CENTRAL OREGON LANDWATCH

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September 3, 2019

Johanna Kovarik
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Ochoco National Forest
Paulina Ranger District
3160 NE 3rd Street
Prineville, OR 97754

RE: *Black Mountain Vegetation Management Project Final Environmental Impact Statement and Draft Record of Decision Objections*

Dear Ms. Kovarik:

Central Oregon LandWatch (LandWatch) has reviewed the referenced Final Environmental Impact Statement (FEIS, EIS) and draft Record of Decision and has prepared formal objections to the Ochoco National Forest (ONF) proposed implementation of the preferred alternative. We appreciate your thoughtful consideration of each of our concerns, which are summarized below.

LandWatch is fundamentally concerned with the premise that vegetation management in riparian areas with significant short- and long-term impacts on sensitive natural resources will result in historic ranges of variability. We fail to understand how the ONF anticipates such an outcome when other areas of the forest have not achieved Land and Resource Management Plan-required stream or habitat restoration goals under the same vegetation management treatments as those proposed under the preferred alternative. Moreover, the ONF offers no scientific evidence that applying upland management treatments to riparian areas will result in stream restoration to historic conditions and without further, significant degradation to these important forest ecosystems.

This flawed premise is the foundation of our objections. We build on this objection by specifying weaknesses in the National Environmental Policy Act (NEPA) analyses that would render a final decision arbitrary and capricious. Such weaknesses include a failure to adequately address the impacts of road densities and use, grazing, and climate change on sensitive habitats, including big game habitat, stream quality and quantity, and riparian ecology. We object to missing direct, indirect, and cumulative effects analyses of resources managed by the ONF such as travel management planning, climate change, and livestock grazing. We also identify affected environment descriptions and analyses where known, reliable, valid data are available to the ONF, but not applied to the FEIS analyses.

Though LandWatch does object to several aspects of the FEIS, we appreciate some of the ONF's revisions to the action alternatives based on feedback received during the scoping and Draft EIS comment periods. In particular, we commend the ONF for maintaining all trees greater than 21-inch dbh in the project area based on public scoping and Draft EIS input. These large trees with old growth characteristics, regardless of species, provide vital habitat, soil stability, shade, and the potential for future snag creation.

We appreciate the effort and resources necessary to prepare an EIS. We are hopeful that our objection content will aid the ONF in meeting its requirements under NEPA as well as the intent of NEPA to engage in informed decision-making. We offer these objections with sufficient detail and best available science to compel the ONF to revise its Draft Environmental Impact Statement for further public input. We look forward to your reply and welcome an opportunity to meet with your staff to discuss our concerns.

Sincerely,

Rory Isbell
Staff Attorney
Central Oregon LandWatch

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Black Mountain Vegetation Management Project

Final Environmental Impact Statement – Objections

Project-level Predecisional Administrative Review Process
36 CFR 218

Ochoco National Forest
Paulina Ranger District

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Objections Filed by Central Oregon LandWatch

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Proposed Project

Black Mountain Vegetation Management Project

Responsible Official

The Responsible Official's name and contact information were not published in the *Bend Bulletin Notice of Opportunity to Object*. The following contact information was published.

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National Forest and Ranger District

Ochoco National Forest
Paulina Ranger District

Project Aspects and Specific Issues Addressed by the Objections

Provided below in Objection 1.0 through Objection 6.0

Demonstration of a Connection between Central Oregon LandWatch Comments and its Objections

Provided below in Objection 1.0 through Objection 6.0

Objections

Note – The original Central Oregon LandWatch scoping and DEIS comments and U.S. Forest Service responses were not edited. Original text has been preserved for this objections record.

1.0 Main Issue Topic – Failure to Take a Hard Look by Omitting Pertinent Stream Data, Inadequately Analyzing Sediment and other Stream Parameters, and Demonstrating Noncompliance with Applicable Standards and Guidelines

Issue Statement #1.1 – The ONF fails to adequately analyze impacts, which impedes desired future conditions compliance, and fails to meet standards and guidelines for riparian areas including those aimed at sediment, shade, and temperature parameters, as well as INFISH standards. The ONF also overlooked critical stream inventories data pertinent to an informed FEIS analysis that would have demonstrated significant trend data for key streams, which was necessary to conduct a hard look under NEPA law. *Note*: cumulative effects are addressed in a Main Issue Topic 6.0.

1.2 Central Oregon LandWatch Scoping Comments

1. The Scoping Package appears to suggest that the agency will be logging over 900 trees—nearly 800 within riparian areas—in order to provide large wood sources. Trees up to 150 years old may be cut down. LandWatch opposes this aspect of the restoration plan. Existing riparian vegetation needs to be protected, not cut down. Project area streams suffer from high temperatures, which can be a consequence of a lack of stream shading. To put it colloquially: the plan to create more LWD by cutting down riparian vegetation is a plan to rob Peter to pay Paul.

2. To comply with NEPA's "hard look" mandate, the agency must maintain inventories or otherwise collect and disclose information about the resources it manages so that an adequate baseline exists to evaluate the environmental impacts of a proposed action… LandWatch expects that the DEIS for the project will fully disclose and provide a comprehensive assessment of the baseline conditions of Project Area subwatersheds based on the 2014 evaluation, and update this inventory as necessary based on more up-to-date field data. Only with an accurate and complete picture of baseline conditions can the agency accurately assess the full scope Project's environmental impacts.

3. Pursuant to NEPA, the agency must "provide full and fair discussion of [the] significant environmental impacts" of the proposed action." 50 C.F.R. § 1502.1. In particular, the agency must take a "hard look" at the direct, indirect, and cumulative impacts of a proposed project.

4. The agency must take a hard look at the impacts of the Project on Threatened, Endangered, and Sensitive ("TES") Species, and ONF Management Indicator ("MIS") Species.

5. LandWatch also specifically requests that project maps be updated to depict key resource considerations. In particular, LandWatch would like to see a map illustrating Class 1–IV streams and RHCAs and identifying each and every stream crossing for all system roads (including temporary, closed, and decommissioned). LandWatch would also like to see a map showing Forest Plan Management Areas/RHCAs juxtaposed with logging/fuels treatment units and system roads (including temporary, closed, and decommissioned).

1.3 Central Oregon LandWatch DEIS Comments (by Topic, but Numbered Consecutively)

1.3.1 Sediment

1. Central Oregon LandWatch requests transparency in ONF data and analysis for a sediment budget for Black Mountain Project using data from activities and streams for the project. Sediment measurements and budgets are not impractical, as proven by the Summit Off-highway Vehicle (OHV) Project[1]. Although the Summit OHV Project was halted, the same data are useful to understand sediment yields in the Black Mountain Project area and specifically for sediment conditions in the three streams and their tributaries. Clearly, sediment is coming from both degraded channels as well as upstream sources outside of the Riparian Habitat Conservation Areas (RHCAs). However, the estimate of 25 tons/year is not supported by any data or transparent analysis, and is inconsistent with the sediment estimates from the Summit OHV Project.

   It is unclear why the Black Mountain Project is using 200 feet as a protection zone. Studies have generally concluded that non-channelized sediment flow rarely travels more than 300 feet, and that 200-300-foot riparian 'filter strips' are generally effective at protecting streams from sediment from nonchannelized flow (INFISH 1995; Belt et al. 1992). Central Oregon LandWatch has concerns about the network of roads, especially in riparian areas, that cause changes in flow and sediment.

   Explain "why only 10% of a treatment unit's area would become disturbed by these processes [harvest] and why the expected duration of the disturbance would be for the length of time the timber sale unit is open to operations." This is contrary to many studies that have shown timber harvest and high road densities increase sediment delivery, not just for the life of the project but for many years after operations have ceased. Explain the assumption that a 62-76% increase in sediment delivery in the "short-term" would somehow translate to a 48% long-term decrease from the existing condition.

U.S. Forest Service, Ochoco National Forest, Response to the DEIS Comment (FEIS, Appendix G)

<u>Sediment Response #50-58, #60</u>

The ONF does not tier to nor rely on the analysis of the Summit Trail Systems Project EIS. The ONF revised its sediment model but claimed that "Performing [a sediment budget] measurements and modeling is impractical and beyond the scope of this project. Since the sediment budget accounting is impractical, it is discussed in theory." The ONF calculated sediment for disturbance areas from within 300 feet of channels and disturbance areas on harvest units only.

[1] As noted, the original Central Oregon LandWatch comments and U.S. Forest Service responses were not edited within this objections document. Some terminology may differ slightly among comments, responses, and objections. For example, "Summit OHV Project" and "Summit Trail System Project" are synonymous.

