategy, which is intended to accelerate restoration on Eastside forests, including the Malheur, and may also be included in the 10-year Stewardship Contract. *See* Exhibits 1–3; *see also* FEA at 369.<sup>3</sup> The projects that are part of this Eastside Restoration Strategy, including Camp Lick, are related and cumulatively will have significant impacts to the environment. Yet rather than doing an EIS to fully analyze the effects and impacts of the Eastside Restoration Strategy and the accelerated restoration projects, the Forest Service has segmented the NEPA analysis and is

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<sup>3</sup> *See* Exhibit 2 (Eastside Restoration Frequently Asked Questions).

performing the analysis on a project-by-project basis. In only completing an EA for the Camp Lick Project and segmenting this project out from the other Eastside Restoration Strategy projects, the Forest Service is able to avoid having to look comprehensively at the cumulative impacts of the Camp Lick project on the environment, including looking at the impacts in the context of the Project's place in the larger Malheur National Forest accelerated restoration campaign and Eastside Restoration Strategy. Because Camp Lick is part of the Malheur's accelerated restoration work and the Eastside Restoration Strategy, the project is clearly related to other projects that fall within this same campaign and strategy. As such, the Forest Service must do an EIS to more fully analyze the effects of the Camp Lick project on the environment.

**Factor 9:** The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

The project area is inhabited by several listed species, and thereby requires close consideration of any environmental impacts that could adversely affect either the species or their critical habitat. Bull trout live throughout the Malheur National Forest; the Forest Service claims that bull trout will not be affected by the project and will not pursue section 7 consultation. FEA at 184. BMBP disagrees with this conclusion and believes that the Forest Service must consult with the Services about potential impacts to bull trout.

Furthermore, all parties agree that Middle Columbia River steelhead inhabit the project area. FEA at 184. The Forest Service believes steelhead and their critical habitat will not be adversely affected by this project, but cannot confirm this finding until after their section 7 consultation with FWS. The risk of harm to a listed species, combined with the other factors discussed in this objection, make it evident that the Forest Service must conduct a thorough EIS process before moving forward with this timber sale.

**Factor 10:** Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

As discussed above, the Forest Service violated both the black-letter law of NFMA as well as the underlying policy rationale. NFMA requires the Forest Service to use forest plans to guide individual actions taken within the National Forests. By creating site-specific exceptions to the Forest Plan in order to permit otherwise unlawful timber sales, the Forest Service undermines its statutory obligations and creates precisely the patchwork management scheme that Congress passed NFMA to prevent.

The Proposed Action will also violate the Clean Water Act. The Forest Service should have included the total maximum daily load (TMDL) implementation strategies in the FEA in full, so that the public and agency reviewers could judge for themselves whether the Camp Lick Proposed Action will adhere to them (Camp Lick PEA, page 97).

Further, contrary to the Forest Service's conclusions, the Proposed Action is likely to raise stream temperatures and thus violate the Clean Water Act and TMDL objectives and guidelines, *See* FEA at 117; Decision Notice at 28. There is no justification for the conclusion

that the Proposed Action will not measurably increase watershed impacts, based on the preceding analysis.

### **C. The Proposed Action Fails to Protect Management Indicator Species (MIS)**

Management indicator species are vertebrates and invertebrates that act as bellwethers to identify the broader effects that land management activities have on general habitat. FEA at 140. The Malheur Forest Plan requires the Forest Service to protect habitat for management indicator species, which include Rocky Mountain elk, pileated woodpecker, pine marten, three-toed woodpecker, Lewis' woodpecker, red-naped sapsucker, Williamson's sapsucker, downy woodpecker, hairy woodpecker, white-headed woodpecker, black-backed woodpecker, northern flicker, steelhead, rainbow/reddband trout, bull trout, and cutthroat trout. FEA at 140, 217; *see also* Malheur Forest Plan Forest-wide Standard 61. With regard to aquatic MIS, both steelhead and redband trout live in streams located within the planning area. FEA at 141. The Columbia spotted frog, a recognized sensitive species, is also considered present. *Id.* Although the Forest Service has carefully documented the habitat these species inhabit within the planning area, the Forest Service has failed to take adequate steps to protect these species and their habitat. The Forest Service appears to focus on the positive impacts that this project may have on such riparian indicator species, but makes no mention of potential harms.

The proposed project would negatively effect non-aquatic MIS species such as the pine marten, pileated woodpecker, and three-toed woodpecker, all of which depend on old, big trees for foraging, resting, and movement. The proposed commercial thinning would remove lives trees, including large trees over 21 inches dbh, reducing the future amount of naturally fallen logs and woody debris that these species rely upon, especially during the winter.

Similarly, the Proposed Action fails to adequately protect Rocky mountain elk, an MIS, and their habitat. The Malheur Forest Plan includes a management area designated specifically for big-game winter range maintenance (Management Area 4A) and sets standards to protect these species. These standards include restricting activities that disturb wintering big game (Standard 7) and prohibiting motorized recreational vehicle access from December 1 to April 1, "except for designated routes [through] winter range which are compatible with the management area emphasis." Malheur Forest Plan, Chapter IV, Management Area 4A, Standards 2 and 7. The Malheur Forest Plan also sets road density standards intended to protect elk.

There are too many "open" roads in the Malheur to adequately protect elk. Indeed, parts of the project area fail to meet the open road density standards for elk, and the Forest Service acknowledges that many officially closed roads are actually used due to unauthorized use of the roads. FEA at 221. The Proposed Action will result in some roads being decommissioned or closed, but the Proposed Action will also result in reopening of currently closed and grown-in roads and in the construction of new roads for project access and timber hauling. FEA at 194. Ultimately, the road density will not be decreased to levels that are safe for elk.

The Forest Service recognizes that traffic and activity along roads will reduce wildlife security during implementation of the Proposed Action, FEA at 194, and in the Decision Notice the Forest Service acknowledges that big game animals such as Rocky mountain elk can be

affected by traffic and “[r]oad related disturbance”; that “big game *security* is important across all seasonal ranges”; and that there is a “need to provide for big game security from early fall (September) through the winter and through critical calving and fawning seasons (June).” Decision Notice at 31. Yet the Forest Service has concluded that road closures in the area during the winter season, to protect big game such as Rocky mountain elk, are “not feasible” because of the time frame, number of short road segments, limited budgets, time constrains to open and close road barriers, and the maintenance of barriers. In other words, it is too much work and too expensive for the Forest Service to close the roads to provide the acknowledged and necessary protections for big game.

The Forest Service’s analysis also fails for these additional reasons:

- There is no analysis of the project’s effects to the Pacific fisher, even though fisher used to exist in virtually all forested areas of Oregon and still exist (and are documented) in the Umatilla, Ochoco, and Deschutes national forests.
- Pileated woodpeckers, goshawks, northern flickers, great gray owls, and Pacific fishers need large tree structure for nesting and perching, not just old trees. Switching the size and age requirements for tree retention does not protect the viability of many MIS and rare species.
- The Forest Service failed to consider the critical importance of grand fir large tree structure (including snags and logs) to pileated woodpecker nesting and foraging. While small tree thinning may make sense in drier ponderosa pine old growth pileated woodpecker nesting areas, pileated woodpeckers primarily forage in large decaying grand fir and are very dependent on retention of large grand fir. The cumulative effects of Forest-wide removal of grand fir and Douglas-fir is inadequate, and the harmful effects stemming from systematic removal all this species have been not been appropriately analyzed for pileated woodpeckers or other wildlife species.
- It is not just large ponderosa pines, western larch, and Douglas-fir that are important to retain on the landscape for wildlife, but all large tree structure, including grand fir. The Forest Service is unfairly biased in promoting ponderosa pine and western larch as preferred timber industry species.
- Woodpeckers that select for larger trees (e.g., Lewis’, hairy, northern flicker, and pileated) would all be adversely affected by both hazard tree feeling and logging removal of large trees that reduces future large snags, yet this is not considered in the analysis. LOWD/BMBP disagrees with the assessment of the Camp Lick project on black-backed woodpecker habitat (FEA at 233). I think the Camp Lick proposed action would contribute to a negative trend in loss of suitable habitat for black-backed woodpecker across the majority of the forest that is being logged to suppress wildfire. BMBP/LOWD found commercial logging sale units in Camp Lick that looked like suitable marten habitat some with root wad burrows big enough for marten. If the 2014 sighting was in open ponderosa pine forest and foraging, then suitable marten habitat must not be limited in Camp Lick to 41 acres, as implied (Camp Lick FEA at 252). Our crews have sighted some in the adjacent Ragged Ruby planning area, in similar habitat conditions. Please see our survey sheets and photos for more potential marten habitat in sale units – likely more than 41 acres.



- Recent science findings that marten use habitat at lower elevations than previously assumed, yet this is not discussed. Obviously there are marten in the Camp Lick planning area, as they were observed in 2010 and 2014 (Camp Lick FEA at 269).
- There is a lack of analysis in the old growth habitat section of the highly negative effects to pileated woodpecker and American marten (as well as to unanalyzed Pacific fisher) of large tree loss to logging, especially the loss of grand fir (which has many benefits to pileated woodpeckers; hollow firs are also used for denning by Pacific fisher). This is an inadequate and biased analysis.

LOWD/BMBP remains concerned about the continued viability of the vulnerable-ranked pileated woodpecker and American marten in the Camp Lick planning area, and the potential for the Camp Lick proposed action to contribute to an upward listing trend for both species under the ESA, especially due to large tree removal, substantial mature tree reduction, and cumulative impacts with the nearby and adjacent Ragged Ruby, Magone, Big Mosquito, Galena, and County Road 18 timber sales over roughly the same time period, with similar effects.

#### **D. The Proposed Action Allows for Harmful Development in Undeveloped and Roadless Areas**

The Proposed Alternative includes logging 1,790 acres of previously undeveloped land. FEA at 383. LOWD/BMBP requests that the Forest Service refrain from pursuing these activities in the interest of multiple-use sustained-yield considerations. In the entire Malheur National Forest, only 8,150 acres remain unlogged. FEA at 379. The proposed Forest Service action would decimate what little remaining pristine woodlands remain in the Malheur National Forest. The Camp Lick project is extremely heterogeneous. The last undeveloped lands need to be retained as such to provide wildlife refuge, headwater strongholds for fish runs, areas for solitude and semi-primitive recreation, and scientific reference conditions by which to judge management effects, and now significant carbon storage.

Furthermore, the Forest Service proposes building roads into previously undeveloped regions. The Forest Service claims that an alternative avoiding this impact was reviewed but did not warrant further consideration because it would hamper the Forest Service from achieving the project goals of improving the landscape and reducing fuel loads. FEA at 59. Regardless of the Forest Service's claims, this intrusion warrants further environmental review, and is one more reason that the Forest Service should conduct an EIS before progressing with the Camp Lick Project.

LOWD/BMBP requests that the identified 1,790 acres of undeveloped land that would be lost to logging and the 60 acres of undeveloped land that would be lost to "temporary" road construction be completely dropped from logging and roading.

#### **E. The Forest Service Applied an Overly Narrow "Purpose and Need" Section to Unreasonably Avoid Analyzing Alternatives in Violation of 40 C.F.R. § 1508.9**

According to the Decision Notice, the “overall purpose” of the Camp Lick project “is to restore forest resiliency by reestablishing and restoring forest structure and pattern, vegetation composition and diversity, and riparian communities to conditions that are more resilient to natural disturbance processes, including wildlife.” Decision Notice at 3. The specific needs for the project include, but are not limited to, “[r]estor[ing] forest structure, composition, and density toward more resistant and resilient vegetative conditions, given the historical fire regime” and “[i]mplement[ing] restoration that benefits favorable water flows and habitat for fish, and enhances and protects critical and unique habitat types for fish and wildlife.” Decision Notice at 3.

The Camp Lick Project’s purpose and need is too narrow and has resulted in the Forest Service unreasonably ruling out viable alternatives that are more environmentally protective and that do not defy the will of the American public, who oppose clearcuts and other heavy management that leaves visual scars on public forest lands (see submitted Opposing Views Attachment #19). The Forest Service rejects all non-logging alternatives by claiming they would not satisfy the purpose and need. LOWD/BMBP is concerned that the Camp Lick Project’s objective to create conditions that will produce vigorous trees is motivated by desire to maximize timber harvest profits. It is ridiculous and biased to claim that not logging regionally and Forest-wide scarce large trees would unduly “limit” meeting the purpose and need. FEA 56–57. And LOWD/BMBP questions the “need” to restore a mere 24 percent of old forest multi strata (“OFMS”) to a reduced condition, especially in the larger Forest context.

LOWD/BMBP requests that the Forest Service prepare a new (expanded) purpose and need statement that allows reasonable alternatives to the Proposed Action to be analyzed in detail. This purpose and need statement must describe goals that can be achieved at different levels by different actions, specifically actions that do not include timber harvest.

**F. The Forest Service Inadequately Considered Alternatives By Only Considering the Proposed Action and the No-action Alternative in Violation of 40 C.F.R. § 1508.9**

The Forest Service only considered two alternatives: a No Action Alternative, and the Proposed Action. This range of alternatives considered by the Forest Service is inadequate and violates NEPA.

The Camp Lick Project FEA should have included a full range of action alternatives. Specifically, LOWD/BMBP would like serious consideration of alternatives that do not include logging of large trees, logging in Late and Old Structure stands, logging of Replacement and un-designated Dedicated Old Growth Areas, and logging within RHCAs, and focus instead on ecologically sound aquatic restoration and small tree thinning up to 9 to 10 inches diameter dbh and/or prescribed burning for restoring riparian hardwood trees and shrubs and thinning denser young tree growth from past logging and possible wild fire suppression. Absent full consideration of such alternatives, LOWD/BMBP can only support the No Action alternative.

The FEA should have included alternatives that offered a less intensive resource extraction and vegetation manipulation, and met the purpose and need without such ecologically

damaging logging and road activities. For example, the FEA should have included an action alternative that did not have any logging (commercial and non-commercial) in riparian habitat conservation areas (“RHCA’s”); that only included non-commercial logging; that excluded logging on steep slopes; and that did not log in mixed-conifer forests. The FEA also should have included an alternative that did not focus on resource extraction but did have activities facilitating true restoration (such as fish passage repair).