Sediment yields were reanalyzed for the Black Mountain Project. The updated sediment yields were analyzed with a 300-foot Sediment Delivery Zone (SDZ), as requested by the commenter. The analysis was edited for clarity and accuracy (Refer to pages 102-112 of the FEIS). Sediment estimates from timber harvest were calculated by assuming the area affected by skid trails, with primary skid trails generally spaced 100 feet apart and approximately 10 feet in width, equates to approximately 10% of a unit's area to minimize soil displacement and compaction.

Best Management Practices (BMP) and Resource Protection Measures (RPMs) designed to reduce the effects from skid trails would be implemented in the RHCAs and the SDZ. ONF increased sediment in action alternatives to haul route traffic, new temporary roads, and existing temporary roads.

1.3.2 Shade/Temperature, Large Woody Debris

2. ONF should not contribute to shade removal on streams that already fail to meet INFISH standards. Action alternatives have a significant amount of shade removal on streams that already fail to meet INFISH standards of 80% shade. While shade removal in both action alternatives is considered a short-term impact of less than 5 years, it puts those streams with significant degradation at risk for potentially decreasing bank stability and shade and increasing already high summer water temperatures during summer low flows.

U.S. Forest Service, Ochoco National Forest, Response to the DEIS Comment (FEIS, Appendix G)

<u>Shade/Temperature, Large Woody Debris Response #62, #63, #65, #66</u>

No significant amount of shade removal would occur in the project. Activities resulting in the reduction of vegetation within the Potential Shade Zone (PSZ) would be spatially intermittent and would not be expected to measurably decrease effective shade or increase water temperatures. Expect shade would increase over the next 5-10 years due to increased vigor of residual riparian trees, shrubs, and grasses. Once conifer canopy and understory is removed increased shade from hardwoods would lead to incrementally lower temperatures in streams long-term (>5-10 years). Minor localized amount of shade would be reduced short-term (<5 years), but no measurable increase in water temperatures resulting from these activities is anticipated (FEIS Pages 113-117). The ID evaluated each stream and site-specific prescriptions were developed based on slope, aspect, stream condition, soil conditions, existing vegetation, large woody material, and PSZ. For class I, II and III streams, efforts were made to ensure that activities did not occur or activities were minimal within the PSZ of live water reaches. Please refer to Appendix E for unit specific prescriptions. ONF states that 80% shade is unattainable in the existing condition is correct due to stream aspect/orientation, density and height of surrounding vegetation, the width and depth of a stream, and/or volume of water present during critical times (FEIS Page 112).

1.3.3 Pool Quantity and Quality

3. The ONF should provide adequate baseline of environmental conditions and must include and consider all data and information available. The DEIS did not include all the data available.

U.S. Forest Service, Ochoco National Forest, Response to the DEIS Comment (FEIS, Appendix G)

Pool Quantity and Quality Response #71

The ONF conducts annual stream inventories on an annual basis depending on funding and workforce capacity allow. All available data (1991-2017) were used to depict baseline conditions in the project area.

1.4 Objections with Connection to Prior Central Oregon LandWatch Comments by Comment Number Above

The following objections are specific to the summarized Issue Statement above. The Central Oregon LandWatch (COLW) DEIS Comments and the ONF Responses, above, are directly connected to the content of these objections because they are the sole focus of the objections (36 CFR 218(d)(6)). The objection subheadings demonstrate the connection between COLW comments and the objection content (36 CFR 218(d)(6)).

The ONF fails to adequately respond to our comments and concerns regarding impacts to riparian areas, streams and wetlands and resulting effects on sediment, shade, stream temperatures, large woody material, and meeting INFISH standards. The Expert Reports of Amy Stuart and Jonathan J. Rhodes, submitted as part of the U.S. Forest Service Ochoco Summit Trail System Project, supply further detail on this Main Issue Topic and are provided with these objections.

1.4.1 Missing Data and Noncompliance with Goals, Standards, Guidelines, and NEPA Regulations (DEIS Scoping Comment 2, Comment 3; DEIS Comment 1, Comment 3)

Overview

Much of the data cited in the response to comments on the Black Mountain DEIS were dismissed by the ONF. Particularly concerning is the omission of cited Summit Trail System Project DEIS and FEIS documents. We remind the ONF that the data cited from these two documents are *still valid since they are data collected on riparian area conditions for the specific subwatersheds* in the Black Mountain area that overlap with the Summit Trail System Project (40 C.F.R. 1502.15, duty to describe the environment of the areas to be affected or created by the alternatives under consideration; *Neighbors of Cuddy Mtn*. v. *U.S. Forest Serv.*, 137 F.3d 1372, 1379–80 (9th Cir. 1998), agency must maintain and disclose adequate baseline data about resources it manages to allow for evaluation of a project's impacts).

As discussed in our cumulative effects-related objection, there is a considerable lack of information regarding forest-wide conditions, which is a blatant omission of information necessary to make an informed decision regarding site-specific and indirect and cumulative effects on the entire national forest (Objection 6.0, Cumulative Effects Analyses Deficiencies).

Omitting the use of the Summit Trail System Project EIS data is a failure to prepare a transparent, objective, "accurate scientific analysis" using "high quality information" that the ONF itself developed (40 CFR 1500.1(b); 40 CFR 1502.24, "Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements;" *cf.* 40 CFR 1502.22(a), "If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency

shall include the information in the [EIS]"; See also Council on Environmental Quality regulations (1981) stating that "The phrase "'range of alternatives'" refers to the alternatives discussed in environmental documents. It includes all reasonable alternatives, which must be rigorously explored *and objectively evaluated*…" [emphasis added]; See also 40 CFR 1502.14(a) "…agencies shall: (a) Rigorously explore and objectively evaluate all reasonable alternatives…) (*Save the Peaks Coal.* v. *U.S. Forest Serv*., 669 F.3d 1025, 1037-38 (9th Cir. 2015) "Agencies have a 'duty to ensure the scientific integrity of the [EISs] discussion and analysis'"; *League of Wilderness Defenders-Blue Mountains Biodiversity Project* v. *U.S. Forest Serv*., 689 F.3d 1060, 1073-75 (9th Cir. 2012), "An agency must 'ensure the 'scientific integrity' of the discussions and analyses in an EIS'").

Since some of this information and data were not provided for the Black Mountain Project analyses, we had to search for road densities information and data in other project documents such as allotment management plans and the former Summit Trail System Project EIS that encompassed the same area as the Black Mountain Project (*WildEarth Guardians* v*. Mont. Snowmobile Ass'n*, 790 F.3d 920, 927 (9th Cir. 2015), "NEPA emphasizes the importance of coherent and comprehensive up-front environmental analysis to ensure informed decision-making to the end that the agency will not act on incomplete information, only to regret its decision after it is too late to correct"). For example, data were found regarding stream habitat parameters in previous documents prepared for the Summit Trail System Project analysis and within the Peterson Creek and Porter Creeks subwatersheds. Because the ONF applied data from these subwatersheds to its Summit Trail System Project analysis, it invalidates the argument that the same data are not applicable for the Black Mountain project area that contains these same subwatersheds.

1.4.1.1 Desired Future Condition for Riparian Areas, Streams, and Watersheds (DEIS Scoping Comment 1, Comment 5; DEIS Comment 1, Comment 2, Comment 3)

The Ochoco Forest Land and Resource Management Plan (LRMP)(U.S. Forest Service 1989 at Page 4-36) states that "Desired future condition of the Ochoco National Forest includes: In ten years, individual watersheds on the Forest that are currently in excellent condition are expected to remain so and those not presently in good condition would be given first priority for improvement. Fifty years and beyond, it is expected that 90 to 95 percent of the riparian areas on the Forest will be in "excellent condition" by the year 2040. No significant increases in run-off for the Forest are expected."

In addition to the LRMP goals for desired future conditions, the ONF must address other goals, standards, and guidelines aimed at riparian, stream, and watershed protections, including, but not limited to the following:

ONF LRMP Goal(s) for Water Quality and Quantity

Maintain or improve water quality, quantity, and timing of run-off. Comply with the objectives of the "Clean Water Act" and Oregon State water quality standards (U.S. Forest Service 1989).

Forest-wide Standards and Guidelines for Water Quality and Quantity

Crooked River, John Day River, and tributaries will not be maintained at 68° F, and will not be increased. Temperatures at or below 66 degrees may be raised a maximum of 2 degrees F.

Where stream temperatures exceed 68° F, management activities will include objectives for reducing temperatures to levels that will improve fish habitat capability. Turbidity stream channel cutbanks should not exceed an average of 20 percent for any given stream drainage.

ONF LRMP Goal Riparian Management Areas MA-15 (U.S. Forest Service 1989)

For management purposes, a special protection area (100 feet from the edges of perennial bodies of water) will be apparent. In addition, the streams listed below will receive extra protection to 200 feet from the stream edge to provide "connective habitat" for a variety of wildlife species on the Forest – list includes Allen Creek.

INFISH (U.S. Forest Service 1995)

INFISH set riparian goals to include: maintain or restore water quality, stream channel integrity and channel processes, and instream flows to support healthy riparian and aquatic habitats. INFISH states that "Actions that reduce habitat quality, whether existing conditions are better or worse than objective values, would be inconsistent with the purpose of this interim direction. Without the benchmark provided by measurable RMO [riparian management objectives], habitat suffers continual erosion" (INFISH, Appendix E-3).

INFISH includes the following objectives for Riparian Management Objectives[2]:

- Bank stability greater than 80 percent
- Width/depth ratio (W/D) less than 10, (mean wetted width divided by mean depth)
- Shade greater than 80 percent of water surface shaded
- Large woody debris greater than 20 pieces per mile; less than 12 inches diameter; less than 35-foot length
- Pool frequencies varies by width (10-foot channel width = 96 pools/mile, 20-foot channel width = 56 pools/mile, 25-foot channel width = 26 pools/mile, etc.)
- Water temperature less than 59° F within adult holding habitat. No measurable increase in maximum water temperature (7-day moving average of daily maximum temperature measured as the average of the maximum daily temperature)
- Turbidity: Stream channel cutbanks should not exceed an average of 20 percent for any given stream drainage.

Central Oregon LandWatch asserts that the preferred alternative does not meet the LRMP goals, standards, and guidelines related to water quality and quantity, including those listed above. As such, restoration of riparian and wetland habitats should be part of a "vegetation management" project and, therefore, the project should include measures to reduce or stop the activities that contribute toward riparian and stream degradation. The preferred alternative will fail to achieve the goals of restoring riparian vegetation because the ONF did not balance vegetation management impacts, high road densities, and grazing impacts with restoration of riparian and wetland habitats when developing this

[2] It is unlawful to modify any of the Riparian Management Objectives without supplying stream-reach specific data to support the change. To the extent that the ONF modified any of the Riparian Management Objectives without providing sufficient data and explanation, the agency has violated INFISH (*See also WildEarth Guardians* v. *Jeffries*, 370 F. Supp. 3d 1208 (D. Or. 2019)).

alternative. COLW fails to understand, and the ONF has not justified, how a preferred alternative containing more than 50 miles of new, temporary, and reconstructed temporary roads; preserving existing high road densities; allowing motorized access on nearly one-half of the project area for harvest treatment; and maintain intensive livestock grazing will achieve goals for historic range of variability, desired future conditions, and riparian and wetland restoration.

Similarly, the ONF has failed to adequately evaluate acknowledged short-term impacts, while at the same time, arbitrarily asserting that long-term benefits will offset any short-term impacts almost immediately—within 3 years—without conducting a full and fair assessment of the effectiveness of project mitigation measures (*Pac. Coast Fed'n of Fishermen's Ass'ns* v. *Nat'l Marine Fisheries Serv.*, 265 F.3d 1028, 1035–37 (9th Cir. 2001), failure to address short-term impacts; *S. Fork Band* v. *U.S. DOI*, 588 F.3d 718, (9th Cir. 2009), "An essential component of a reasonably complete mitigation discussion is an assessment of whether the proposed mitigation measures can be effective").

1.4.1.2 Habitat and Stream Inventories (DEIS Scoping Comment 1, Comment 2, Comment 3, Comment 5; DEIS Comment 2, Comment 3)

Central Oregon LandWatch asserts that it is critically important to forest management planning to collect current data, analyze trends, and develop appropriate conclusions to identify management practices that are contributing to those trends (*Half Moon Bay Fishermans' Marketing Ass'n* v. *Carlucci*, 857 F.2d 505, 508 (9th Cir. 1988), "Without establishing the baseline conditions" in the project area before the action begins, "'there is simply no way to determine what effect the [action] will have on the environment, and consequently, no way to comply with NEPA'"). A valid, reliable, and targeted analysis can establish trends that lead to appropriate actions to avoid, minimize, and mitigate project activities. Further, the use of high-quality data applied to accurate scientific analyses is required by NEPA (40 CFR 1500.1(b), 1502.14(a); *Save the Peaks Coal.; League of Wilderness Defenders-Blue Mountains Biodiversity Project*). As we continue to claim, critical data regarding habitat condition rating by streams was overlooked by the ONF in preparing the FEIS.

We illustrate the Porter Creek area analysis as one example of this significant data oversight. The ONF failed to include any data from past surveys on shade in the Porter Creek area in its FEIS analyses of alternatives. Instead, the ONF merely concluded that the 80 percent standard is unattainable without supporting, scientific rationale (FEIS Existing Condition – Stream Temperature, Page 112).

Porter Creek surveys also illustrate steady increases in width/depth ratios in reach 2 from 16 in 1992, to 18.4 in 2007, to 20.9 in 2014 (FEIS, Existing Condition – Pool Quantity and Quality, Table 40, Page 136). Width/depth ratios for streams this size should be less than 10. These data, therefore, demonstrate that not only were width/depth ratios failing to meet healthy standards for good riparian habitat, channel morphology was trending downward in quality. This is a serious concern because with declining channel morphology, streams are further isolated from floodplains and, concurrently, riparian vegetation continues to decline. In turn, these degraded conditions then result in declining shade and increasing temperatures along stream reaches.

Surveys for Allen Creek in 1994 were also omitted from the FEIS analyses, although documented in other ONF literature and studies (U.S. Forest Service 2016, herein incorporated by reference per 36 CFR 218). These 1994 results demonstrated that, from "bottom line surveys," shade ranged from 50 percent to 80 percent, with three of the four reaches violating the 80 percent shade standard. Peterson Creek has been extensively surveyed in both 1994 and 2003; surveys demonstrated that shade ranged from 21

percent to 43 percent, again violating the INFISH shade standard (U.S. Forest Service 2016). Porter Creek was surveyed in 1993 and 1994 and again in 2010 (U.S. Forest Service 2016). While shade ranged from 23 percent to 78 percent in 1993 and 1994, the range had declined to 26 percent to 39 percent in the four reaches measured in 2010 (U.S. Forest Service 2016). The data showed that habitat conditions declined, due to management activities that fail to restore native riparian species and channel conditions.

The Allen Creek surveys also provide pertinent data on shade, bank stability, large woody debris, and pool frequency for four reaches in the project area (U.S. Forest Service 2016). Both large woody debris and pool frequency declined dramatically from 1994 to 2002. Large woody debris is a very important parameter to monitor trends for stream health and fish habitat quality.

1.4.1.3 Summary on Missing Data and Noncompliance with Goals, Standards, Guidelines, and NEPA Regulations

Central Oregon LandWatch concludes that the ONF failed to adequately incorporate all available and appropriate data for stream and riparian habitat parameters, and further failed to analyze that data to demonstrate trends in stream and riparian conditions in the project area. Without adequate analysis and mitigative actions from management activities, RHCAs will continue to degrade and not move toward historic conditions.

The ONF failed to use the appropriate scientific data and analyses to meet goals, standards, guidelines, and NEPA regulations to protect riparian areas and wetlands. The ONF has a regulatory duty to include all relevant, pertinent data from Allen, Peterson, and Porter Creeks assessments. Regardless of the survey dates, these data support critical trends of stream-related conditions. They also include measurable objectives for stream habitat parameters that can document status and trend of stream health.

The following subsections highlight data inadequacies identified by COLW for particular stream parameters.

1.4.2 Sediment (DEIS Scoping Comment 2, Comment 3, Comment 5; DEIS Comment 1, Comment 3)

Important empirical data collected on sediment fines in streams is not presented and discussed in the FEIS. This is a significant concern for COLW because the ONF largely relies on a theoretical model to analyze sediment.

Sediment fines are an important parameter in measuring stream health. Bjornn et al. (1977) found that when the percentage of fine sediment exceeds 20 percent in spawning riffles, the survival and emergence of salmonid embryos begins to decline. Turbidity and sediment fines from soil erosion impact water quality and fish habitat. A 20 percent embeddedness or sediment fines on a substrate is a threshold well established in the literature (Bjornn and Reiser 1991; Rhodes et al. 2000; Rowe et al. 2003).