Johnston et al. (2016) fails to address whether some of the fires were mixed severity or stand- replacement. The rationale provided for eliminating from detailed consideration alternatives that would not authorize any activities in other undeveloped lands, wildlife corridors, or Cool Dry, Cool Moist, and Warm Very Moist forest types ignores the effects of slope aspect, riparian area proximity, soil type, elevation, and natural skips mosaic patterns of wildfire, as well as the effects of past logging out of all fir and planting of homogenous ponderosa pine plantations – forest type conversions. (FEA 57–58).

## **G. The Forest Service Repeatedly Applied Science Inaccurately Throughout the Analysis Process in Violation of 40 C.F.R. § 1500.1(b)**

### **1. Snags**

The Forest Service’s science and data regarding snags is inaccurate. In our comments on the PEA, LOWD/BMBP requested that the Forest Service check the snag density numbers on Table 27 of the FEA (Camp Lick FEA at 231; *see also* Decision Notice at 38), as they seem too high and compare the numbers of snags per acre in each size class with those recorded by LOWD/BMBP crews during the summer of 2016 for the Camp Lick sale units (see submitted old growth counts survey sheets and photographs). The LOWD/BMBP crews did not see 37.05 snags in the vast majority of sale units, if in any, and likewise, the crews did not usually see 10.94 snags per acres of 20 inches dbh even in the best old growth areas. The LOWD/BMBP survey sheets reflect lower numbers of snags in both size classes. As such, the model used by the Forest Service is not accurate, and it thus stands to reason that the 30 year out projections of snag abundance in these sizes are similarly greatly inflated.

### **2. Switching scale of analysis**

Although DecAID is employed on a combined watershed scale for snag abundance analysis, the scale of analysis is conveniently switched to Forest-wide in order to assume no decline in snag and dead wood habitat and no significant negative trend in black-backed woodpecker habited (by incorporating the Canyon Creek Complex and Murderer’s Creek South Complex fires from outside of the combined watersheds). This is inaccurate and misleading use of the science.

Changes in deadwood habitats should also be assessed on the planning area or watershed scale, not just the Forest scale, since other logging, thinning, and roading projects across the whole Forest are not being considered for cumulative effects with Camp Lick in this FEA (page 118). Thus analyzing loss of dead wood habitat on the Forest scale automatically and artificially reduces its apparent significance.

### 3. Dismissing the No-Action viability

Camp Lick’s no action descriptions are biased analyses that favor the logging industry. The outlook for the no action alternative’s historical range of variability (HRV) analysis (and generally, the no action alternative described elsewhere throughout the FEA) is unrealistic and inaccurate, as it paints a gloomy picture of forests simply becoming denser and denser until the wildlife cannot use the habitat anymore unless it is logged. It does not factor in natural disturbances (or future logging), or competition stress, such as defoliating insects, wildfire, windthrow, root rot, etc., which would naturally thin trees and prevent young trees or young stands from reaching old growth status. Such disturbances have been occurring for eons without human intervention.

The Forest Service’s No Action descriptions also ignore all the ecological benefits of not logging and roading, including the retention of more mature and large tree structure for wildlife, fish, soils, etc., and the natural processes that accomplish forest thinning.

### 4. The Forest Service inaccurately concluded that the project would not result in a net-loss of LOS

The Forest Service inaccurately concluded that the Camp Lick project would not result in a net-loss of LOS. As LOWD/BMBP asked in its comments on the PEA—in reference to Figure 10 on page 68 of the Camp Lick PEA—how are the total old forest acres increased by logging removal of large and old trees? This absurd conclusion by the Forest Service does not reflect accurate use of the science. Trees and forest do not suddenly graduate to become old due to logging of other mature and old trees. **Indeed, the Forest Service acknowledged this common sense knowledge in the FEA, when it commented that large trees “are not easily replaced, taking decades if not hundreds of years to develop.” FEA at 194.**

Instead, there will be a net loss of old forest under the Proposed Action. With 4,728 acres more of old forest single stratum and 7,070 acres less of old forest multi strata, that is a net loss of 2,342 acres of old forest under the Proposed Action .

This also applies to the discussion of the Cool Moist PAG and other PAGs. *See* FEA Figures 10–13, found on pages 77–78. The Proposed Action will decrease old forest within these PAGs immediately after implementation and for the foreseeable future, due to direct reduction in large and old trees and great reduction in mature trees that would otherwise become large and old. It also reduces future recruitment of large snags and logs, critical components of old forest structure.

### 5. Headwater Logging

The Proposed Action includes “headwaters restoration” logging of approximately 170 acres. As we noted in our comments on the PEA, this logging is incredibly risky and untested – if it works to produce gully erosion and a big pulse of sediment to be moved downstream. There is no science supporting these assumptions, which have not been adequately tested. LOWD/BMBP

is very wary of creeks in the Camp Lick area being used as test subject for this. The description of these results seem like hugely optimized and unjustified assumptions. *See* Camp Lick FEA at 173; *see also* Decision Notice at 13.

## **H. The Forest Service's Effects Analysis is Inadequate**

### **1. The Forest Service Inadequately Considered the Direct and Indirect Effects of the Proposed Action in Violation of 40 C.F.R. §§ 1508.8 and 1508.25**

The logging included in the Proposed Action would remove significant forest cover, affect runoff, erosion, sediment loading in streams, stream bank stability, large woody debris retention, and stream temperature relationships (see MacDonald at al. 1991, Meehan 1991, Reid 1993). The Forest Service has not thoroughly analyzed these effects for the Proposed Action.

For example, the “maintenance of ground cover over much of the [riparian restoration treatment areas] and the filtering and sediment trapping capacity of RHCAs” are directly threatened by heavy equipment use and commercial logging within the RHCAs, negating critical natural RHCA mitigations for large runoff events that might be exasperated by planned logging. The Forest Service did not consider these effects when evaluating the Proposed Action. *See* FEA at 117.

The Forest Service failed to adequately consider the direct and indirect effects of the Proposed Project on snags in the Camp Lick project area. Snag levels are already low compared to projections for 2017 in the Camp Lick FEA (at page 231), so snag levels may already be as low or lower than those reported by Matz 1928. It is important to note that there had already been significant logging of large trees on the Malheur by 1928.

Despite the fact that there are not enough snags in the Camp Lick project area and recognition of snag importance for wildlife, the Forest Service's description of expected snag densities for the Proposed Action do not make sense. *See* FEA at 232–33. The assumption that in the short- to mid-term, planned logging and prescribed burning would maintain or only “slightly” decrease snag numbers, when widespread removal of hazard trees, loss from prescribed fire, and loss of substantial future snag recruitment from removal of many mature and also large trees over about 12,000 acres are factored in, is absurd. Of course there would be a significant decrease in the short- to mid-term snag abundance.

The Forest Service's projection that there will be an increase in snags over the next 30 years is absurd, has little real life factual basis (Camp Lick FEA at 192), and is directly contrary to recognition in the FEA that large snag loss “may occur” as part of the proposed silvicultural treatments and that such loss “would be a long-term impact.” FEA at 192. The Forest Service cannot estimate the snag density for the Project Area in the 30 years without calculating the effects of wildfire, insect and disease mortality, and projected logging and roadwork in the area. (Camp Lick FEA at 193). Similarly, the Forest Service has provided no quantified analysis to justify the assumption of increased snag quantity, larger snags, and higher quality snags over the long term from the Proposed Action. Ultimately, instead of providing the legally-required

analysis, the Forest Service is simply saying what it believes it needs to say to justify widespread heavy logging of mature and large trees in the Project Area.

The Camp Lick FEA analysis section for six of the primary cavity excavating woodpecker species is very frustrating. *See* FEA at 236–250. The Forest Service’s analysis failed to include information as to each species’ habitat needs for snags and down wood. Even DecAID tolerance levels are not incorporated, let alone detailed analysis of science-based information on the kind of habitat each species uses, the size and abundance of snags each species needs, whether they depend on down log foraging, and how well these habitat requirements would be met by the proposed action for each habitat type. There is no mention of habitat survey for any of those woodpecker species in the planning area, which are needed to determine population status and trends and viability thresholds.

Similarly, there is a lack of analysis in the old growth habitat section of the highly negative effects to pileated woodpecker and American marten (as well as to unanalyzed Pacific fisher) of large tree loss to logging, especially the loss of grand fir (which has many benefits to pileated woodpeckers; hollow firs are also used for denning by Pacific fisher). FEA at 256–268. This is an inadequate, biased, and arbitrary and capricious analysis.

LOWD/BMBP remains concerned about the continued viability of the vulnerable-ranked pileated woodpecker and American marten in the Camp Lick planning area, and the potential for the Proposed Action to contribute to an upward listing trend for both species under the Endangered Species Act, especially due to large tree removal, substantial mature tree reduction, and cumulative impacts with the nearby and adjacent Ragged Ruby, Magone, Big Mosquito, Galena, and County Road 18 timber sales over roughly the same time period, with similar effects.

The inconsistency of the analysis area for impacts to the pileated woodpecker with the analysis area for impacts to defective wood habitat and old growth habitat, is only one of many problems with the FEA’s treatment of impacts to the pileated woodpecker, an MIS species. When examining impacts to pileated woodpeckers the FEA focuses almost exclusively on the species supposed preference for nesting in ponderosa pine and western larch. FEA at 258. The Wildlife Specialist Report cites to Bull, 1987 for this “preference. Wildlife Rpt at 104. But focusing on this narrow “preference” for nesting trees is flatly inconsistent with the broader findings of both Bull, 1987 (attached as Exhibit 4) and more recent research, Bull and Holthousen, 1993 and Bull, et al, 2007. Bull, 1987 also found that for 67% of nesting sites, the surrounding stand was Grand Fir Forest Type. Bull and Holthousen, 1993, specifically recommended that habitat areas for pileated woodpeckers be 75% grand fir. Bull et al, 2007, concluded that nesting density for pileated woodpeckers was negatively associated with ponderosa pine forest types. The FEA and Wildlife Specialist report (although it cites all of these studies) simply ignores these conclusions. The Forest Service at a minimum must acknowledge and deal with this science that strongly suggests significant negative impacts for pileated woodpeckers by removing thousands of large grand fir from the planning area and through out the entire national forest when other sales with such plan amendments are considered. By ignoring this science the FEA fails to take a hard look at impacts to the pileated woodpecker in violation of NEPA and the APA. This same science, and the Forest Service’s efforts to hide it

from the public, were a partial basis for the court's finding of a NEPA violation in *Snow Basin*, 2014 WL 6977611, \*18 (referencing AR11988). LOWD/BMBP raised these issues in our comments on the PEA. *See* Paula Hood PEA Comments at 17, 22, 28–29; Karen Coulter PEA comments at 3–4, 11–12, 14–16, 19, 36, 38, 42–44, 46–48, 50–52.

## **2. The Forest Service Inadequately Considered the Cumulative Effects of the Proposed Action**

As described below, the Forest Service inadequately considered the cumulative effects of the Proposed Action. Because of this inadequate analysis, the Proposed Action and the resulting Decision Notice are arbitrary and capricious and violate NEPA.

First, the actual cumulative impacts analysis for effects on the condition of the watershed is missing from the Camp Lick FEA. A list of past, present, and future actions for watershed analysis included is not enough. The analysis of their combined effects needs to be in the FEA.

Second, the Forest Service failed to address the cumulative impacts on large trees between the Camp Lick timber sales and the nearby Big Mosquito project. Two timber sales do not have to have overlapping boundaries to have cumulative effects across the District and the Forest. Further, the Ragged Ruby sale may also include large tree logging as a foreseeable cumulative effect, but is not analyzed.

Continually the Camp Lick FEA claims in cumulative affects analysis for proposed action that all ongoing projects retain large trees, but this is certainly not true for Elk 16, Big Mosquito, Camp Lick, or other projects that have used, are using, or will use forest plan amendments to allow logging removal of existing large trees. *See e.g.*, FEA at 365–67. Large tree retention is not reducing short-term impacts to wildlife and allowing for restoration in all ongoing projects as claimed. As such, the Forest Service's analysis is inaccurate, misleading, and arbitrary and capricious.

Third, under the cumulative effects analysis for late and old structure (Camp Lick FEA at 391–94; Decision Notice at 62), the Forest Service did not analyze the effects of reducing large tree structure and large snag abundance and density across a large expanse of the Blue Mountain Ranger District surrounding the Camp Lick planning area through planned logging of other projects on the District (i.e., Magone, Ragged Ruby, etc.)? This is inadequate as the Forest Service is well into the planning process for these other projects, and they are reasonable foreseeable.

Fourth, the Forest Service failed to adequately analyze the cumulative loss of snags due to the ongoing or reasonably foreseeable future logging from the Camp Lick project and other nearby past, ongoing, and reasonable foreseeable future timber sales (e.g., Galena, Big Mosquito, Magone, and the Ragged Ruby projects). The Forest Service must adequately analyze the cumulative loss of future large tree structure, large snag abundance, and large snag density across this broad swath of the District.

Fifth, the cumulative effects analysis for watershed function automatically assumes (with no justifying analysis) that proposed logging and/or prescribed fire would necessarily reduce the chance of a stand-replacing wildfire. This is not necessarily the case. The science behind these issues is much more complex than that, as opening up the forest changes so much which could increase fire severity (e.g., wind speed and dryness, microclimate conditions, and highly flammable slash and small tree ingrowth) (Camp Lick FEA at 267).

Sixth, LOWD/BMBP is concerned about the large cumulative loss of forest thermal and hiding cover for Management Indicator Rocky Mountain elk and for mule deer and Columbia white-tailed deer due to the combined impacts of the Camp Lick, Magone, Ragged Ruby, Big Mosquito, and County Road 18 timber sales.

Seventh, the cumulative effects analysis is also inadequate for primary cavity excavators. The Camp Lick timber sale, in combination with other past, current, and reasonably foreseeable future timber sales, will cumulatively reduce existing and future snag habitat for primary cavity excavator woodpeckers over a large partially contiguous area over a long consecutive time period, yet these cumulative effects to woodpeckers were not adequately analyzed in the Camp Lick FEA. Further, the lack of significant negative cumulative effects seems to be based in part on adherence to the northern Rocky Mountains Bird Conservation Plan, including advised retention of large trees, yet large trees of an unquantified number are planned for logging removal under the Proposed Action.

Can cavity excavating species truly stay viable in their populations with continued high cumulative losses of snag habitat from logging, firewood cutting, hazard tree removal, etc., long enough to ever experience the theoretical promised long-term benefits to their habitat 50 years from now? (Camp Lick FEA at 193; Decision Notice at 39).