Central Oregon LandWatch found applicable data in other ONF project documents (evidence that the ONF should have used its own, known data and sources). These data demonstrate that measurement of fines in the project area were recorded for Allen Creek in 2002 of Reach 1 (15 percent), Reach 2 (23 percent), Reach 3 (26 percent) and Reach 4 (24 percent), with three out of four reaches violating the 20

percent threshold and showing impairment (U.S. Forest Service 2014, herein incorporated by reference per 36 CFR 218). Peterson Creek also supported impaired reaches when measured in 2007 - Reach 1 (19 percent), Reach 2 (41 percent), Reach 3 (42 percent), Reach 4 (13 percent), Reach 5 (45 percent), and Reach 6 (none). Porter Creek had sediment impairment of 22 percent (Id.). The streams measured in the project area are largely greater than the 20 percent standard, and exhibit sedimentation violating state water quality standards and the ONF standard and guideline. Therefore, these streams are already compromised by past and present land use practices, which is a factor that requires accountability in the FEIS.

The ONF states that instead of using empirical data, a model was used to analyze and compare potential sediment increases and decreases between the alternatives (FEIS, Sediment Delivery, Page 102). However, the ONF offers no transparent, justifiable rationale on what data was used for model inputs, assumptions that were made, and its analytical methods. The ONF merely presented a summary of model outputs estimating sediment loads with broadly-applied conclusions that sediment will increase under the No-action Alternative and will decline under both action alternatives (FEIS, Summary of Environmental Effects, Sediment, Page 118). The agency must "explain the conclusions it has drawn from its chosen methodology, and the reasons it considers the underlying evidence to be reliable" (*Lands Council* v. *McNair*, 537 F.3d 981, 994 (9th Cir. 2008)). The ONF's conclusions are not supported by empirical data.

Model analyses are only as good as the data, assumptions, site-specific conditions, and inputs used in the model. Central Oregon LandWatch is skeptical of the ONF results and concerned that, between the lack of transparency and hard look at short-term and long-term effects, the model overstates the benefits of the action alternatives. While the Water Erosion Prediction Project (WEPP) model can be useful for understanding sediment sources, the results are not based on site-specific data. Vegetation management projects conducted by the ONF in recent years on the forest (e.g., Gap, Wolf, Howard Elliot Johnson Management Projects) have failed to reduce sediment loading from management activities and to restore streams. It is difficult to believe that the same impactful activities will achieve a different result in a different location (i.e., the Black Mountain project area).

Central Oregon LandWatch also questions why sediment additions were only estimated for 10 percent of commercial timber harvest areas. The ONF states, "Sediment estimates from timber harvest were calculated with the assumption of the area affected by skid trails with primary skid trails generally spaced 100 feet apart approximately 10 feet in width equating to approximately 10% of a unit's area to minimize soil displacement and compaction" (FEIS, Environmental Consequences – Sediment Delivery, Page 106). But this estimate is contradicted by the ONF assertion that "Skid trails on an average of 100-foot spacing contribute roughly 10-15 percent disturbance in an average unit with landings and roads making up an additional five and two percent, respectively" (FEIS, Commercial Thinning Activities, Page 86). Therefore, combined disturbance could impact 20 percent of a unit area, not 10 percent as stated on page 106. Further, the sediment analyses did not appear to include estimates of disturbance caused by thinning and prescribed burns, although some units received all three treatments.

Habitat parameters for Allen, Peterson and Porter Creeks already demonstrate poor quality habitat with many reaches violating standards for cutbanks, width/depth ratio, bank stability, sediment fines, and other parameters. COLW remains skeptical that the ONF can move the project area riparian and wetland conditions toward a historic range that would be characterized by thriving riparian vegetation and a restored channel morphology, when these subwatersheds largely fail to meet functioning watershed

conditions under the ONF's current management practices and knowledge of past and present actions that have caused significantly degraded conditions across the national forest.

1.4.2.1 Summary of Missing Sediment Data and Inadequate Analyses

Critically-important information omitted in the FEIS analyses would have demonstrated the degree to which project area streams are impacted by sediment from past and ongoing management activities. Applying this information is a fundamental duty of federal agencies under NEPA, and the failure to do so renders the analysis weakened and draft ROD uniformed (40 CFR 1500.1(b), 1502.14(a); *Save the Peaks Coal.; League of Wilderness Defenders-Blue Mountains Biodiversity Project*). Per NEPA regulations at 40 CFR 1500.1(c) "Ultimately, of course, it is not better documents *but better decisions that count*. NEPA's purpose is…to *foster excellent action*. *The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment*." [all emphasis added].

The ONF failed to be transparent and adequately show all sediment and turbidity data available for stream and riparian habitat sediment parameters to the public. The ONF also failed to analyze trend data for important stream parameters. The empirical data also indicated that streams fail to meet water quality standards for sediment and turbidity. Without adequate analysis and mitigative actions from management activities, RHCAs will continue to degrade and not move toward conditions exemplified by the historic range of variability.

Further, the ONF was not transparent with the use of the WEPP model, and there was no attempt to be transparent with model parameters, assumptions, and inputs. Therefore, we find the broadly-applied conclusions regarding action and no action alternatives unsupportable by best available scientific data and analyses. Because of these flaws, the ONF fails to meet NEPA requirements to take hard look and to ensure an informed decision based on best available information and scientific analyses. The ONF also fails to meet policies and standards to protect riparian areas and wetlands.

1.4.3 Shade/Temperature (DEIS Scoping Comment 1, Comment 2, Comment 3, Comment 4, Comment 5; DEIS Comment 2, Comment 3)

Shade and temperature data indicate that Allen, Peterson and Porter Creek fail to meet both forest plan standards and U.S. Forest Service, Region 6 standards. The ONF reports that Allen Creek, Porter Creek, Peterson Creek, and the North Fork Crooked River are on the Oregon Department of Environmental Quality (ODEQ) 303(d) list due to elevated summer water temperature. These streams have been continuously monitored since 1994 and have consistently surpassed [violated] the ODEQ 64°F standard (FEIS, Existing Condition – Stream Temperature, Page 112).

We disagree with the ONF assertion that "Synthesis of shade measurements from R6 Level II stream surveys conducted over the last 25 years in reaches across Allen Creek, Porter Creek, Dry Porter Creek, East Porter Creek, and the North Fork Crooked River, indicates 80 percent is most likely an unattainable provision for this project area in the existing condition." (Id. at Page 112). Similar streams on the forest that experience less management activity disturbances from timber harvest, livestock grazing, and high road densities, meet the 80 percent shade standard such as Brush Creek on Lookout Mountain and Rock and Cottonwood Creeks that drain into the John Day basin. Even a portion of the lower reach of Porter Creek below the "swimming hold" area that is in a steep canyon and blocks access to livestock grazing typically exceeds the 80 percent INFISH shade requirement (Figure 1 – Main Issue Topic 1.0 Objection).

The ONF cannot logically support its conclusions that 80 percent shade is most likely unattainable because some streams managed by the ONF approximate "reference conditions" on the forest such as Brush Creek. These streams do meet shade standards in forested reaches in the roadless area. The ONF must justify its conclusion with supportable science and an explanation of why it cannot plan its management activities to achieve the 80 percent shade requirement specifically in the Black Mountain project area.

Figure 1.0 – Main Issue Topic 1 Objection. Porter Creek looking downstream of the "swimming hole."

Notes: Downstream of this area, Porter Creek drops into a steep sided canyon for part of the lower reach and is largely unused or accessed by cattle. Shade from riparian shrubs and conifer overstory typically reach or exceed the 80 percent standard. Note the abundant shrub component in early May 2019 despite the conifer overstory (Note also pups, Summer and Liberty in the foreground). Photo by Central Oregon LandWatch.

The reason that project area streams generally fail to meet the shade standard is because of impacts from livestock grazing, high road densities, and past timber harvest that have caused the channel to lose streamside vegetation resulting in downcut channels below the floodplain.

The temperature data essentially demonstrate the same dire conditions as the shade data, which was also omitted in the FEIS by the ONF. COLW researched available temperature data for Allen, Peterson, and Porter Creeks and their tributaries found in ONF allotment management plans and its Summit Trail System Project files. These data showed that most stream reaches fail to achieve state water quality standards from approximately mid-May to mid-September, and sometimes as late as mid-October (U.S. Forest Service 2016). The high temperatures were typically a reflection of significantly poor channel and shade conditions.

For example, Porter Creek at the confluence with the North Fork Crooked River had a 7-day running average of maximum temperatures that were recorded for 122 days in 2000 from June 23 to October 28. During that time period, temperatures recorded over 25 days were less than 59°F, 28 recorded days demonstrated between 59°F and 68° F, and 69-day recordings exceeded 68°F. In other words, during the vast majority of the recorded time period, stream temperatures violated the state water quality standard during the summer of 2000. Much of the data shown for Allen, Peterson and Porter Creeks showed violations of state temperature standards for spring through early fall for every year data were collected. None of these temperature data are presented or analyzed in the FEIS.