Because the Camp Lick Project intends to remove thousands of large fir trees in violation of existing forest plan restrictions on logging large trees (trees with a dbh of 21 inches or greater), the impacts of such logging on primary cavity excavators and the defective wood habitat that they require is a significant issue that requires an especially “hard look” from the Forest Service. Unfortunately the actual analysis in the FEA is incredibly confusing and inconsistent regarding the scope of its analysis, especially in terms of cumulative impacts. See FEA 228-268. This violates NEPA and the APA. See *Snow Basin*, 2014 WL 6977611, \* 9-10 (D.OR. 2014) (agency must provide support for its choice of analysis area). Although the FEA does sometimes provide a sentence offering support for using a particular analysis area, it never explains why the area varies when looking at specific species or the overall issue of impacts to dead and defective wood habitat. This is arbitrary and capricious in violation of NEPA and the APA. It also violates NEPA requirement for clear and understandable analysis. See *LOWD v. Connaughton*, 752 F.3d 755, 761 (9<sup>th</sup> Cir. 2014).

This section of the FEA starts by saying that the analysis area for snags must be larger than the project planning area and includes both the Camp Creek watershed and the Grub Creek/John Day River watershed. FEA at 228. However when examining impacts to “dead and defective wood habitats” the EA switches to a much smaller analysis area—the Camp Creek watershed. FEA at 234. However when actually discussing those impacts the analysis switches



back and forth between impacts “on a forest scale” or “across the Forest” and impacts “across the watershed. FEA at 235. Then when the FEA makes its “determination” regarding Dead and Defective Wood habitat, it limits itself to the “planning area.” FEA at 236. This inconsistency continues when the FEA addresses impacts to old growth habitat. Here the analysis area of such habitat is vaguely defined as the Camp Lick planning area and adjacent watersheds (which ones?). FEA at 254. But then the actual analysis appears to limit itself to actions within or immediately adjacent to the Camp Lick planning area boundary. FEA at 255. When the FEA moves on to an old growth defendant species, the pileated woodpecker, the analysis area is then restricted to the Camp Lick planning area. FEA at 258. Such inconsistency is per se arbitrary. LOWD/BMBP raised these issues in our comments on the PEA. *See* Paula Hood PEA Comments at 17, 22, 28–29; Karen Coulter PEA comments at 3–4, 11–12, 14–16, 19, 36, 38, 42–44, 46–48, 50–52.

Eighth, the Forest Service acknowledges that the ongoing County Road 18 timber sale, adjacent to and overlapping with the Camp Lick planning area, will result in stands “with little to no component of snags or downed wood due to high levels of mechanical treatments and repeated burning.” FEA at 255. This is the foreseeable consequence of many such fuel reduction timber sales across the Forest, yet that is not disclosed or analyzed in the Camp Lick FEA. As this is a likely result of the Camp Lick timber sale and other past, ongoing, and reasonably foreseeable future timber sales in the area, the Forest Service must consider the cumulative effects that such results will have on the environment. Yet the Forest Service did not do so.

Many of the impacts ascribed to stand replacement fire could actually occur from planning logging, roading, and riparian habitat conservation area logging, such as increased water temperature, greater sedimentation of streams, loss of bank stabilizing vegetation, etc.

#### **I. Violations of PACFISH/INFISH, Riparian Management Objectives (RMOs), and Forest Plan Standards—16 U.S.C. § 1604(i)**

LOWD/BMBP is extremely concerned about planned logging (both commercial and non-commercial) along streams that are currently not meeting Riparian Management Objectives for temperature, fine sediments, shade, pool depth, and other attributes. Commercial logging within RHCA buffers will not help attain compliance with these RMOs, and is a violation of PACFISH/INFISH. The Camp Lick FEA (pg. 165) states: “Potential commercial removal of large wood in the outer portion of the RHCA would be considered only after all RMOs and the desired condition are met in a reach and requires aquatics approval. Due to the requirement of meeting all RMOs prior to any potential commercial harvest in the outer portion of the RHCA, the effects of the treatment are not expected to be meaningfully measurable.” Unfortunately, this statement is false, and the USFS has clearly demonstrated that they instead are planning to commercially log in streams that are currently not meeting RMOs and have impaired water quality. In fact, most of the streams within the project that have commercial logging proposed in their RHCAs are not meeting *multiple* RMOs such as those for temperature, embeddedness, and shade. For example, RMOs are not being met for temperature nor embeddedness in the following streams that include proposed commercial logging in their outer RHCAs: Cougar, Coxie, West Fork Lick, Whiskey, Sulphur, Shoberg, Eagle, and East Fork Camp Creeks (FEA pgs. 133-135 and Watershed Report pgs. 42-43). Lick Creek is not meeting RMOs for temperature or for

percent shade. Trail Creek is not meeting temperature standards. These streams also include non-commercial thinning in inner RHCAs, which may also impair attainment of RMOs. It is not at all clear how the USFS intends to move forward with commercial logging in RHCAs, given that almost all streams within the project area are currently not meeting one or more RMOs. Temperature and sediment RMOs, as well as other RMOs such as percent shade, will likely not be attained for many years to come for the majority of streams. Attainment of RMOs will be further delayed if commercial logging occurs within RHCAs. It would seem to follow that no commercial logging would be allowed if RMOs must first be met, since most streams are not meeting multiple RMOs and are not likely to meet RMOs in the near future. The USFS states that the effects of commercial treatment will not have any measurable effects *because* all RMOs would be attained *before* commercial removal of wood. Since the FEA is in reality proposing commercial logging within RHCAs for streams that are *not* attaining RMOs for temperature, embeddedness, shade, and other attributes, it follows that a measurable and negative impact to those RMOs as a result of commercial logging is likely. For example, the USFS notes that “[a]n unknown amount of sediment would be mobilized into streams from the upper riparian treatments” and that “[e]cological riparian treatments are expected to have a short-term negative and meaningfully measureable effect on sediment and embeddedness due to temporary increases in sediment contributions from heavy equipment use in the RHCA.” Streams are still recovering from past logging, ongoing grazing, past mining, road-related impacts, and the negative effects of other management actions. Commercial logging within RHCAs will exacerbate these cumulative impacts, does not meet with the purpose and need of attaining RMOs, and will have negative impacts on temperature and sediment RMOs, as well as other RMOs. For example, logging and road-related activities in and adjacent to RHCAs may also retard the attainment of RMOs such as pool depth, pool frequency, bank stability, and wetted depth to width ration.

In response to our comments regarding RHCAs with proposed commercial logging in RHCAs that are not meeting RMOs, the Forest Service noted that “[s]hade is above RMO levels for most reaches, while wood, pools and width/depth are frequently below RMOs” (Public Comment Report pg. 19). This response disingenuously sidesteps and minimizes the issues surrounding non-attainment of RMOs for temperature and embeddedness. Excessively high stream temperatures are one of the most widespread water quality impairments across the Malheur, and one of the primary limiting factors for ESA-listed species such as Threatened MCR Steelhead. We also note that if streams are generally meeting RMOs for shade but also are suffering from widespread and pervasive excessively high stream temperatures, then shade is not an appropriate surrogate to use for stream temperature. The Camp Lick FEA (pg. 161) acknowledges that “ecological riparian treatments” may cause “short-term reduction in stream shading that may result in short-term effects to stream shading and water temperature that are negative and meaningfully measureable at the site scale, but not meaningfully measureable for temperature at the 6th field subwatershed scale”. The FEA also states that “...water temperatures in streams near these activities are expected to warm locally; however, the change may not be measurable at the 6th field subwatershed scale due to the patchy and limited spatial extent of the activities” (FEA pg. 121). However, Forest Plan direction is that there should be no measurable increases to water temperature. The FEA (pg. 137) states that the “Forest Plan standard for water temperature is for no measurable increase in maximum water temperature.” The USFS attempts to dismiss the issue of likely increases in stream temperature and violations of Forest Plan standards by asserting that resulting temperature increases aren’t expected to be “meaningful”

increase at the 6<sup>th</sup> field subwatershed scale. The USFS gives no clear rationale or justification to support their assertion that stream temperature increases would remain localized and would not be “meaningful” at the 6<sup>th</sup> field watershed scale, especially given the large acreage of logging proposed within RHCAs (the Camp Lick project encompasses 700 acres of commercial logging and 1,600 acres of non-commercial logging equaling 2,300 acres). In addition, localized impacts, even those that may be patchy and of limited spatial extent, can have long-term and severe negative effects on the viability of sensitive aquatic species such as salmon—particularly if populations are small or fragmented, or are struggling due to cumulative impacts. Localized negative effects such as stream temperature increases can also negatively affect attainment of RMOs and viability of species when management actions are conducted at a large scale (as is the case in the Camp Lick project area), and so “localized” effects may occur repeatedly over the landscape and result in widespread effects. The FEA also notes that “Amendment 29 states no instantaneous reading at any given time above 68 degrees Fahrenheit, and the PACFISH riparian management objective (RMO) is for maximum water temperatures below 64 degrees Fahrenheit within migration and rearing habitat and below 60 degrees Fahrenheit within spawning habitats” (FEA pg. 137). Several streams appear to be just below or at these standards (Trail, West Fork Lick, Shoberg, Cottonwood, and Camp Creeks), and so even localized impacts could cause streams to cross the threshold into violating these standards during migration, rearing, or spawning. In addition, some creeks in the Camp Lick project may have more shade removed than others and/or have other considerations that may warrant extra concern regarding removal of shade and possible heightened vulnerability to temperature increases in part of most of their reaches. Coxie Creek, for example, is already relatively or very open in most of its reach, has been heavily impacted by grazing and past logging, and is not meeting temperature RMOs. Additional proposed commercial and non-commercial logging in the Camp Lick project would remove additional and needed shade, and may make this creek especially vulnerable to large stream temperature increases.

The FEA also asserts that sediment issues would be addressed through the Camp Lick project due to instream large wood placement, and the subsequent trapping of fine sediments. While large wood (also known as large woody debris/“LWD”) is important and will provide many ecologically crucial functions, the problem remains that chronic and widespread fine sediments due to logging and road related activities planned in the Camp Lick project will retard and further delay attainment of RMOs for sediment. It is a step in the right direction to put LWD in streams, and localized trapping of fine sediments will improve instream habitats and functions. However, increasing the amount of fine sediments entering streams through logging and roading will exacerbate excessive fine sediment issues and retard attainment of RMOs in areas that are not meeting embeddedness RMOs. Even if sediments are locally trapped by LWD, excessive fine sediments and embeddedness across numerous localized areas will directly result in moving streams further away from RMOs. Negative impacts in localized areas, repeatedly and over large spatial and temporal scales, are serious threats to the viability of numerous aquatic species. The USFS should not continue to minimize impacts simply by stating that they are localized. Because this is a repeated pattern (both in many USFS analyses in general—such as the neighboring Big Mosquito project—and for sediment impacts in Camp Lick in particular), this is a classic death-by-a-thousand cuts scenario. It is a recipe for negative cumulative impacts that will severely degrade water quality.

Logging, especially commercial logging or logging of mature or commercial-sized trees, should not be conflated with or lumped in with less controversial restoration activities. We are generally supportive of most LWD placement, increased water and sediment storage related to LWD placement, mine tailing restoration, culvert repair and removal, increased floodplain connectivity and groundwater infiltration associated with these activities, and other truly restorative actions.

The silvicultural prescriptions for RHCAs as proposed in the Camp Lick project, such as those that propose to leave only 40 square feet of basal area, will cause a long-term loss of dead and downed wood and instream large wood. This may interfere with future attainment of RMOs for dead and down wood. Future snag recruitment will also be negatively affected, retarding attainment of Forest Plan standards for snags). Given the very low basal area that could be left across stream reaches, we are very concerned about the loss of dead/downed wood recruitment into the future.

Silvicultural prescription for inner and outer RHCAs outlined in the Aquatics Report includes heavy prescriptions such as floodplain openings, and leaving very open areas with low basal areas. The silvicultural prescription for the RHCAs goes far beyond the objective of placing LWD in the stream. By targeting firs for felling and removal with heavy silvicultural prescriptions, the project would also result in a shifting species composition away from late seral stages towards early seral within RHCAs—including within RHCAs/riparian areas that are moister and more productive, and have clearly supported denser stands with a higher proportion of fir species historically.

The survey information for RHCAs in the FEA includes 99% bank stability rating for the two surveyed reaches of Cougar Creek (FEA pgs. 133-135). We surveyed Cougar Creek up to from its confluence to the 3650-377 stream crossing, and documented extensive and egregious cattle damage, trampling, compaction, and erosion along the stream bank for the great majority of this portion of the stream (see BMBP survey sheets and pictures). We also documented extensive cattle damage and erosion on streambanks throughout other streams in the Camp Lick project area (including portions of Coxie Creek and Sulfur Creek). The USFS claims that all but four of streams surveyed are meeting RMOs for bank stability. We are concerned that the USFS has not accurately reflected the stream bank stability along Cougar and other creeks, and that this precludes accurate analysis of RMO attainment, stream condition, and cumulative impacts.

It appears that the USFS has failed to conduct monitoring of Riparian Management Objectives for stream undercut banks (lower bank angle) within the Camp Lick project area, in possible violation of Forest Plan Standards and PACFISH/INFISH. The FEA notes that the PACFISH RMO for lower bank angle (undercut banks) in non-forested system is >75% of banks with <90° angle (FEA pg. 136). The FEA also notes the importance of undercut banks as part of RMOs: “The primary constituent elements (PCEs) that are essential for the conservation of listed distinct population segments (DPSs) on the Malheur National Forest are those sites and habitat components that support one or more life stages, including...undercut banks supporting juvenile and adult mobility and survival” (FEA pg. 142). In response to BMBP’s request for undercut bank survey information in our comments on the Camp Lick PEA, the USFS responded that BMBP could ask for the information through a FOIA request of the project record, but noted that

“percent undercut bank is not a parameter that the crew measure. Bank stability is a measurement that they collect” (FEA Public Comment Report pg. 64). We infer from this response and from the absence of data for undercut banks within the NEPA analysis that the USFS does not have any data regarding undercut banks, and has not conducted surveys or monitoring for this RMO. The stream survey data disclosed in the Watershed Report does not include any undercut bank information, but does include data and information for other RMOs (Watershed Report pages 71-74). We are concerned about the lack of monitoring of undercut banks in relation to streams such as Coxie Creek, which runs through non-forested systems where undercut bank RMOs are applicable. Creeks that run through these non-forested systems such as portions of Coxie, Whiskey, Cottonwood, and Camp Creeks include proposed management activities in these non-forested systems such as “meadow restoration” and “aspen restoration” (i.e., proposed thinning of conifers and other activities) that may negatively impact undercut bank RMOs. There are approximately 115 acres of “meadow restoration” proposed as part of the Camp Lick project. It would seem that these areas are likely to contain streams in which the undercut bank RMO also applies, which also include proposed management activities. How might the undercut bank RMOs be negatively affected by management activities? If there is no monitoring data, how is the USFS planning to do adaptive management, or adequately plan for the recovery and viability of ESA-listed fish or other sensitive aquatic species that this standard was put in place to protect? Does cattle grazing overlap with areas where this RMO is applicable, and where management activities are proposed as part of the Camp Lick project? What are the potential cumulative impacts of the proposed management with livestock grazing and past logging on this RMO? The USFS cannot adequately analyze impacts related to land management or protect aquatic ESA species in relation to this RMO if the agency has little or no data for that RMO. While we have been in support of some of the meadow restoration activities the USFS has proposed (including some thinning of encroaching conifers in meadows in ecologically appropriate situations, and placement of wood in streams), we are very concerned that the USFS apparently has not monitored or analyzed this RMO. Monitoring of RMOs is mandated and is necessary in order to protect streams and aquatic species. Understanding baseline conditions and then monitoring changes in response to management are central to determining the eventual success or problems with the outcomes of management actions.