Studies have well demonstrated the impacts of stream temperatures on aquatic organisms. Higher stream temperature impacts aquatic species by raising stream temperatures above the tolerable range for rearing, and increases vulnerability to disease, reduces metabolic efficiency, shifts fish species assemblages, and inhibits upstream migration (Beschta et al. 1987; Hicks et al. 1991). After flow, high summer water temperatures are probably the second largest factor affecting fish in the Crooked River basin (Stuart et al. 1996). Optimal stream temperatures for rainbow trout are 54°F to 64°F. Water temperatures in headwater streams on the ONF often exceed 70°F and have been recorded as high as 83°F, well in excess of state water quality standards for the Deschutes River basin (Stuart et al. 1996).

Habitat conditions on the ONF indicated that many streams were in poor condition with high summer water temperatures, suboptimal shading and lack of large wood, due to past and present forest management activities (Stuart et al. 2007). The authors' study of the Crooked River basin and streams on the ONF indicated that many streams had high temperatures. Their data indicated that redband trout are highly susceptible to increasing water temperatures and exhibit swift declines in abundance as stream temperatures increase, one of the parameters for redband survival and persistence.

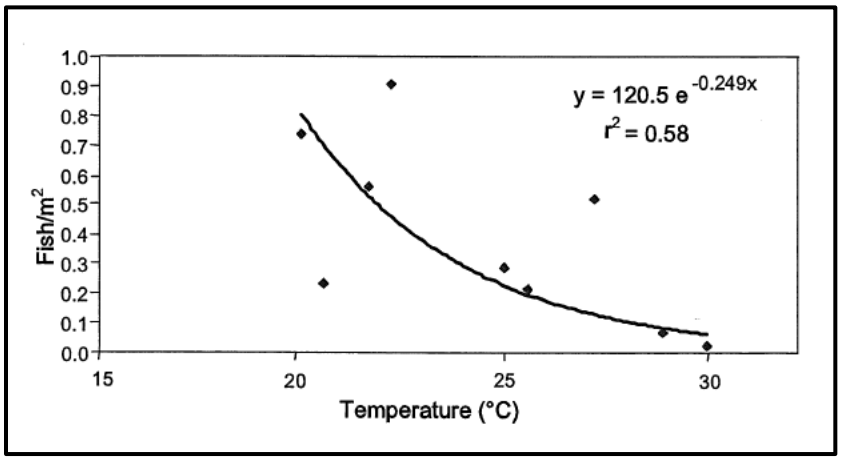

Figure 2 – Main Issue Topic 1.0 Objection. Relative abundance of redband trout declines many fold as stream temperatures increase (from Stuart et al. 2007).

These small populations of redband trout are at risk of extirpation during drought conditions and from climate change bringing warmer and drier conditions. This risk is particularly significant because Allen Creek and Peterson Creek are disconnected from the North Fork Crooked River and any other streams in the basin by dams downstream of the project area. This risk was documented on Double Cabin Creek in the Maury Mountain in the southern part of the Ochoco Mountains in 1994, when extreme drought conditions extirpated redband trout in this small stream that was disconnected from other streams by dams downstream on private lands. The future of redband trout populations in Allen and Peterson

Creeks is at significant risk because the ONF is not managing to improve risk scenarios for these small, disconnected populations by altering management activities and restoring stream conditions. The additional, direct, indirect, and cumulative impacts resulting from proposed treatment activities (e.g., harvest in riparian areas, road development and use, and livestock grazing) will jeopardize the future of redband trout in these creeks.

The ONF states that young conifers in riparian areas are causing stream degradation. An example is the comment "The existing condition of the natural stream buffers in the Black Mountain project has dense stands outside of HRV which outcompete the understory for basic resources like water, light, and nutrients. This loss of understory vegetation reduces the sediment buffer effectiveness." (FEIS, Sediment Delivery, Page 104). The implication is that dense conifers are adding to stream degradation is not supported by any science. Conifers in riparian zones are a *consequence* of stream degradation, *not a cause*. For example, streams have downgraded and lost contact with the floodplain in many reaches of Porter Creek, largely due to livestock grazing, not due to "dense conifers." The following is a photo of Porter Creek with a downgraded channel and lack of riparian vegetation due to livestock grazing (Figure 3 – Main Issue Topic 1.0 Objection). Central Oregon LandWatch found very scattered remnant willows, alders, and cottonwoods that were "winking out" because they were grazed hard by livestock. This decline will continue without substantial recovery efforts, and improved management of livestock, and reduced road densities. It will not recover from the removal of conifers and significantly, adversely impactful, associated management activities.

Figure 3 – Main Issue Topic 1.0 Objection. Reach of Porter Creek in early May 2019 when there was flowing water (above of the "swimming hole").

Note downgraded channel, wide width/depth ratio, cutbanks, and lack of riparian vegetation such as willows, alder and cottonwoods, caused by livestock grazing. The reach was dry by late June 2019) in what was once a perennial flow reach.

The Oregon Department of Fish and Wildlife conducted habitat and fish population surveys of three streams in the early 1990s on the ONF that were examples of different levels of management activities and impacts to riparian areas and fish habitat (Dambacher and Jones 2007). The researchers found that Brush Creek, largely in the Lookout Mountain Roadless Area, with the exception of the lowest reach near Big Summit Prairie, had a very low level of management including low intensity of cattle grazing and timber harvest, and as a result, had low water temperatures, high amounts of shade, large woody

debris, and good bank stability. These are all characteristics of good stream habitat. The other two streams, Porter and Roba Creeks, had successively higher levels of livestock grazing and moderate to high levels of timber harvest that resulted in lower quality stream habitats with much less shade and higher water temperatures in comparison to Brush Creek conditions.

Fish population surveys correlated well with habitat quality. Although available habitat for redband trout in the three streams differed by no more than a factor of 1.6, there was a 20-fold higher abundance of redband trout in Brush Creek, the stream with a low level of livestock grazing and timber harvest, and good riparian and stream characteristics.

1.4.3.1 Summary of Missing Shade and Temperature Data and Inadequate Analyses

Central Oregon LandWatch concludes that the ONF failed to adequately incorporate all shade and temperature data available and to share that information with the public. This information is important for the public and the decisionmaker to understand the existing conditions and trends, and how the proposed management activities might support or interfere with stream and riparian habitat conditions and restoration goals. Without this information, an informed decision cannot be made about the impacts of the preferred alternative (*Dep't of Transp.* v. *Pub. Citizen*, 541 U.S. 752, 768 (2004), agency must make relevant information available to the larger audience so that it may play a role in both the decision-making process and the implementation of the decision).

Applying available and applicable shade and temperature data is a fundamental duty of the ONF under NEPA, and the failure to do so renders the analysis weakened and the draft ROD uniformed (40 CFR 1500.1(b), 1502.14(a); *Save the Peaks Coal.; League of Wilderness Defenders-Blue Mountains Biodiversity Project*). Per NEPA regulations at 40 CFR 1500.1(c) "Ultimately, of course, it is not better documents *but better decisions that count*. NEPA's purpose is…to *foster excellent action*. *The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment*." [all emphasis added].

The empirical data indicates that streams fail to meet forest plan and state water quality standards for sediment and turbidity over the past almost three decades. Without adequate analyses and mitigative actions from land management activities, COLW anticipates that RHCAs will continue to degrade and not move toward conditions exemplified by the historic range. The use of the WEPP model and failure to be transparent with model parameters and broadly-applied conclusions regarding the action and no-action alternatives also indicates that the ONF fails to meet laws, policies, and standards that were developed and implemented to protect riparian areas and wetlands. The restoration of riparian areas and wetlands to historic ranges of variability is fundamental to the restoration of aquatic species and their habitats.

1.4.4 Large Woody Debris and Pool Frequency (DEIS Scoping Comment 1, Comment 3, Comment 4; DEIS Comment 2, Comment 3)

Streams in the project area largely fail to meet INFISH standards for large woody debris (greater than 20 pieces per mile, less than 12 inches diameter, less than 35-foot length, and pool frequency, which varies by width) (See INFISH summary of standards above). The ONF reports that "Data collected in the project area indicates streams are considerably below the functioning standard minimum pool frequencies and exhibit generally increasing width to depth ratios and low large wood densities (Table 40). PIBO data

reveals that the number of pools has decreased between 2001 and 2011 in Peterson and Porter Creek (Table 43)." (FEIS, Existing Condition – Pool Quantity and Quality, Page 135).