The USFS does not appear to have analyzed Forest Plan Direction for the “Special Interest—Magone Geological Area”, and how proposed management within that area may affect special interest resources or management direction. USFS project maps show that Coxie Creek overlaps in part with the “Special Interest-- Magone Geological Area” management designation under the current Malheur Forest Plan (Map 2, Camp Lick FEA Appendix B-Maps). Despite the management designation of a Special Interest geological area, there is no analysis of or any mention whatsoever regarding this management designation in the FEA nor any of the specialist reports. It would seem that the Special Interest Management Area designation would warrant analysis, especially given that the USFS proposes logging and other management actions within this area. In addition, unique geology may affect how riparian areas may be affected by land management actions, including possible responses of RMOs to land management—including RMOs for Coxie Creek such as undercut banks, temperature, and embeddedness. Proposed treatments that overlap with the Special Interest Management Area Designation include “meadow restoration”, “aspen restoration” (which includes thinning of conifers and other activities), commercial and non-commercial logging proposed within the RHCA for Coxie

Creek, and an upland commercial logging unit. This Special Interest area also has diverse plant designations in the relatively small area that includes cold dry upland, cool dry upland, cool moist upland, warm dry upland, and warm very moist upland just downstream of meadow area (see FEA Appendix B-Maps). Yet, silvicultural/management descriptions do not reflect these important geological and ecological nuances contained in this Special Interest Area that has ecologically diverse and variable habitats.

LOWD/BMBP is concerned that the “riparian headwaters restoration” treatments will exacerbate the current excessive fine sediment problems that exist in the creeks within the planning area. The USFS should include a much more detailed description within the NEPA documents of planned treatments and silvicultural prescriptions for these areas. There is a short description in the FEA (pg. 43) stating that all PP and larch over 15"dbh and all LP DF and GF over 21" would be left, but gave no other details. According to this description, this could be extremely heavy logging depending on the stand composition in these areas. In response to our comments, the USFS equated “headwater restoration treatments” with post-fire habitats and processes. Logging does not mimic fire, and many of the intricate and complex processes associated with fire will not take place as part of these treatments. The creation and eventual delivery of excessive fines into streams is likely to result from these treatments. While fine sediments are necessary components of stream habitats and processes and would likely have been delivered in pulses historically, many streams are already suffering from chronic and ongoing fine sediment inputs. The excessive fines that are violating standards and are a widespread part of current stream conditions are largely the result of road-related issues, grazing, and past logging; streams and the aquatic organisms they support are not adapted to these chronic and widespread fine sediment inputs. Because many streams in the project area are already in violation of RMOs for embeddedness, it is unlikely that introducing additional pulses of sediment will have positive outcomes for stream RMOs or ecological integrity.

Logging in riparian habitat conservation areas (RHCAs) will retard attainment of RMOs and violate state Forest Plan standards in violation of 16 U.S.C. § 1604(i). Proposed silvicultural activities as described in the FEA are likely to cause unintended negative impacts to water quality such as stream temperature increases, changes to stream temperature patterns, increased fine sediment inputs, stream bank instability, altered hydrology, and degradation of wildlife corridors. Logging will cause forests to move away from the historical range of variability (HRV); negatively impact recruitment for snags, large woody debris (LWD), and downed wood in the mid to long-term; alter microclimates, and possibly increase fire risk from opening up stands and drying them out; and increase livestock browsing in riparian areas because of the easier access to forage after logging. Upland forests within the Camp Lick project contain extensive Ponderosa pine plantations that are mostly even-aged, young, and homogenous stands that do not provide quality wildlife habitat. The RHCAs within the project area have had comparably more protection in recent decades, and so are some of the only areas left in the area that provide high-quality wildlife habitats and connectivity. RHCA buffers designated in PACFISH/INFISH also provide important protection for water quality, as intended through the creation and implementation of RMOs. Commercial logging within these buffers will violate PACFISH/INFISH and Forest Plan Direction as well as cause state water quality standard violations.

The Camp Lick FEA does not adhere to Forest Plan standards and direction regarding connectivity and management of Old Growth Areas, including in areas that overlap with or are adjacent to RHCAs. The USFS notes that “Eastside screens requires that a contiguous network pattern with two or more connection points be maintained between all LOS forest stands greater than or equal to 10 acres, and all old growth habitats both within and extending into adjacent watersheds. This is the minimum starting point for designating connectivity corridors. However, in working with the existing old structure stands in the Camp Lick planning area there are some areas where past activities have removed late and old structure to an extent that making the requisite two-way connections is not possible” (FEA pg. 50). Given that past logging has removed so much old growth structure that designating connectivity corridors is not possible in some areas and challenging in many others, it is therefore all the more important to preserve old growth/LOS/designated old growth structure where it exists on the landscape, especially within existing connectivity corridors and in RHCAs. Unfortunately, the USFS proposes logging within connectivity corridors and old growth areas in numerous areas across the project. Numerous designated connectivity corridors and Replacement Old Growth area contain large blocks of commercial logging as well as some RHCA commercial logging and non-commercial treatments. For example, three out of four blocks of “Existing Dedicated Old Growth Areas (MA 13)” in the Camp Lick maps show substantial overlap with upland and RHCA commercial logging. Overlaying these maps onto GoogleEarth, it appears that large portions of the MA 13 blocks that include proposed commercial logging also contain large portions of forests with LOS/mature structure. These areas are providing important wildlife habitat including connectivity (Map #7, FEA Appendix B-maps). Several “reduce late seral” logging units overlap with Existing Dedicated Old Growth and/or connectivity corridors, and also appear to include LOS structure. Plans to log within old growth areas and within connectivity is common throughout the Camp Lick FEA; these proposals are not in line with the “Eastside Screens intent is to maintain or enhance current levels of connectivity between LOS stands and between all Forest Plan designated Old Growth habitats.

Silvicultural prescriptions for RHCAs include shifting conifer species compositions away from LOS conditions in moist riparian areas that currently include abundant old growth firs and Engelmann spruce, and areas that were clearly historically dominated by abundant firs. Shifting the tree species composition away from late seral conditions in forests that are naturally and historically fir dominant (and likely had much longer intervals between fires and acted as fire refugia) will go against Forest Plan directions for moving stands *towards* LOS, maintaining connectivity, and protecting the viability of native and MIS species.

Logging within RHCAs may negatively affect the viability of native species in violation of 16 U.S.C. § 1604(g)(3). We are concerned about potential impacts the proposed actions would have on suitable habitat and viability of numerous that depend on RHCAs, denser forests, mixed-conifer forests, and mature/old growth forests, or that may be especially vulnerable to negative impacts from thinning including Pacific fisher; American marten; Pileated, American three-toed, and Black-backed woodpeckers); PCEs; Northern goshawk; Neotropical songbirds such as Olive-sided flycatchers; and others. Species such as marten, three-toed woodpeckers, and Olive-sided flycatchers are facing threats such as low viability scores, very little available suitable habitat, and declining numbers. Logging within the Camp Lick project and other nearby projects are likely to pose serious threats to the continued viability of these species. The silvicultural

prescriptions described within the FEA are not limited to activity needed for or directly associated with LWD placement (FEA pgs. 38-41). We are very concerned about how this may affect species that rely on naturally dense, fir-dominant forests in RHCAs such as those in, for example, Trail Creek. This creek has commercial and/or non-commercial logging proposed for large portions of its reach. Nearly the entirety of the reach proposed for RHCA logging along Trail Creek includes steep slopes on either side of the creek, and is constrained by a narrow valley. The majority of this moist, shaded, and steep RHCA shows clear evidence of historic dominance of firs (large old growth fir and Engelmann spruce trees, very large fir stumps, east/west facing creek sides with a generally north-facing drainage, etc.). Leaving, for example, between 30-40% of late seral trees within this moist mixed-conifer RHCAs would move the forest outside of its historic norms for vegetation, negatively impact wildlife habitat and downed wood, and negatively impact temperature and sediment RMOs. We have similar concerns for numerous other creeks within the Camp Lick project.

The Camp Lick FEA failed to adequately analyze and avoid direct, indirect, and cumulative negative impacts to sensitive and at-risk aquatic and RHCA associated species, stream habitats, and water quality in violation of 40 C.F.R. §§ 1508.8 and 1508.25. The Camp Lick Project also did not adequately analyze or avoid likely possible negative impacts to forest connectivity corridors (both aquatic or terrestrial); snags and other dead wood habitats; and future large tree and dead wood recruitment within RHCAs. In addition, logging in nearby sale units (including the removal of large trees ( $\geq 21''$  dbh)) will result in loss of forest density and degradation of wildlife habitats and corridors in upland sale units on a widespread basis across the landscape. In combination with similar wildlife habitat degradation in RHCAs (i.e., loss of forest density and future large tree and dead wood recruitment), this will create cumulative negative impacts to wildlife corridors in both the uplands and RHCAs. Consequently, numerous species such as PCEs, Northern goshawk, American marten, Pileated woodpeckers, Three-toed woodpeckers, Black-backed woodpeckers, and others will be subject to amplified negative impacts that may result in downward population trends and a loss of viability. Further exacerbating wildlife habitat issues are the expansive acreages of Ponderosa pine plantations throughout the project area. These plantations are homogenous, even aged, and do not provide suitable habitat for most species. RHCA corridors are disproportionately important for wildlife habitat and corridors; the lack of high-quality wildlife habitat in surrounding plantations and logged areas creates a situation in which RHCA corridors have even greater importance to many wildlife species.

During our field surveys, LOWD/BMBP documented many areas in which stream shade is being provided by conifers. Most constrained and narrow valleys contain mature fir forests and have ample evidence of being historically dominated or co-dominated by fir. In numerous situations, the roads running parallel to creeks create artificially constrained or shaded valleys. In steep areas within RHCAs, conifers provide important stability for banks and slopes. Logging within these areas will increase stream temperatures and cause erosion, bank instability, and chronic fine sediment inputs. The USFS is proposing to log in areas where we have documented these specific issues. This includes areas we field surveyed including but not limited to: Trail Creek, Lick Creek, and Coxie Creek. The USFS assertion that logging will help shade by invigorating hardwoods and speeding growth of remaining conifers, while it may be appropriate in certain situations, is wholly inappropriate for certain on-the-ground situations in the Camp



Lick project area, such as those described above.

Historical documents provide strong evidence that species composition and density of forests in this area do not necessarily align with current agency assumptions regarding these issues. Historic documents suggest that fir (including Grand fir) and dense forests were more well represented and common on the landscape than what is described by many USFS logging projects, including the Camp Lick project. Numerous historic publications on by the USFS and hosted on USFS websites describe fir-dominated forests within the Middle Fork of the John Day River. Please see our comments on the Camp Lick PEA as well as the addendum to our objection for a more in-depth discussion. The following example refers to Grand fir as “white fir”. Merritt, M. 1910 *Head Watershed, Middle Fork John Day River, Whitman National Forest, Oregon, 1910: “North Slope Type. The north slope type is so-called since it grows mainly upon north hillslopes where it is protected from the hot drying sun so that a sufficient amount of soil moisture is retained to permit the growth of other species than yellow pine, usually to the exclusion of that tree. This type of forest also occurs upon moist stream bottoms and benches generally. Larch, Douglas fir, lodgepole pine, and White fir are the usual species comprising this type. These are desirable in the order named. Larch is present in the greatest quantity as regards merchantable board feet, while numerically and as regards the actual percent of the area occupied lodgepole pine and White fir are by far the most common.”*

The Camp Lick proposes commercial and non-commercial logging as well as burning within RHCAs. These actions are likely to negatively impact snags and future snag recruitment, and move forest within these RHCAs away from meeting snag standards under the Forest Plan. Burning may have negative impacts to wildlife and habitats from the proposed prescribed burning. Species such as marten, pileated woodpeckers, and other that rely on density, fir forests, and/or wildlife corridors in riparian habitat conservation areas (RHCAs) may be negatively affected (Pilliod et al. 2006). Wildlife habitats such as snags, downed wood, mistletoe (certain butterflies), or other wildlife features that may be decreased on the landscape by thinning and prescribed burning were not adequately considered, and potential negative affects to these species were not adequately disclosed or analyzed. We are concerned about possible losses of snags and dead wood in direct response to the project and also from decreased future recruitment.

LOWD/BMBP is concerned about possible effects associated with water withdrawals on Forest Plan standards, RMOs, CWA, and the ESA. “The maximum withdrawal from one site in an 8-hour period would be 18,000 gallons of water. The FEA has not adequately disclosed the possible effects of water withdrawls on sediment, pools, bank stability, and fish/aquatic species.

LOWD/BMBP is also concerned about toxic fuels being used as close as 25 feet from creeks in relation to prescribed fire, as this does not seem adequate to protect sensitive aquatic resources from toxic fuels (including groundwater, sensitive plants and animals, small wetlands and seeps, etc.)