We commend the ONF for taking a more proactive approach and placing large woody debris in several reaches of project area streams where streams are deficient. However, we request that trees collected for instream restoration be collected outside of RHCAs. COLW is also concerned that proposed treatments including harvest, thinning, and prescribed burns will have the unintended consequence of reducing shade and existing and future large woody debris recruitment in RHCAs. Placing large woody debris in streams will help provide the opportunity for restoration of pools from high flow events.

1.5 Suggested Remedies for Issue Statement #1.1 to Improve the Proposed Decision

The objections described above warrant inclusion of additional information into the EIS analyses based on best available information that was overlooked by the ONF. New information necessary to make an informed decision supports development of either a supplemental DEIS or a revised DEIS to meet the requirements and purposes of NEPA (*Warm Springs Dam Task Force* v*. Gribble*, 621 F.2d 1017, 1024 (9th Cir. 1980), "When new information comes to light, the agency must consider it, evaluate it, and make a reasoned determination whether it is of such significance as to require [an SEIS]"). "The draft statement must fulfill and satisfy to the fullest extent possible the requirements established for final statements in section 102(2)(C) of the Act. If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion" (40 CFR 1502.9(a)).

Also, from 40 CFR 1502.9:

Agencies:

(1) Shall prepare supplements to either draft or final environmental impact statements if:

   (i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or

   (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

(2) May also prepare supplements when the agency determines that the purposes of the Act will be furthered by doing so.

(3) Shall adopt procedures for introducing a supplement into its formal administrative record, if such a record exists.

(4) Shall prepare, circulate, and file a supplement to a statement in the same fashion (exclusive of scoping) as a draft and final statement unless alternative procedures are approved by the Council.

Central Oregon LandWatch requests that the Responsible Official be instructed to revise or to prepare a supplemental DEIS made available for additional public review that includes the following measures:

1. Instruct the Responsible Official to revise the purpose and need for this proposed action to move RHCAs toward historic range and conditions.

2. Instruct the Responsible Official to revise the affected environment that includes accurate descriptions of channel morphology, vegetative composition, shade, temperature, large woody material, pool frequency, and other relevant parameters.

3. Instruct the Responsible Official to improve models used to develop the analyses by including all available data demonstrating trends in stream and riparian conditions, including sediment, shade, water temperature, large woody debris, and pool frequency data. Disclose all data used in the models. Re-analyze impacts based on all relevant site-specific data on stream habitat. Modify the environmental consequences analyses accordingly.

4. Instruct the Responsible Official to revise the WEPP sediment model to include analysis of all areas of disturbance, not just commercial harvest units and roads. Include disturbance and sediment produced from all activities including harvest, roads, thinning and prescribed burning. Modify the environmental consequences analyses accordingly.

5. Instruct the Responsible Official to revise the alternatives descriptions to include measures to comply with all laws, policies, guidelines, and standards for stream and riparian health as outlined in this Main Issue Topic, including requirements for all instream parameters described herein.

6. Instruct the Responsible Official to revise the alternatives descriptions to include management measures that will ensure compliances with forest plan and state water quality standards for sediment and turbidity in project area streams.

7. Instruct the Responsible Official to revise the alternatives to include measures to reduce or stop the activities that contribute toward riparian and stream degradation. Such measures should include:

    - Elimination or reduction of all treatments for commercial timber harvest, thinning, and prescribed burning in riparian areas unless they will be completely protected from livestock grazing.

    - Retention of all trees in RHCAs. Where any trees are proposed for removal in RHCAs, these trees must be placed instream and not harvested for commercial purposes. All trees within the potential tree height of that species must be left for shade and future large woody debris recruitment.

    - Limit harvest of trees for instream large woody debris recruitment to areas outside of RHCAs.

    - Commitments to fund, construct, monitor, and maintain fences proposed to limit cattle access to streams. Substantially increase the amount of funding dedicated to fencing projects, and construct fences along many more miles of streams than currently proposed to block cattle

access to degraded reaches along Peterson and Porter Creeks. Fence all existing cottonwood stands along Porter Creek.

- Increases in the amount of mitigation (e.g., fencing, remove treatment units in RHCAs, close additional miles of roads) and monitoring needed to restore riparian areas and wetlands to historic ranges of variability.

8. Instruct the Responsible Official to revise the affected environment and environmental consequences to disclose past impacts to riparian areas and streams that were part of the historic dry forest vegetative conditions on the ONF. Include detailed information in the impact assessment of anticipated short- and long-term impacts to current riparian conditions, and adequately explain how treating almost one-half of the *forested* portion of the project area is justified without restoring riparian areas.

9. Instruct the Responsible Official to revise the affected environment and environmental consequences to disclose actual soil and sediment conditions in the project area an overall ONF. Include data on project area streams that have an excess of fine sediment. Revise the impacts assessment to address the proposed three treatments and development of additional temporary roads, particularly in RHCAs. Describe anticipated levels of further stream degradation by added additional sediment from these treatments and road development and use.

10. Instruct the Responsible Official to revise the ONF disturbance model by including sediment caused by disturbances from thinning and prescribed burning. Subsequently, revise the environmental consequences analyzes. Since over 10,000 acres will have disturbance from thinning and burning, the ONF failed to account for increased sediment yield to streams from these activities and substantially underestimated impacts to streams and riparian areas.

11. Instruct the Responsible Official to revise the affected environment and environmental consequences to explain how riparian restoration can meet desired future conditions and historic range of variability when cattle will be allowed to access significantly damaged RHCAs after treatments have occurred.

12. Instruct the Responsible Official to revise the preferred alternative to include a commitment to fund, construct, monitor, and maintain fences proposed to limit cattle access to streams. Substantially increase amount of funding and construct many more miles of streams to block cattle access to degraded reaches along Peterson and Porter Creek. Fence all existing cottonwood stands along Porter Creek.

13. Instruct the Responsible Official to revise the alternatives to justify the assumption that dense conifers contribute to stream degradation, which is the context for the purpose and need for the proposed action. Use best available science to support this assumption.

14. Instruct the Responsible Official to revise the alternatives to explain why the ONF cannot plan its management activities to achieve the 80 percent shade requirement specifically in the Black Mountain project area. Present best available science and evidence as to why this goal is unattainable given other successes on the ONF.

1.6 List of Citations to Support Issue Statement and Remedies #1.1

40 CFR 1500.1(b), Purpose.

40 CFR 1500.1(c), Purpose.

40 CFR 1502.9, Draft, final, and supplemental statements.

40 CFR 1502.14(a), Alternatives including the proposed action.

40 CFR 1502.15, Affected environment.

40 CFR 1502.22(a), Methodology and scientific accuracy.

40 CFR 1502.24, Methodology and scientific accuracy.

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Bjornn, T. C. and D. W. Reiser. 1991. Habitat requirements of salmonids in streams. *In*: Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitat (W. R. Meehan, Ed.). Bethesda, MD: American Fisheries Society Special Publication 19.

Bjornn, T. C., and six coauthors. 1977. Transport of granitic sediment in streams and its effects on insects and fish. University of Idaho, Forest, Wildlife, and Range Experiment Station, Bulletin 17, Moscow, ID.

Council on Environmental Quality. 1981. Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations. Question 1a. Memorandum to Agencies. March 23, 1981.

Dambacher, J.M. and K.K. Jones 2007. Benchmarks and Patterns of Abundance of Redband Trout *in* Oregon Streams: a Compilation of Studies. *In* Schroeder, R.K., and J.D. Hall, editors. 2007. Redband trout: resilience and challenge in a changing landscape. Oregon Chapter, American Fisheries Society, Corvallis, OR. Pages 47-55.

Hicks, B.J., J.D. Hall, P.A. Bisson and J.R. Sedell. 1991. Responses of salmonids to habitat changes. Pp. 483-518, In: W.R. Meehan, ed. Influences of forest and rangeland management on salmonid fishes and their habitat. American Fisheries Society Sp. Publ. 19. Bethesda, MD.

Rhodes, J.J., M.J. Greene, and M.D. Purser. 2000. Monitoring fine sediment: Grand Ronde and John Day rivers. 1999 Annual Report. CRITFC Project No. 97—034-00. 49pp.

Rowe, M.M., D. Essig, and B. Jessup. 2003. Guide to selection of sediment targets for use in Idaho TMDLs. Idaho Department of Environmental Quality. 46 pp.

Stuart, A.M., S.L. Thiesfeld, T.K. Nelson, and T.M. Shrader. 1996. Crooked River basin river plan. Oregon Department of Fish and Wildlife. Salem, OR. 253 pp.