### **Grazing: Forest Plan and CWA issues**

LOWD/BMBP documented widespread, extensive, and chronic cattle damage along

numerous creeks within the project area (stream bank and instream trampling and instability; severe compaction to soils in RHCAs and resulting erosion; overgrazing of numerous areas; etc.). We are very concerned that cattle will exacerbate the negative impacts associated with logging and thinning in this project, and further retard attainment of RMOs. Many areas within the project area appear to be in violation of Forest Plan standards for bank stability and stubble height (such as parts of Cougar, Sulphur, Coxie, and Trail Creeks)

Proposed riparian treatments will not be successful in restoring ecological health of riparian areas if cattle are not excluded. Cattle will continue to retard attainment of temperature and embeddedness RMOs. Cattle continue to negatively affect the water table levels available to aspen due to livestock. Aspen sprout grazing and aspen hedging by cattle are significant root causes of aspen decline, yet only conifer encroachment, a largely secondary cause, is mentioned. Felled conifers will not be adequate for keeping out cattle in most areas, unless a truly alarming number of trees are cut down over many miles of creeks for cattle exclusion purposes. Where cattle are degrading streams with Threatened steelhead, truly effective and consistent enclosures are needed such as fences or retiring pastures. Timber harvest, grazing, and the synergistic impacts of the two activities combined have significant negative impacts on aquatic habitats. From NOAA 5-Year Review of Snake River Salmonids: “Information from the [PACFISH Biological Opinion Monitoring Program] PIBO monitoring program indicates that unmanaged or reference reaches (streams in watersheds with little or no impact from road building grazing, timber harvest, and mining) on Federal lands in the Interior Columbia basin (including the Snake River basin) are in better condition than managed streams (Al-Chockhachy et al. 2010b). In particular, managed watersheds with high road densities or livestock grazing tend to have stream reaches with worse habitat conditions than streams in reference watersheds. When roads and grazing both occur in the same watershed, the presence of grazing has an additional significant negative affect on the relationship between road density and the condition of stream habitat (Al-Chockhachy et al 2010b).

### **Clean Water Act (CWA) Violations**

Many of the water quality issues discussed as potential violations of PACFISH/INFISH, RMOs, and Forest Plan standards may also violate CWA water quality standards, such as those for temperature and sediment in violation of 40 C.F.R. §§ 1508.27(b)(10) and 1502.2(d).

The USFS is not conducting adequate stream temperature monitoring. The USFS acknowledged in response to our PEA comments, that “[t]here is a seasonal lower, colder temperature standard under state Oregon Department of Environmental Quality (ODEQ) rules during spawning....ODEQ does have two water seasons for creeks where spawning occurs. A steelhead spawning standard applies from January 1 to June 15th and a steelhead rearing standard.” The agency goes on to state that “[d]ue to snow runoff and higher water volumes, water temperatures are not limiting during spawning as they are during rearing” (Public Comment Report pg. 64). The USFS has made an unsubstantiated assumption that stream temperatures will meet water quality standards simply because these standards are outside of the hottest summer months. As far as we are aware, the USFS rarely collects monitoring data as it should outside of mid to late summer/early fall, and so there is little evidence to support this claim. Spawning standards were designed to protect fish from temperature increases during

crucial reproductive period that have very cold water requirements. In at least one situation in the Mt. Hood NF in the Fish Creek watershed where temperature data has been collected by the USFS during late winter, early spring, or fall, the agency's monitoring data showed that temperatures were not meeting water quality standards during these times, particularly in tributaries with extensive past logging. Similarly to Camp Lick, Fish Creek also has high water volumes and snow runoff, and yet parts of the subwatershed are not meeting the more stringent temperature standards for spawning because of past logging. This example illustrates that the USFS assumptions about temperature may be faulty. The USFS is required to adhere to all water quality temperature standards, and should not assume they are being met without the requisite monitoring data. In addition, studies such as *Stream Temperature Variability: Why It Matters To Salmon* (Steele and Beckman, 2014) provide very strong evidence that salmonids may be more sensitive to fluctuations in diurnal water temperature than previously understood. Land management activities are likely to affect water temperature fluctuations and other subtle shifts in water quality and hydrology that have not been well studied, yet may be a crucial factor in the viability of sensitive aquatic species.

It appears to be repeated pattern across several National Forests in Oregon, including the Malheur NF, that the USFS is not submitting water quality data to ODEQ. For example, USFS monitoring data shows that most of the fish-bearing Class 1 perennial streams in Camp Lick are not meeting water quality standards as reported in the FEA and the Watershed Report, yet those data are not reflected in the ODEQ 303d database. This includes Cougar Creek, Coxie Creek, Eagle Creek, Trail Creek, and the West Fork of Lick Creek—all of which contain Designated Critical Habitat for Mid-Columbia River Steelhead. Other creeks which also support steelhead and are not meeting state water quality standards for temperature and/or sediment are also not included in the ODEQ 303d database (examples include Shoberg and Sulphur Creeks). Excessively high stream temperatures in some of these creeks are limiting to Steelhead. For example, the Aquatics Report (pgs. 22-23) notes that “[m]ean maximum water temperatures are above the suitable range for salmonid species present during summer months in the planning area in all of the stream reaches that we have data for (Table 3) except for Camp Creek reach 10, Camp Creek reach 11, Cougar Creek reach 2, Lick Creek reach 1, Trail Creek reach 1, and West Fork Lick Creek reach 1”. Examples of water temperature violations include 7- day mean maximum temperatures (in Fahrenheit) in Cougar Creek of 74.55 degrees; Eagle Creek 68 and 71 degrees; Shoberg Creek 68 and 70.14 degrees; Coxie Creek 66.8 degrees; and Whiskey Creek 71.6 degrees. Such stream temperatures jeopardize the recovery and continued viability of ESA-listed MCR steelhead; these stream temperature violations should be reflected in the DEQ database and should be have TMDLs.

Studies have found selective logging may be associated with increases of instream fine sediments (Kreutzweiser et al. 2005; Kreutzweiser and Campell 2001; Miserendino and Masi 2010), changes in macroinvertebrate community structure or metrics (Flaspohler et al. 2002, Kreutzweiser et al. 2005), alterations in nutrient cycling and leaf litter decomposition rates (Lecerf and Richardson 2010), and increases in stream temperatures (Guenther et al. 2012). Flaspohler et al. (2002) noted that changes to biota associated with selective logging were found decades after logging. While these studies did not take place in eastern Oregon, they strongly suggest that alterations caused by logging within riparian buffer zones cause significant changes in water quality parameters and stream biota in many areas; these results are likely tied to

dynamics that may be common to many forested streams to varying degrees.

### **Violations of the Endangered Species Act (ESA)**

The Decision Notice states that consultation with USFWS and NFMS has not yet been completed for the Camp Lick project (Decision Notice at 49), but that no project activities will be initiated until the consultation has been completed. LOWD/BMBP is very concerned that consultation has not been completed by the time the Decision Notice was issued. How is the USFS able to determine which actions or alternatives should be proposed as part of the decision if consultation has not been completed to inform their actions/decision? The public does not have access to the crucial information provided as part of consultation and cannot review this information as part of the NEPA public comment process if consultation is not completed until after the Decision Notice is issued. If consultation outcomes include changes or modifications to USFS proposed actions in the Camp Lick project, the public will not have an opportunity to comment on the revised actions.

The Camp Lick (pg. 31) states: “[t]he National Marine Fisheries Service determined in 2015 that the John Day Basin is no longer identified as Essential Fish Habitat for Chinook salmon. Therefore, the Malheur National Forest is no longer regulated by the Magnuson Stevens Fishery Conservation and Management Act of 1976, as amended by the Sustainable Fisheries Action of 1996 (Public Law 104-267), so the Camp Lick FEA no longer discusses compliance with the act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267).” The John Day is one of the most celebrated and important salmon and trout habitats in Oregon and the Pacific Northwest. It seems arbitrary and not in keeping with the spirit or intent of salmon protection that the Malheur National Forest is no longer regulated by this act. Are MCR Steelhead also regulated under this act, and so would receive protections and require compliance with the act? Since Chinook salmon are present in the John Day River Basin, why are they no longer protected under the act?

The USFS did not adequately analyze or avoid potential negative impacts to ESA-listed, special status, or at-risk aquatic and riparian species. This includes Threatened MCR Steelhead, Redband trout, Columbia spotted frogs, Pacific lamprey, and Western ridged mussels. The FEA did not provide sufficient evidence, clear and logical rationale, or quantification upon which to base an overall determination the project would not cause long-term negative impacts, a loss of viability, or a downward population trend for ESA-listed species such as Mid-Columbia River (MCR) Steelhead, Sensitive Redband trout, or other special-status species. Determinations for MCR Steelhead and their Designated Critical Habitat include “may affect, likely to adversely affect (LAA) in the short term”. Determinations for Redband Trout include “may impact individuals or habitat, but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species (MIIH) in the short term”. Regarding the MCR steelhead determination, the FEA asserts that: “[b]ecause this alternative impacts less than 8.4 percent of suitable MCR steelhead habitat across the Forest, the overall direct, indirect, and cumulative effects (discussed below) would result in a small negative trend of habitat in the short term. The negative effect on habitat would be insignificant at the scale of the Forest. This alternative is consistent with the Forest Plan, and thus continued viability of MCR steelhead is expected on the Malheur National Forest.” However, there is no biological basis or evidence to

support these assertions. Is there a threshold for which a percent of the affected habitat is determined to become significant, or below which actions are automatically insignificant? The USFS determination that negatively affecting 8.4% of suitable MCR steelhead habitat is insignificant simply because it is 8.4% of the suitable habitat on the Forest is arbitrary and a dangerous assumption for a Threatened species with small, struggling, and fragmented populations. Negative effects across 8.4% of suitable habitat may, for this Threatened species at this location, constitute a large enough percent of suitable habitat that actions may jeopardize long-term viability. Even localized downward trends can, if they are experienced in numerous localized areas, cumulatively add up to an overall loss of viability in the long-term across the Camp Lick project area. Given the widespread pace and scale of logging across the Malheur NF, including numerous projects with logging within RHCA's. The arbitrary determination that affecting 8.4% of suitable habitat will not constitute significant impacts because it is ostensibly a small and insignificant portion of the habitat across the forest does not take into account other nearby or adjacent projects. For example, the Big Mosquito FEA (pg. 136) also asserts that because the project will impact 10.2 percent of suitable habitat for MCR steelhead, these impacts will be insignificant at the Forest scale. The Big Mosquito project is adjacent to the Camp Lick project. The Big Mosquito FEA (pg. 136) notes the same determinations for MCR steelhead in that project: "ESA Threatened species determination: may affect, likely to adversely affect (LAA) in the short term"; "Sensitive species determination: may impact individuals or habitat, but will not cause a loss of viability to the population or species (MIIH) in the short term". Taken together, these projects would impact 18.6 percent (almost 20%) of MCR steelhead suitable habitat across the Forest. Cumulative impacts should have been analyzed for these species within an EIS. The Magone and Ragged Ruby projects (also nearby or adjacent to Camp Lick) would also affect Steelhead habitat. The Magone project would affect an additional "4.6% of suitable habitat across the forest" (FEIS pg. 124). Examined in combination, the Magone, Camp Lick and Big Mosquito projects **percent of suitable habitat across the Forest that will be affected is 23.2 percent**. Magone also has the same ESA Determinations for MCR steelhead regarding their Threatened and Sensitive statuses and their Designated Critical Habitat as does Camp Lick: May Affect, Likely to Adversely Affect (LAA), May Impact Individuals or Habitat, but will not cause a loss of viability to the population or species (MIIH) in the short term, and May Affect, Likely to Adversely Affect (LAA) in the short term, respectively. The Magone FEIS's determination of insignificance, like other neighboring projects, also rests on the unsubstantiated idea that the percent of suitable habitat affected in within (only) the project area is small and would therefore be insignificant: "The effect on habitat would be insignificant at the scale of the Forest. As such, implementation of the Magone Project proposed actions may impact individuals or habitat, but would not likely contribute toward federal listing or cause a loss of viability to the population or species at the Forest-scale". The Ragged Ruby Project, which is still in scoping, would also affect MCR Steelhead and their Designated Critical Habitat. Information about what percent of suitable habitat would be affected at the Forest scale is not yet available. However, RHCA treatments are proposed along many miles of streams and are widespread in the project area. We note these same concerns and issues apply to Redband trout within these areas. The USFS repeatedly dismissed negative impacts to Redband trout as non-significant based on the ostensibly small percentage of suitable habitat affected in each individual project, yet failed to include any sort of evidence to support arbitrary determinations that certain percentages qualify as too small to have significant impacts. The USFS also failed to include adjacent and nearby projects in their analyses of percentages of suitable habitat and their

subsequent conclusions. Examined in combination, the Big Mosquito, Magone, and Camp Lick Projects would affect approximately 40.2 percent of suitable Redband trout habitat across the Forest (Magone FEA pg. 124; Big Mosquito FEA pg. 137; Camp Lick FEA pg. 142). We also have similar concerns about other species such as Columbia spotted frogs, Pacific lamprey, and Western Ridged Mussels. The Camp Lick FEA failed to consider this information. We are concerned that the USFS did not adequately analyze cumulative impacts to aquatic resources; direct, indirect, and cumulative impacts should have been analyzed in an EIS. In addition to unsubstantiated conclusions that base insignificance on arbitrary and undefined percentage requirements, the USFS also states that continued viability of MCR Steelhead and Redband trout are expected because the project alternative is consistent with the Forest Plan. The Big Mosquito FEA, Magone FEIS, and Camp Lick FEAs all assert that: “[t]his alternative is consistent with the Malheur Forest Plan, and thus continued viability of steelhead is expected on the Malheur National Forest”. We note that the Camp Lick project is not consistent with the Malheur Forest Plan, and that the project will exacerbate the current and widespread violations of Forest Plan standards in streams within the project area, including in streams supporting MCR steelhead, Redband trout, and other sensitive and special-status aquatic species. For example, RMOs for stream temperature and embeddedness are not being met in most streams with proposed commercial logging in their outer RHCAs. Road density throughout the area far exceeds Forest Plan standards, and has ongoing negative impacts on ESA-listed aquatic species.

The FEA relied heavily on the scale of analysis for determinations that the Camp Lick project would not cause long-term significant harm to ESA-listed aquatic species. Multiple scales should be included, and subwatershed and watershed scale analyses are relevant and necessary in order to ensure species viability and protect against localized extirpations. For example, effects of logging (including thinning) can be hard to detect despite being persistent, long-lasting, and negative. For example, the Draft Forest Plan Revision for the Blue Mountains (vol. 2 pg. 48): “Timber harvest can influence aquatic ecological condition via such activities as removal of trees in the riparian zone, removal of upslope trees, and associated understory or slash burning (Hicks et al. 1991). These activities can affect wood recruitment, stream temperatures, erosion potential, stream flow regime, and nutrient runoff, among others (Hicks et al. 1991). Effects of harvest are likely to be different at different scales. Hemstad and Newman (2006) found few effects of harvest at the site or reach scale, but found that harvest five to eight years earlier resulted in losses of habitat quality and species diversity at the scale of a stream segment (larger than a reach) or at the subwatershed level. Those losses were revealed in terms of increases in bank instability and fine sediment throughout the watershed and increased water temperatures and sediment problems throughout the channel segment. The cumulative effects of widespread harvest within a single drainage in a short period of time resulted in deterioration of the aquatic and riparian habitats, but evidence of effects lagged harvest by several years and different evidences of deterioration showed up at different spatial scales within the watershed”.

Most streams within the project area are currently in a degraded condition, and do not meet water quality standards under the Clean Water Act or Forest Plan RMOs. High stream temperatures, excessive fine sediments, and lack of adequate pool and spawning habitats are the primary water quality problems limiting sensitive fish and aquatic species. These water quality issues are likely limiting ESA-listed species recovery, distribution, and continued viability. The logging, thinning, and road-related activities proposed within the RHCAs in the Camp Lick project are likely to increase stream temperature and fine sediments. The FEA acknowledges that

some of the project activities will cause an increase stream temperature and fine sediments. However, the FEA fails to disclose or adequately analyze the full range of science and also downplays the large body of research suggesting that there is a high likelihood for far more widespread unintended and negative impacts than what the USFS has included in their analyses. The Camp Lick FEA exaggerates possible negative impacts to aquatic resources associated with wildfire, and downplays the numerous ecological benefits as a result of mixed-severity wildfires (including high severity fire). Please see our in-depth discussions within our comments on the Camp Lick PEA and in the addendum of our objection for more detail. Proposed logging and associated activities (such as road-related activities) within the Camp Lick FEA will further compromise the recovery of already struggling ESA-listed species may jeopardize their viability, which, given low and erratic population numbers, and cumulative impacts (including from climate change) could lead to local extirpations.

The Draft Forest Plan Revision for the Blue Mountains noted that accelerated schedules for active restoration can be particularly damaging, and reflect the cumulative negative effects of vegetative manipulation as “restoration”. Rieman et al. (2001), in analyzing aggressive restoration alternatives for the Interior Columbia Basin Ecosystem Management Project, determined that the “habitat benefits provided during the first 10 years of implementation for restoration of forest vegetation under that alternative were lower than the benefits achieved through less aggressive restoration schedules. They noted that vulnerable aquatic species could be impacted in the short term in ways from which they could not easily recover, even if long-term benefits eventually became evident in later years” (Draft Forest Plan Revision for the Blue Mountains vol. 2 pg. 52). The Draft Forest Plan Revision also noted that “[r]esearch has shown that effective vegetated filter strips need to be at least 200 to 300 feet wide to effectively capture sediment mobilized by overland flow from outside the riparian management areas”. Redband trout, MCR steelhead, and other listed and sensitive aquatic species will be negatively affected when excess fine sediments enter creeks—especially in creeks which are already not meeting embeddedness RMOs (many if not most of the creeks with proposed commercial logging in RHCAs are not meeting temperature or embeddedness RMOs or ODEQ standards). Commercial logging within the outer RHCA buffer and thinning within inner RHCA buffers (these activities are proposed to take place well within 200-300 feet from streams) are likely to cause excess fine sediments to enter streams and negatively impact ESA-listed fish and sensitive aquatic species. Logging and thinning activities within the RHCAs are also likely to cause increases in stream temperature, diurnal temperature fluctuations, altered hydrology, and other increased variability and degradation in waters quality and aquatic habitat parameters, further negatively impacted already struggling Threatened MCR Steelhead and Redband trout.

The analysis within the FEA does not reflect the full range of RHCA-related silvicultural actions; and so does not adequately consider the full range of effects of project implementation on water quality or on sensitive species. We are particularly concerned about this issue as it relates to ESA-listed species, such as MCR steelhead. The proposed actions (such as silvicultural prescriptions) within the RHCAs as described by the Camp Lick FEA are overly generalized and therefore preclude an adequate analysis of effects, and do not provide a clear or transparent proposal for public review. Silvicultural prescriptions are not adequately site-specific, and do not include a range of subsequent possible effects that reflects the wide range of possible logging intensity. The wide range of logging intensity as described within the silvicultural prescriptions

should instead be analyzed as separate alternatives within an FEIS, as the outcome of these ranges are likely to produce very different levels of significance and outcomes on the forests within RHCA corridors. The FEA did not provide adequate site-specific detail about silvicultural prescriptions in RHCAs such as steeper areas, the wettest/moistest sites, reaches with abundant very large and old growth fir-dominant forests, and other similar ecological distinctions. Ecologically distinct portions of the RHCAs have very different considerations than are provided for by the proposed silvicultural prescriptions. Given these issues, the analysis provided by the USFS fails to assess the impacts of this project to ESA-listed aquatic species and sensitive or special-status terrestrial species. A detailed description is given of the USFS's proposed silvicultural prescriptions for RHCAs below. The scenario detailing the most intense logging cannot possibly be in line with what the USFS has determined to have no significant long-term effects. The worse-case scenario of most intense logging would, for example, create one-acre openings in the inner RHCAs of warm dry forests that total up to 30% of the inner RHCA with no basal area left in those openings. That equates to clearcutting 1/3 of the RHCA areas proposed for treatments in those reaches. Such heavy logging will almost certainly have severe impacts on sediment and on ESA-listed fish; it does not appear that the USFS provided an effects analysis that corresponds with this degree of logging.

***According to the description of activities outlined in the FEA, silvicultural prescriptions within RHCAs that detail the heaviest logging allowable would produce the following outcomes:***

### **Warm dry plant associations**

#### Outer RHCAs:

- Outer portions could be as low as 40 square feet per acre basal area
- As little as 5% of the outer RHCA may be left untreated for wildlife patches
- Openings of up to one-half acre in size would be created in units with commercial logging

#### Inner RHCAs

- Would leave ~80 square feet per acre
- Openings up to 1 acre in size, consisting of up to 30 percent of the inner RHCA
- Leave trees for both outer and inner portions of the RHCA, in order of preference, would include western white pine, Engelmann spruce, western larch, ponderosa pine, Douglasfir, lodgepole pine, grand fir.

### **Cool moist forests**

- Leave patches within cool moist forests could consist of as little as 45% of the RHCA
- Openings would consist of up to 20% of the RHCA, and leave as little as 0 square feet per acre of basal area. If any trees are left within openings, they will be early seral species
- Openings would be up to ½ acre in size in units with commercial byproduct removal.
- The variable density component would consist of up to 45 percent of the RHCAs; thinning would occur throughout the diameter range to 80 to 180 square feet per acre basal area
- 30% of trees left in these fir-dominated reaches after logging could be late seral species such as Engelmann spruce, Pacific yew, grand fir, and Douglas-fir. The remaining leave trees would be early seral species that include ponderosa pine, western larch, western white pine, and lodgepole pine.



*According to the most modest silvicultural activities detailing the least amount of logging, the description of activities outlined in the FEA would produce the following outcomes:*

### **Warm dry plant associations**

#### Outer RHCAs:

- Outer portions could be as high as 80 square feet per acre basal area.
- As much as 25% of the outer RHCA may be left untreated for wildlife patches
- Openings of up to one-half acre in size would be created in units with commercial logging

#### Inner RHCAs

- Thinning would result in ~80 square feet per acre basal area
- Openings as small as 1/4 acre in size, consisting of as little as 20 percent of the inner RHCA
- Leave trees for both outer and inner portions of the RHCA, in order of preference, would include western white pine, Engelmann spruce, western larch, ponderosa pine, Douglasfir, lodgepole pine, grand fir

### **Cool moist forests**

- Leave patches within cool moist forests could consist of up to 65% of the RHCA
- Openings would consist of at least 10% of the RHCA, and leave up to 40 square feet per acre of basal area of early seral species within openings
- Openings would be up to ½ acre in size in units with commercial byproduct removal.
- The variable density component would consist of as little as 15 percent of the RHCAs; thinning would occur throughout the diameter range to 80 to 180 square feet per acre basal area
- Up to 40% of trees left in these fir-dominated treatment areas after logging would be late seral species such as Engelmann spruce, Pacific yew, grand fir, and Douglas-fir. The remaining leave trees would be early seral species that include ponderosa pine, western larch, western white pine, and lodgepole pine.

In the silvicultural prescriptions for cool moist forests, it is not clear how prescriptions for the inner and outer RHCs may differ in certain actions such as: percent of openings comprising the RHCA, size of openings, variable density, and percent of late seral species will be left. We request that the USFS please provide this information.

To paraphrase the outcome for the silvicultural prescription in cool moist forests that details the heaviest possible logging: Only 45% of RHCA treatment areas would be left untreated; 20% of the inner RHCA could contain mini-clearcuts with no trees left. These “openings” could be up to ½ acre in size in the outer RHCAs. Late seral tree species would comprise only 1/3 of the species present. Possible impacts corresponding to the most heavy logging scenario are not considered in the FEA. Distinct environmental impacts and ecological trajectories would be associated with the best and worse case scenarios of silvicultural prescriptions within RHCAs, and should have been transparently analyzed within the FEA.

LOWD/BMBP is very much appreciate that the USFS took our RHCA surveys and pictures into consideration, and changed approximately 360 acres of commercial logging to non-commercial logging within the RHCAs (Public Comment Report (pg. 21)). We remain very

concerned about proposed silvicultural prescriptions for RHCA logging, particularly in relation to commercial logging. We are glad to hear that the USFS found many of our survey forms and pictures to have “identified important legacy structures or habitat descriptions that are in alignment with the desired conditions of the riparian habitat conservation areas with the Camp Lick planning area” (Public Comment Report pg. 21).

The FEA did not adequately consider or analyze the long-term risks to sensitive aquatic species from even short-term negative impacts. Especially given the small and relatively fragmented populations of Threatened steelhead, localized and short-term negative impacts may pose serious threats and jeopardize the viability of these and other at-risk aquatic species. Long-term temperature increases are very likely as a result of proposed activities in the Camp Lick project, particularly due to silvicultural prescriptions within the RHCAs. The FEA states: *“The beneficial effects of restoring fire-related riparian processes and functions include reduced chance of severe wildfire. The short-term negative effects of this action are minor when compared with the potential negative effects of severe wildfire.”* The PEA has failed to include a full representation of the best available science on this issue, and failed to disclose the scientific controversy surrounding this issue. Please see our comments on the Camp Lick PEA and our addendum to this objection for further discussion on the scientific controversy surrounding the risks from and effects of wildfire.

Aquatic species have not evolved to deal with the chronic inputs of fine sediments that are associated with roads, cattle, and logging. Further impairing this RMO will have direct and potentially lasting negative effects on aquatic species, including ESA-listed Steelhead. The FEA (pg. 177) states “[e]cological riparian treatments are expected to have a short-term negative and meaningfully measurable effect on sediment and embeddedness due to temporary increases in sediment contributions from heavy equipment use in the RHCA.” However, it is not clear that Threatened fish can recover from these “short term” effects. Local and short-term negative effects can have important and long-term consequences for fish and other aquatic species (as well as terrestrial species) that may be struggling and have small population sizes, are isolated and fragmented, or face other similar challenges. Simply because the downed wood can locally trap some sediments does not mean that all of this excess fine sediment won’t be above historic levels, even if it is locally trapped. Excess fine sediments are likely to negatively and significantly effect sensitive fish and other aquatic species. In addition The FEA (pg. 177) downplays issues regarding increases in sediment and embeddedness as a result of the project, and states that the project “...would through the addition of instream wood, ultimately have a positive effect in the long term on stream sediment or embeddedness”. However, we note that long-term recruitment for LWD is likely to be negatively affected, and so the long-term problems may be exacerbated. Similarly, we are very concerned about the ongoing threat to MCR steelhead, Redband trout, and other listed and sensitive species due to high stream temperatures. For example, Cougar Creek (MCR Steelhead Designated Critical Habitat) is not meeting embeddedness or temperature standards, and included temperatures up to 74.5 F 7-day mean avg.). Trail Creek and the West Fork Lick Creek are also not meeting temperature standards. Both Trail Creek and the West Fork of Lick Creek have Redband trout and Mid-Columbia River Steelhead. The West Fork of Lick Creek is Designated Critical Habitat for Mid-Columbia River Steelhead. The lower portion of Trail Creek is also Designated Critical Habitat. Many other creeks that have MCR Steelhead and Redband trout are not meeting RMOs.

Upland logging will affect RHCAs, water quality, and listed and sensitive aquatic species. Buffers in headwater and non-fish bearing streams are inadequate; these streams require larger buffers than those designated under PACFISH/INFISH. Negative impacts to upstream reaches such as higher temperatures, increased sediment-loading, down-cutting, and altered hydrographs also negatively affect downstream reaches. In order to protect downstream fish bearing reaches, headwater streams need at least as much protection than larger downstream reaches (Rhodes et al., 1994; Moyle et al., 1996; Erman et al., 1996; Espinosa et al., 1997). Both Erman et al., (1996) and Rhodes et al., (1994) concluded, based on review of available information, that intermittent and non- fish-bearing streams should receive stream buffers significantly larger than those afforded by PACFISH/ INFISH. Also of particular concern are the numerous areas in Camp Lick where proposed upland logging units are adjacent to planned RHCA logging. Unlogged RHCAs are usually depended upon to provide filtering for sediment created as a result of upland logging, but may be unable to filter sediment generated from both upland logging and logging within the RHCA.