Stuart, A.S., D. Grover, T.K. Nelson, and S.L. Thiesfeld. 2007. Redband trout investigations in the Crooked River Basin. *In* Redband trout: resilience and challenge in a changing landscape. Oregon Chapter, American Fisheries Society, Corvallis, OR. Pp. 77-90.

U.S. Forest Service. 1989. Land and Resource Management Plan. Part 1. Ochoco National Forest. Reprinted 1991. Prineville, OR.

U.S. Forest Service. 1995. Inland Native Fish Strategy Environmental Assessment, Decision Notice and Finding of No Significant Impact, Intermountain, Northern and Pacific Northwest Regions. USDA Forest Service. 2006.

U.S. Forest Service. 2014. Final Environmental Impact Statement: Ochoco Summit Trail System. Ochoco National Forest, Prineville, OR. Incorporated by Reference per 36 CFR 218.

2.0 Main Issue Topic – Inadequate Description and Assessment of Riparian Areas

Issue Statement #2.1 – The Ochoco National Forest fails to adequately analyze impacts on riparian areas resulting from high road densities, treatment projects (commercial, thinning and prescribed burning), and livestock grazing in violation of the National Environmental Policy Act and the National Forest Management Act. *Note*: cumulative effects are addressed in Main Issue Topic 6.0.

2.2 Central Oregon LandWatch DEIS Scoping Comments

1. LandWatch is concerned about…habitat fragmentation and soil disturbance caused by roadwork; and degradation of riparian conditions caused by the logging operations that will not be mitigated by the project's restoration components. Given the highly degraded existing conditions in the project area, LandWatch does not believe that the ONF will be able to ensure full compliance with all applicable statutory and regulatory requirements, including requirements of the NEPA, NFMA, CWA, and ESA.

2. The DEIS must provide a full cost-benefit analysis, which apprises the public of the full scope of irreversible and irretrievable environmental impacts, evaluates alternative logging methods—including helicopter yarding—and balances the purported benefits of thinning versus the significant environmental impacts from road building (including soil damage, riparian disturbances, spread of invasive species, habitat fragmentation, increased probability of over-hunting, and increased off-road vehicles use, to name a few).

3. Pursuant to NEPA, the agency must "provide full and fair discussion of [the] significant environmental impacts" of the proposed action." 50 C.F.R. § 1502.1. In particular, the agency must take a "hard look" at the direct, indirect, and cumulative impacts of a proposed project." The agency must take a hard look at the impacts of the project on Threatened, Endangered, and Sensitive ("TES") Species, and ONF Management Indicator ("MIS") Species.

2.3 Central Oregon LandWatch DEIS Comments (by Topic, but Numbered Consecutively)

2.3.1 Peak Flow and Sedimentation

1. Correct the statement that roads have a minimal effect on sedimentation that "The current harvest road and trail network within the watershed is limited mostly to routes with minimal hydrologic connectivity and the network receives periodic maintenance and reconstruction to ensure proper drainage." Much of these legacy roads are the main roads in the project area and are typically along streams and in RHCAs. These roads are essentially still being used, so the statement that these roads have a minimal effect on sedimentation and turbidity is highly suspect. The Ochoco National Forest (ONF) should explain why they want to increase potential peak flows by putting treatments close to stream channels. Approximately 40 percent of the RHCA within the Black Mountain project would be treated near stream channels where there would be a hydrologic response.

U.S. Forest Service, Ochoco National Forest, Response to the DEIS Comment (FEIS, Appendix G)

Peak Flow and Sedimentation Response #47

The current road and trail network referenced by the commenter is specific to roads and trails used for harvest (harvest network) as part of the Black Mountain project and does not include every system or non-system road in the project area.

Peak Flow and Sedimentation Response #48

The peak flow analysis has been edited for clarity and accuracy. Please refer to pages 96-101 of the FEIS. Please refer to comment/response 72-76 for additional information regarding treatments in Riparian Habitat Conservation Areas (RHCAs).

2.3.2 Livestock Grazing

2. The DEIS does not evaluate livestock grazing management other than to point out the detrimental effects grazing has on soils, vegetation, and many of the wildlife species discussed. We would like to see livestock management discussed as part of the forest restoration goals of this DEIS.

U.S. Forest Service, Ochoco National Forest, Response to the DEIS Comment (FEIS, Appendix G)

Livestock Grazing Response #63

Cattle grazing is not a component of the proposed actions in any alternatives within the Black Mountain EIS as livestock management is outside the scope of this project. Grazing is an ongoing permitted activity and is accounted for within the cumulative effects sections of each resource.

2.3.3 Historic Range of Variability

3. The ONF repeatedly concludes that overstocked conifer stands along streambanks are degrading fish habitat and this habitat will continue to decline unless the ONF actively treats the overstock stands in the uplands and along streams. While "legacy" fire suppression, timber harvest, and livestock grazing are acknowledged as a contributing factor for poor stream health and fish populations, the analyses in the DEIS largely claim that the current degradation is ongoing due to changes in forest stand composition and density. This claim is not supported in the literature. In fact, much of the stream degradation is directly attributable to high road densities and past and present livestock grazing.

U.S. Forest Service, Ochoco National Forest, Response to the DEIS Comment (FEIS, Appendix G)

Historic Range of Variability Response #67

Degradation in streams and aquatic habitat is attributed to multiple factors, including past fire suppression, road building, past harvest practices, and legacy livestock grazing, all of which have contributed to current forest stand composition and densities near streambanks.

INFISH Standards and Guidelines - Treatment Projects, Roads, Grazing in Riparian Habitat Conservation Areas (U.S. Forest Service 1995) (Applicable standard connected to comments and objections)

Timber - TM-1 b. Apply silvicultural practices for Riparian Habitat Conservation Areas to acquire desired vegetation characteristics where needed to attain Riparian Management Objectives. Apply silvicultural practices in a manner that does not retard attainment of Riparian Management Objectives and that avoids adverse effects on inland native fish.

Roads - RF-2. Cooperate with Federal, Tribal, State, and county agencies, and cost-share partners to achieve consistency in road design, operation, and maintenance necessary to attain Riparian Management Objectives. For each existing or planned road, meet the Riparian Management Objectives and avoid adverse effects to inland native fish by:

a. completing watershed analyses prior to construction of new roads or landings in Riparian Habitat Conservation Areas within priority watersheds.

b. minimizing road and landing locations in Riparian Habitat Conservation Areas.

Grazing - GM-1. Modify grazing practices (e.g., accessibility of riparian areas to livestock, length of grazing season, stocking levels, timing of grazing, etc.) that retard or prevent attainment of Riparian Management Objectives or are likely to adversely affect inland native fish. Suspend grazing if adjusting practices is not effective in meeting Riparian Management Objectives.

2.4 Objections with Connection to Prior Central Oregon LandWatch Comments by Comment Number Above

The following objections are specific to the summarized Issue Statement above. The Central Oregon LandWatch (COLW) DEIS Comments and the ONF Responses, above, are directly connected to the content of these objections because they are the sole focus of the objections (36 CFR 218(d)(6)). The objection subheadings demonstrate the connection between COLW comments and the objection content (36 CFR 218(d)(6)). See generally the Expert Reports of Amy Stuart and Jonathon Rhodes for further detail on this objection topic, which are included with this objection.

2.4.1 Historic Range of Variability (DEIS Scoping Comment 1 and Comment 2; DEIS Comment 3)

The ONF asserts that the goals of the proposed project are to restore the historic range of variability for forested areas; however, riparian areas and wetlands, which are ecosystem elements of the historic range of variability, will not be restored under the preferred alternative (FEIS, Summary, Purpose and Need, Page 3). Central Oregon LandWatch objects to this invalid and unsupportable assertion.

The proposed vegetation management project cannot restore riparian and wetland areas to historic conditions (i.e., desired future conditions) unless resolving the underlying causes of degradation, which are high road densities and intensive livestock grazing. Simply harvesting, thinning, and burning

in large areas across the ONF will fail to restore riparian areas to the historic range of variability. The ONF failed to take a hard look at this issue under NEPA, and failed to demonstrate how this project complies with the Ochoco Forest Land and Resource Management Plan (LRMP).

The Ochoco Forest LRMP states that:

> Desired future condition of the Ochoco National Forest includes: In ten years, individual watersheds on the Forest that are currently in excellent condition are expected to remain so and those not presently in good condition would be given first priority for improvement. Fifty years and beyond, it is expected that 90 to 95 percent of the riparian areas on the Forest will be in "excellent condition" by the year 2040. No significant increases in run-off for the Forest are expected (U.S. Forest Service 1989 at Page 4-36).