### ***Best Management Practices (BMPs)***

BMPs need to be specially designed to ensure protection of sensitive aquatic species such as ESA-listed salmon. For example, the USFWS notes that existing BMPs may not sufficiently protect Bull trout (USFWS 2010). Research such as that conducted by Steele and Beckman (2014) suggests that this may extend to other sensitive fish that rely on cold water as well. BMPs and Project Design Criteria (PDCs) have not been updated to reflect best available science, which provides evidence that the current 7-day average maximum temperature standard may not be adequately stringent to protect ESA-listed species. Adaptive management, monitoring, and Best Management Practices (BMPs) should be reevaluated and modified to ensure that stream temperature variability is not altered beyond thresholds for at-risk and aquatic species such as threatened Mid-Columbia River steelhead. Unfortunately, it is not clear that BMPs for current water quality standards are effectively implemented or adequately protective of the standards they are based on. Most BMPs do not require strict adherence, are often very subjective or open to wide interpretation, and are not always clearly communicated. BMP monitoring is inadequate and has not provided robust datasets show that BMPs are sufficiently protecting aquatic species and water quality when logging in RHCAs. It is likely that logging in riparian habitat conservation areas (RHCAs) in the Camp Lick Project will affect stream temperature variability as well as average stream temperatures, and therefore negatively affect vulnerable aquatic species. The Camp Lick Project PEA inappropriately relies on BMPs and mitigation measures to determine that impacts will not be significant. The mitigation measures in the Camp Lick project do not have adequate enforcement mechanisms or regulatory strength, and are often subjective, voluntary, and only advisory. Mitigation measures should not be relied upon to avoid a determination of significance, and should not be used to avoid the preparation of an environmental impact statement.

### ***Roads and road-related issues: Forest Plan and CWA Violations***

The Malheur National Forest already has extremely high road densities. The *average* road density in the Malheur is 4.2 miles per square mile. Priority watersheds in the MNF

currently contains 4.8 mile per square miles average road density. There are currently 10,990 miles of existing roads on the MNF and 4,798 miles of hydrologically connected roads (USFS 2014). Average road density is far exceeds both Forest Plan Standards and thresholds for proper watershed functioning. The Lick Creek subwatershed has five times the open road density allowable to be classified in “good” condition under road density indicators. Lower Camp Creek and Upper Camp Creek have between 4.5 and 5.6 miles of road per square mile, also far exceeding the criteria for “good” watershed health. Between 22% and 28% of these roads are within proximity to streams. The USFS is not meeting Forest Plan standards for roads in the project area. Most streams within the project area are not meeting RMOs, or state water quality standards. The USFS must prioritize road decommissioning in order to address these primary threats to fish and water quality, and to protect ESA-listed and sensitive fish species.

Roads within the project area are clearly widespread sources of chronic fine sediments inputs into streams. Many examples of this can be found in the FEA and in the aquatics report, and clearly illustrate the pervasive negative effects on water quality from roads. The FEA notes, for example, that: “[m]any arterial and collector roads do not receive road maintenance and have degrading ditch relief culverts. These failing or buried culverts are creating localized road prism safety issues and are a source of fine sediment entering into the waterbody. All three subwatersheds were ranked as “poor” for the road maintenance condition indicator due to recent activities” (FEA pg. 87). High road densities, especially near streams, in key watersheds, and with a high number of hydrologically connected roads are a one of the dominant and primary drivers of water quality impairment in these watersheds. Nevertheless, additional road-related impacts are proposed that will directly affect RHCAs. For example, the USFS is proposing 70.2 miles of log hauling on dirt roads within 300 feet of streams (FEA pg. 92) and construction of a “temporary” road that includes 200 feet located within the West Fork Lick Creek riparian habitat conservation area (RHCA) and 515 feet of road within a category 4 (intermittent) stream RHCA (FEA pg. 157). Despite the excessively high road density, the FEA proposes to permanently open road 3600703, a 3.8 mile segment of a road with seven stream crossings. We are very concerned because this road has seven stream crossings, has a native surface, and will need repairs. Such roads are at risk of delivering excessive fine sediments and continuing to impact hydrology. Road density increases, even for “temporary” use, should not be allowed in areas already exceeding road density standards and existing biological thresholds, especially not in riparian areas and subwatersheds with threatened steelhead and other listed or special-status aquatic species. These roads may contribute fine sediment to the creek and stream that could choke out steelhead trout or redband trout. Roads and road-related activities associated with logging in the Camp Lick project are likely to increase excess fine sediments in streams, which in turn will have negative effects on MCR Steelhead and Redband trout and other sensitive fish. Proposed activities such as roading and haul in RHCAs run directly contrary to Forest Plan standards, retard the attainment of RMOs (including those for embeddedness, pool depth and frequency, bank stability, wetted depth to width ratio, and shade), and jeopardize the viability of Endangered Species Act-listed fish and to the attainment of riparian management objectives.

During our field surveys of RHCAs in the Camp Lick area, we documented widespread negative effects on streams and RHCA habitats due to roads. For example, roads are adjacent to and run parallel for most if not all of the RHCAs along many streams in the project area (including most streams with commercial logging proposed in RHCAs). Roads run parallel to the

creek along both sides of many of these streams. We documented numerous faulty stream crossings with extensive erosion and improperly fitted culverts. We also noted a repeated pattern regarding RHCA conditions across the project area: roads adjacent to streams are creating artificial drainage and steepness, causing dense conifers to grow adjacent to roads. If these dense firs are cut, erosion into creeks will likely ensue, and conifers will simply grow back densely. Upslope of roads away from creeks, the upland forests have, in general, been heavily logged with widespread, homogenous, and even-aged Ponderosa pine plantations surrounding RHCAs. Mature moist forests that have been less heavily impacted in recent decades and provide important wildlife habitat are located directly adjacent to creeks, and are surrounded by heavily logged and heavily roaded impaired habitat.

Landings and staging areas located within RHCAs in the Camp Lick project are likely to cause erosion, sediment delivery, soil damage, and other harmful ecological impacts to the RHCA, and should not be considered for use in RHCAs in Camp Lick. The effects of landings or staging areas in RHCAs would retard attainment of RMOs. “Temporary” roads are not temporary and have lasting negative impacts in both the short and long term. These “temporary” road segments should also be included in road density calculations, and analyzed accurately to include these increases in road densities and the associated negative environmental impacts. The U.S. Forest Service leaves the disturbance or road prisms of “temporary” roads for future use in every project, does not re-contour these road, leaves soils compacted for many years into the future, and repeatedly fails to acknowledge the negative impacts associated with these roads. For example, Cougar creek has a segment of road running adjacent to the stream that is upstream of the 3650-377 stream crossing on the west side of the stream. This road segment is not documented on Camp Lick maps and is experiencing erosion. It appears this road may have been a “temporary” road, since it does not appear to be documented on maps showing open or closed roads.

The USFWS discusses road-related effects in relation to Redband trout and other sensitive fish, and notes excess sedimentation associated with high road densities. From USFWS (2010): “An assessment of the interior Columbia Basin ecosystem revealed that increasing road densities were associated with declines in four nonanadromous salmonid species (bull trout, Yellowstone cutthroat trout (*Oncorhynchus clarkii bouvieri*), westslope cutthroat trout (*O. c. lewisi*), and redband trout (*O. mykiss* spp.)) within the Columbia River basin, likely through a variety of factors associated with roads....These activities can directly and immediately threaten the integrity of the essential physical or biological features described in PCEs 1 through 6.”

Fish stocks are stronger and better distributed in areas of little or no management and low road densities, even in fire suppressed areas, and even if severe fires occur. Numerous studies and reports show that many benefits are gained by leaving forests unroaded, and to their own ecological processes (including processes involving fire, insects, and disease). (Bader 2000, Bradley et al. 2002, DellaSala et al. 2011, Frissell and Carnefix 2007, Public Lands Initiative 2004, Reiman and Clayton 1997, Reiman et al. 2000, Thurow et al. 2001, Public Lands Initiative/Trout Unlimited 2004, Western Native Trout Campaign 2001).

All road closures should contain effective physical barriers; signs alone are not effective and should not be relied upon to effectively close roads. Individual actions for road closure

implementation would depend on the condition of each individual road; for example, a road that is grown in, not driveable, and not visible on the landscape may not need a gate or barrier to be an effective closure, whereas a currently drive-able road may need to be gated or have a barrier put in place in order to implement an effective closure. For example, please see our survey pictures from Sulphur Creek showing an ineffective road closure—the road is clearly accessible and open, and has numerous tire tracks on the road, but there is a sign on a Ponderosa pine next to the road declaring the closure.

Please also see our comments on the Camp Lick PEA and our addendum to the objection for an in-depth discussion on degraded water quality and threats to ESA-listed and sensitive species in relation to roads, logging, and grazing. Our comments and scientific citations remain relevant in response to the FEA.

***Climate change issues: Failure to analyze cumulative impacts to RMOs and ESA-listed aquatic species; failure to protect the viability of MIS and special status species; CO2 emissions***

The Camp Lick FEA did not adequately analyze risks to water quality and ESA-listed fish due to proposed actions and cumulative impacts in relation to climate change. Logging in RHCAs is likely to exacerbate some of the negative effects of climate change on riparian and stream ecosystems, and possibly jeopardize the viability of ESA-listed and sensitive aquatic and RHCA-dependent species. Stream temperature is a primary concern. Actions that minimize increased water temperatures are important for maintaining cold water refugia. The Independent Scientific Advisory Board (2007) states: “Adequate protection or restoration of riparian buffers along streams is the most effective method of providing summer shade. This action will be most effective in headwater tributaries where shading is crucial for maintaining cool water temperatures. Expanding efforts to protect riparian areas from grazing, logging, development, or other activities that could impact riparian vegetation will help reduce water temperature increases. It will be especially important to ensure that this type of protection is afforded to potential thermal refugia. Removing barriers to fish passage into thermal refugia also should be a high priority.” Salmon face serious threats to their continued existence due to climate change, and are predicted to suffer significant habitat loss. The Independent Scientific Advisory Board (2007) notes that according to some research predictions: “[T]emperature increases alone will render 2% to 7% of current trout habitat in the Pacific Northwest unsuitable by 2030, 5%-20% by 2060, and 8% to 33% by 2090. Salmon habitat may be more severely affected, in part because these fishes can only occupy areas below barriers and are thus restricted to lower, hence warmer, elevations within the region. Salmon habitat loss would be most severe in Oregon and Idaho with potential losses exceeding 40% by 2090.” Commercial logging in RHCAs is very likely to exacerbate stream temperature issues, and exacerbate the negative effects from climate change. Even localized temperature increases may have negative effects on struggling fish populations, especially when repeated in numerous streams across the landscape.

LOWD/BMBP is concerned that logging and road related activities may cause riparian habitat conservation areas (RHCAs) to be more susceptible to the negative effects of climate change. This includes drying out of microclimates; altered hydrology; shifts and/or contraction in species’ ranges; genetic isolation; degradation of wildlife corridors and barriers to species’

migrations or movement; decreased biodiversity; de-watering of creeks; loss of snowpack and glaciers; altered hydrology due to logging and grazing; downcutting, lowering of water table, soil compaction, roads, artificial funneling of water downstream and off-site—faster and in greater quantity than if natural, unroaded conditions were present.

Thinning decreases carbon storage compared to unmanaged forests. Beverly E. Law, Professor of Global Change Biology & Terrestrial Systems Science Oregon State University, recently gave a presentation on wildfire risks and management effects. Main points of her presentation included the following:

“Thinning does not reduce fire occurrence; it can reduce severity, spread”

“Thinning reduces carbon stocks and sequestration, 100+ years to recoup carbon loss”

“No guarantees fire will occur during period of thinning effectiveness”

“No treatment increases carbon stocks. Carbon debt is not sequestered in next century”

“Thinning for crown fire risk reduction increased net C emissions”

“Amount of biomass combusted in high-severity crown fire is greater than low-severity surface fire, but difference is small”

“Low likelihood treated forests will be exposed to fire while effective (~20 yrs)”

“Thinning larger area to decrease probability of high-severity fire ensures decreased carbon stock and net carbon balance over treated area”

“Not important to suppress all fires - contributes to landscape heterogeneity”

#### **J. Logging Trees $\geq 21$ ” dbh and the Van Pelt guidelines: Failure to Use Best Available Science in Violation of 40 C.F.R. § 1500.1(b)**

The Forest Service continues to disingenuously refer to the Van Pelt guidelines in order to claim that mature Grand fir trees, which are targeted logging within the Camp Lick project area, will be less than 150 years old. The Forest Service is acting in bad faith by continuing to cite guidelines that simply do not exist, and are stated to be inappropriate for determining age in Grand fir. The Van Pelt guidelines contain no clear direction for identifying or conserving old Grand fir (~150 years or older). Yet the Forest Service continues to cite the Van Pelt guidelines as part of their implementation plans for logging large trees. While the Van Pelt guidelines do contain clear direction for identifying old Ponderosa pine and (to a lesser extent) Douglas-fir, these guidelines simply do not exist for grand fir, nor are they applicable to Grand fir. The Van Pelt guidelines contain a couple of vague and subjective statements about the branching patterns of older grand fir, but do not quantify or give any concrete specifications or guidelines about how exactly to use these characteristics to identify older grand fir. In other USFS projects, such as the Ursus project on the Deschutes National Forest, the Deschutes NF discusses the inadequacies of the Van Pelt guidelines for determining age (pg. 77): “A size or a diameter limit was chosen as the best metric to measure effect on trees that are old or large on the landscape. Other considerations were made, such as using Van Pelt’s guide to identify old grand (white) fir, but due to the characteristics of white/grand fir it was determined to not be an accurate metric. Bark on white/grand fir never develops the thickness of its fire-tolerant associates. The transformation that many trees experience from young gray bark to increasingly more colorful mature bark does not occur with white/grand fir. Even in giant old trees, bark characteristics reveal little about age. Like Douglas fir and western larch, white/grand fir is an opportunist, and has epimoric branch formation. As the stand matures and conditions change around a tree, light

penetration may allow new branches to grow where they had been previously lost. Crown condition, tree form, and bark fissures are not an accurate way to tell age. Other than size, there is little else on white/grand fir that indicates age.” In the Lower Joseph Creek project on the Wallowa-Whitman National Forest, the EPA also seems to recognize that the Van Pelt “guidelines” provide little real guidance with which to identify old tree of certain species, as they note that the “DEIS references the Van Pelt guidelines but does not commit to a particular methodology. Because retention of older trees (regardless of diameter) is a key component of the preferred alternative, it would be helpful to reviewers to have a clear idea of how those trees would be identified.” (FEIS pg. 508, response to comments section, comment from EPA environmental review and sediment management unit). The FEA repeatedly refers to using the Van Pelt guidelines to identify “old” firs (FEA pgs. 33, 37, 51, 56, 84, 162, 165) but in certain sections attempts to modify this reference to the Van Pelt guidelines: (FEA pg. 34; Public Comment Report pgs. 31, 41, 50) “[p]lease see the “Rating system for determining the general age of Douglas-fir trees” section of the Van Pelt guide, page 130. The guide for the general age of Douglas-fir would also be used for grand fir and other guides are currently being developed to refine the aging of Douglas-fir and grand fir trees on the Malheur National Forest.” The FEA (pg. 33) goes on to state: [o]ld trees are defined by characteristics such as thick bark with deep fissures, flat top crowns, and large branch structure.” However, the Van Pelt guidelines themselves note that: “Bark on grand fir never develops the thickness of its fire-tolerant associates. The smooth bark of young trees gives way to finely-dissected fissures, isolating the smooth, outer bark plates as tidy, vertical ridges (Figure121). The transformation that many trees experience from young gray bark to increasingly more colorful mature bark does not occur with grand fir. Instead, the even pattern of gray bark plates remains in maturity (Figure 122). ***Even in giant old trees, bark characteristics reveal little about age***” (Van Pelt 2008, pg. 140; emphasis added). Branching patterns and crown patterns are highly variable and dependent more greatly on site conditions than on age. Despite being asked repeatedly to provide us with the actual instructions or guidelines for identifying old Grand fir that the agency would provide to personnel working on the ground to determine which Grand fir are “old”—the agency has failed to provide this information and is not able to address this issue. The USFS continues to disingenuously refer to guidelines that simply do not exist for identifying “old” Grand fir.

The Forest Service across the region and in this project refers to trees less than 150 years old as “young”. A tree that is, for example, 90 or 120, or 145 years old is not “young”. To use this biased language and create an artificial binary that greenwashes the logging of mature trees is disingenuous and does not demonstrate professional integrity.

It is important to note that it is large tree structure (not age class of tree) that is important to many wildlife species and that is needed to meet the biological needs of species that depend on them. Large trees are at a deficit across the landscape and are needed by wildlife. Large and mature or commercial- sized trees should not be logged within RHCA's. While thinning may cause remaining individual trees to grow bigger faster, it harms other healthy forest processes and functions (large tree recruitment, snag and large wood recruitment, “defective” trees due to disease and insects, water quality, soils, etc).

## **K. Additional Objections**



LOWD/BMBP disagrees with the Forest Service's blaming commercial-sized trees for altering the rate of sediment and wood inputs to the stream network and reducing landscape heterogeneity and resiliency, while the Forest Service ignores logging's past contributions to these impacts (especially the impacts of roads). Further, the health of riparian stands should not be "defined through a reduction in stand density index stocking levels" and assumed reduced crown fire. There is no evidence provided that tree densities of mature and large trees are unnaturally dense in riparian habitat conservation areas (RHCAs). RHCAs are usually moister, more productive riparian zones by definition, especially class I RHCAs (which Camp Lick has a high abundance of, more than most Malheur National Forest planning areas). Moister and richer soils support denser tree growth, including old forest multi strata (OFMS) shading where conifer shading historically existed. Density is not always incompatible with hardwood vitality in RHCAs. Further, removing existing large trees would stunt large structure wood input to the streams gradually over time, stream shading, and bank/slope support against landslides and sedimentation of the streams. Because riparian areas are naturally moister and more productive sites for tree growth, they should not be subjected to the same overused upper management zone/stand density index parameters as Hot or Warm Dry upland forest. *See* Karen Coulter PEA Comments at 9–10, 14–15, and 28–31.

**Resolution:**

- Withdraw the draft Decision Notice and FONSI and FEA
- Correct the multiple errors listed above and issue a properly supported EIS
- Drop all proposed commercial logging in RHCAs
- Please drop all sale units in Cool Moist PAGs, within RHCAs, slopes, and other areas where ponderosa pine and western larch were not the historically dominant species.
- We request the agency drop targeted removal of grand fir or late seral species where they historically existed and were well represented in the stand, including as patchy distribution or co-dominant or dominant overstory structure. This would include historical fir prevalence in moist plant association groups (PAGs), on north-northeast aspect slopes, at high elevations, in riparian areas, and/or where there is evident large grand fir and/or Douglas-fir structure, including large live trees, large fir snags and logs, and large fir stumps. Removing grand fir and Douglas-fir, especially from stands where they would naturally be dominant or codominant (i.e., in productive Cool Moist PAGs), does not promote or "restore" ponderosa pine/western larch in these stands, since grand fir and Douglas-fir are naturally more dominant species.
- Drop or significantly scale back proposals within mixed-conifer forests in RHCAs for non-commercial thinning that overlaps with connectivity corridors, Designated Old Growth, or are in areas where fir were likely to be naturally dominant. Examples of specific RHCA areas that include these features yet have proposed thinning/logging: Trail Creek, portions of Lick Creek and the West Fork of Lick Creek, and the mid-section reach of Coxie Creek
- Conduct an EIS in order to adequately analyze direct, indirect, and cumulative impacts of proposed management activities within RHCAs. In particular, an EIS is needed in order to adequately analyze cumulative impacts for ESA-listed aquatic species. A larger range of alternatives that adequately reflects the range of actions proposed within the RHCAs should be included, such as a 'restoration only' alternative, and an alternative that does not include commercial logging within RHCAs.

- Disclose for public review site-specific detailed proposals for actions within RHCAs that are tailored to site conditions
- We request that the USFS disclose specific plans, protocols, and locations for stream temperature monitoring and other RHCA monitoring within the Camp Lick project. We also request that the agency work with us on monitoring plans
- We request that the agency drop all landings and staging areas located within RHCAs
- All “temporary” road construction should be dropped, especially near (RHCAs). This includes “temporary” roads within 100 feet of RHCAs and/or 300 feet of streams, and roads likely to be hydrologically connected, require stream crossings, or are otherwise likely to interact with streams.
- We request that the agency cancels the proposal to permanently open road 3600703, which is currently closed
- We request that all road closures contain effective physical barriers

For resolution on issues related to our objection to the aquatics portion of the Camp Lick FEA, we ask that the Malheur NF agree to the Aquatic Restoration Principles by Karen Coulter:

1. No commercial logging in RHCAs
2. Don't assume any management has to be done
3. Base decision on site-specific conditions based on surveying the creeks and streams
4. If an area is meeting RMOs, don't do anything—No Action
5. If RMOs are not being met, why aren't they being met? Deal with primary causes of the problem—not just tree felling, but also consider: road impacts, cattle grazing, fire suppression, irrigation withdrawals, mine tailings, etc. Consider prevention of impacts.
6. How would this failure to meet an RMO best be addressed? If active management seems a good course to take, then consider impacts of management vs. benefits
7. If impacts outweigh benefits, don't do it
8. Prioritize based on most need and distributing funding in the most effective way, as well as limits to funding
9. Consider low cost prevention of impact alternative such as not allowing livestock grazing, closing roads, planning riparian hardwoods, etc. whenever possible
10. If large wood placement is needed, bring in large wood from outside the stream's wood recruitment zone to allow for long-term phased-in natural wood recruitment
11. Avoid heavy equipment use within RHCAs whenever/wherever possible
12. Avoid heavy equipment on stream crossings
13. Avoid felling trees to meet down wood standards all at once
14. Phase in restoration over years, and don't manage too much of subwatershed or too many reaches of a stream all at once
15. Monitor results of all management done and use a decision tree to determine adaptive management for changes in stream segments management
16. Fully disclose the thinking behind all these steps and principles, as relevant to particular sites and restoration plans.
17. Publically disclose site-specific in-depth analysis re: following decision trees, costs vs. benefits, conclusions, and management versus no management decisions. Use the NEPA process to do this. This analysis should appear in related NEPA documents. Involve the

entire public, not just a collaborative group—e.g., more environmental groups, recreationalists, and native Nations.

## V. Conclusion

Each of LOWD/BMBP's objections set forth above, individually and collectively, require the Forest Service to withdraw the draft Decision Notice and FONSI. The Forest Service should then prepare a comprehensive EIS to fully address all the direct, indirect, and cumulative impacts of the proposed project. This EIS should rely on accurate and complete science, and should address the inadequacies raised in these objections that LOWD/BMBP identified in the FEA. After the Forest Service has allowed for public comment on the new NEPA analysis, the Forest Service can reconsider the proposed project and issue a new draft decision, subject to the Forest Service's objection process.

Sincerely,

s/Tom Buchele  
Tom Buchele  
Eartrise Law Center  
Counsel for LOWD/BMBP

s/Paula Hood  
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Attachments/Enclosures

## **OBJECTION EXHIBIT LIST**

- Exhibit 1. USDA Pacific Northwest Region Malheur National Forest, News Release: Malheur Forest Awards Ten-Year Stewardship Contract (Sept. 6, 2013), *available at* [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5434921.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5434921.pdf).
- Exhibit 2. USDA Forest Service, Eastside Restoration Frequently Asked Questions, *available at* <https://www.fs.usda.gov/detail/r6/landmanagement/resourcemanagement/?cid=stelprdb5423598>.
- Exhibit 3. USDA Forest Service, Malheur National Forest Accelerated Restoration Project Schedule Map, *available at* <https://usfs.maps.arcgis.com/apps/MapSeries/index.html?appid=ec243121fc724464bdb011d36a1624cb>.
- Exhibit 4. Evelyn L. Bull, Ecology of the Pileated Woodpecker in Northeastern Oregon, *The Journal of Wildlife Management*, Vol. 51, No. 2 (Apr., 1987), pp. 472-481
- Exhibit 5. Evelyn L. Bull and Richard S. Holthausen, Habitat Use and Management of Pileated Woodpeckers in Northeastern Oregon, *The Journal of Wildlife Management*, Vol. 57, No. 2 (Apr., 1993), pp. 335-345
- Exhibit 6. Evelyn L. Bull, et al., The Influence of Disturbance Events on Pileated Woodpeckers in Northeastern Oregon, *Forest Ecology and Management* 243 (2007), 320–329.
- Exhibit 7. Biological Evaluation and Wildlife Specialist’s Report for the Snow Basin Vegetation Management Project (Mar. 9, 2012)
- Exhibit 8. Letter from James M. Peña, Regional Forester, Pacific Northwest Region, Forest Service, USDA, to Paul Hood, Blue Mountain Biodiversity Project, Re: Freedom of information Request Control No. 2016-FS-R6-00106-F (Dec. 23, 2015), enclosing December 15, 2015 email and Pacific Northwest Region Guidance RE: Revision of the 2003 Goodman Letter and Guidance on Projects with Proposed Project-Specific Plan Amendments, dated September 10, 2005
- Aquatics references (please see also our addendum to this objection, including all references and copies of scientific studies provided)***
- Exhibit 9. Bader, M., 2000. Based Ecosystem Protection in the Northern Rocky Mountains of the United States. Alliance for the Wild Rockies. USDA Forest Service Proceedings RMRS-P-15-VOL-2. 2000. Accessed at: [http://www.fs.fed.us/rm/pubs/rmrs\\_p015\\_2/rmrs\\_p015\\_2\\_099\\_110.pdf](http://www.fs.fed.us/rm/pubs/rmrs_p015_2/rmrs_p015_2_099_110.pdf)
- Exhibit 10. Bradley, C.; Rhodes, J.; Kessler, J.; Frissell, C., 2002. An Analysis of Trout and

Salmon Status and Conservation Values of Potential Candidates in Idaho and Eastern Washington. Published by: The Western Native Trout Campaign; the Center for Biological Diversity, The Biodiversity Conservation Alliance, and the Pacific Rivers Council.

- Exhibit 11. Carnefix and Frissell 2009. Aquatic and Other Environmental Impacts of Roads: The Case for Road Density as Indicator of Human Disturbance and Road Density Reduction as Restoration Target; a Concise Review. The Pacific Rivers Council. Accessed online at: <http://pacificrivers.org/science-research/resources-publications/road-density-as-indicator>
- Exhibit 12. DellaSala, D.; Karr, J.; Olson, D.; 2011. Roadless areas and clean water. *Journal of Soil and Water Conservation*, 66(3): 78A-84A. Accessed at: <http://www.jswnonline.org/content/66/3/78A.full.pdf>
- Exhibit 13. Flaspohler, D., Fisher, C., Huckins, C., Bub, B., and Van Dusen, P., (2002). Temporal patterns in aquatic and avian communities following selective logging in the Upper Great Lakes Region. *Forest Science*, 48(2): 339– 349.
- Exhibit 14. Guenther, S., Gomi, T., and Moore, R. (2012). Stream and bed temperature variability in a coastal headwater catchment: influences of surface-subsurface interactions and partial-retention forest harvesting. *Hydrological Processes*, 28: 1238–1249.
- Exhibit 15. Hemstad, N.; Merten, E.; Newman, R.; 2008. Effects of riparian forest thinning by two types of mechanical harvest on stream fish and habitat in northern Minnesota. *Canadian Journal of Forest*
- Exhibit 16. Kreutzweiser, D., Capell, S., and Good, K. (2005). Macroinvertebrate community responses to selection logging in riparian and upland areas of headwater catchments in a northern hardwood forest. *Journal of the North American Benthological Society*, 24(1):208-222.
- Exhibit 17. Kreutzweiser, D. and Capell, S. (2001). Fine sediment deposition in streams after selective forest harvesting without riparian buffers. *Canadian Journal of Forest Research*, v. 31 p. 2134-2142.
- Exhibit 18. Law, B. 2015. Assessing Wildfire Risks and Management Effects on Forests of the West Coast. FFCC Presentation.
- Exhibit 19. Lecerf, A. and Richardson, J. (2010). Litter decomposition can detect effects of high and moderate levels of forest disturbance on stream condition. *Forest Ecology and Management*, 259 (2010) 2433– 2443.
- Exhibit 20. Independent Scientific Advisory Board 2007. Climate Change Impacts on Columbia River Basin Fish and Wildlife. Accessed online at: [file:///var/folders/dg/m782847n4ng5bb19ydcg\\_13h0000gn/T/com.apple.Preview/com.apple.Preview.PasteboardItems/isab2007\\_Climate%20change%20impacts%20on%20columbia%20r%20fish%20and%20wildlife%20\(dragged\).pdf](file:///var/folders/dg/m782847n4ng5bb19ydcg_13h0000gn/T/com.apple.Preview/com.apple.Preview.PasteboardItems/isab2007_Climate%20change%20impacts%20on%20columbia%20r%20fish%20and%20wildlife%20(dragged).pdf)

- Exhibit 21. Merritt 1910. Head Watershed Middle Fork John Day River Whitman National Forest 1910. Accessed online at:  
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Exhibit 37. Folder containing historical documents cited in Addendum