Restoration of riparian and wetland habitats are a necessary part of a "vegetation management" project and, therefore, the project must include measures to reduce or stop the activities that contribute toward riparian and stream degradation incompliance with LRMP directives. The preferred alternative will fail to achieve the goals of restoring riparian vegetation because the ONF did not balance vegetation management impacts, high road densities, and grazing impacts with restoration of riparian and wetland habitats when developing this alternative. The ONF has not justified how a preferred alternative containing more than 50 miles of new, temporary, and reconstructed temporary roads; preserving existing high road densities; allowing motorized access on nearly one-half of the project area for harvest treatment; and maintain intensive livestock grazing will achieve LRMP goals, standards, and guidelines to achieve historic range of variability, desired future conditions, and riparian and wetland restoration. It is not clear that the ONF has demonstrated compliance with the governing forest plan, which is a National Forest Management Act violation (*Native Ecosystems Council* v*. U.S. Forest Serv.*, 418 F.3d 953, 963 (9th Cir. 2005), court must be able to determine from the record that the Forest Service is in compliance with the relevant forest plan standards; See Id*.* at Pages 964 to 965, failure to adequately explain forest plan consistency also triggered attendant violations of NEPA).

2.4.2 Roads (DEIS Scoping Comment 1, Comment 2, Comment 3; DEIS Comment 1, Comment 3)

ONF fails to adequately address COLW's scoping or DEIS comments pertaining to roads. We requested that the ONF take a hard look at impacts, and specified our concerns about road density, development, and use in several comments. The ONF cannot make an informed decision regarding road-related impacts because its high road and trail densities on the national forest are not visually depicted on a map, nor are they analyzed as contributing to direct, indirect, and cumulative adverse effects on the ONF. This is not a hard look.

The ONF has mislead the decisionmaker by persuading the false conclusion that road densities in the project area meet forest standards (less than 3 miles/square mile). This arbitrary conclusion is confounded by the conclusions that roads in the project area do not cause impacts to streams, riparian areas, aquatic biota, and fish and wildlife habitat and behavioral patterns. As an example, the FEIS claims that there are open road densities of 2.28 miles/square mile in Peterson and Porter Creek watersheds (FEIS, Table 63, Page 209), but that data excludes closed, decommissioned, temporary, and reconstructed roads. Relevant data from the recent ONF Summit Trail System Project EIS (U.S. Forest Service 2014, 2016) indicated much higher road densities using ML 1-5 roads both at the Porter Creek subwatershed level and higher in the watershed in the sediment delivery zone of the Porter Creek

subwatershed (i.e., within 300 feet of streams) than the ONF indicates for the Black Mountain Vegetation Management Project FEIS analyses. These data should have been incorporated into the Black Mountain Project analyses; the ONF offers no logical, supportable rationale for why these data were omitted (40 CFR 1502.22, "When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking"; Id.(a), "If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement").

Omitting the use of the Summit Trail System Project data is a failure to prepare a transparent, objective, "accurate scientific analysis" using "high quality information" that the ONF itself developed (40 CFR 1500.1(b); Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements (40 CFR 1502.24); See also Council on Environmental Quality regulations (1981) stating that "The phrase "'range of alternatives'" refers to the alternatives discussed in environmental documents. It includes all reasonable alternatives, which must be rigorously explored *and objectively evaluated*…" [emphasis added]; See also 40 CFR 1502.14(a) "…agencies shall: (a) Rigorously explore and objectively evaluate all reasonable alternatives…) (*Save the Peaks Coal.* v. *U.S. Forest Serv*., 669 F.3d 1025, 1037-38 (9th Cir. 2015) "Agencies have a 'duty to ensure the scientific integrity of the [EISs] discussion and analysis'"; *League of Wilderness Defenders-Blue Mountains Biodiversity Project* v. *U.S. Forest Serv*., 689 F.3d 1060, 1073-75 (9th Cir. 2012), "An agency must 'ensure the 'scientific integrity' of the discussions and analyses in an EIS'").

Actual road densities (ML 1-5) in Peterson Creek watershed, at the subwatershed level, are 3.2 miles/square mile, and in the sediment delivery zone (i.e., within 300 feet of streams) are even higher at 4.3 miles/square mile (U.S. Forest Service 2014 at Page 138) (this subwatershed includes Allen Creek). Similarly, current road densities (ML 1-5) in the Porter Creek subwatershed are 3.7 miles/square mile and 7.4 miles/square mile in the sediment delivery zone. These road densities are higher than the forest standard and excessively so in RHCAs.

The following maps depict the differences in road densities mapped in the Porter Creek area north of the Deep Creek Campground, and those mapped on the Motor Vehicle Use Map (MVUM). The MVUM shows only "open," ML 2-5 roads; and a 1989 administrative use map shows all the roads on the landscape in 1989 (Figure 1 – Main Issue Topic 2.0 Objection). In the past 30 years, many more miles of roads have been added so the administrative map does not show the full extent of roads on the landscape.

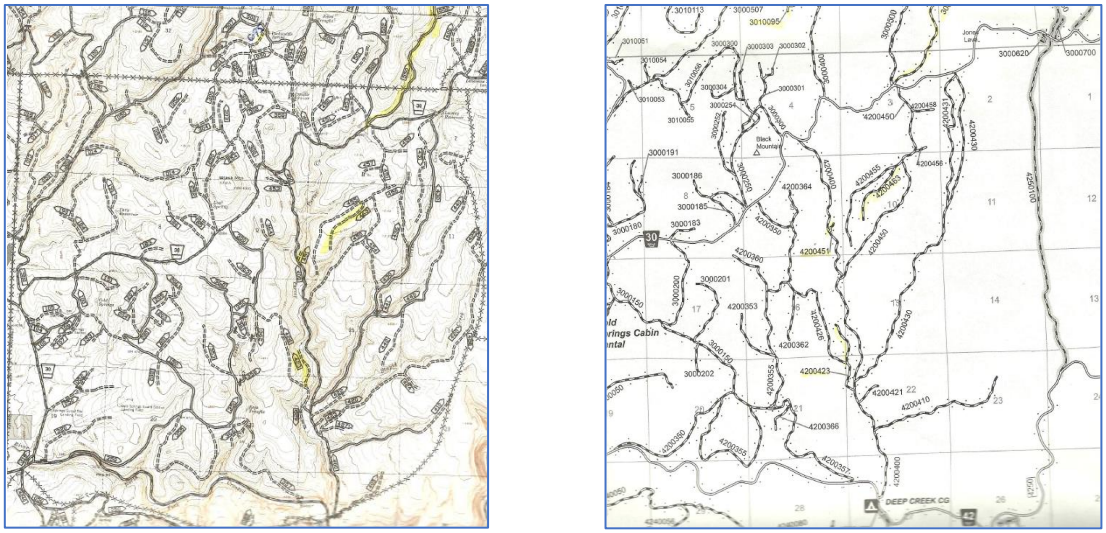

Figure 1 – Main Issue Topic 2.0 Objection. Porter Creek area north of Deep Creek Campground (Source: Ochoco National Forest 2015, 1989, respectively).

Notes: The map on the left is the MVUM "open" road used to calculate road densities. The map on the right is the 1989 administrative map that includes closed ML 1 roads that are frequently driven.

As detailed below, road densities are important because they increase the hydrologic connectivity between uplands and riparian areas and streams creating new "pathways" for flow and sediment to reach streams. They also increase the amount of peak flow causing higher peak flows and therefore flood events that are beyond the normal range of variation. Therefore, these events increase scour and loss of soils, degrade bank stability, and increase fines and sediment in stream beds and fill in pool habitat.

The impacts of roads on riparian areas and wetlands has been well documented in the scientific literature over the past several decades. Elliot et al. (2011) reported that sediment is the greatest pollutant of forest streams, and in the absence of wildfire, forest road networks is usually the main annual source of sediment in forest watersheds. Foltz et al. (2009) reported that roads can become overgrown if not used, but if cleared and used for logging traffic, erosion rates can increase 100-fold. A major factor that increases erosion is traffic. Roads with heavy traffic generate 4 to 5 times the sediment of roads compared to roads with light traffic (Elliot et al. 2010). Carnefix and Frissell (2009) found that there is no truly "safe" threshold road density for aquatic species, but instead negative impacts begin with the first road segment in a watershed, and highly significant impacts began at road densities as low as 1 mile/square mile.

Studies have documented that sediment production for roads with traffic deliver 2 to 30 times the sediment production from unused roads (Luce and Black 2001). Foltz et al. (2009) reported that after Forest Service roads were reopened from being closed or decommissioned, sediment concentrations were significantly higher and were attributed to decreased vegetative cover. In addition, the authors found that 30 years of no traffic and vegetation regrowth was not sufficient to allow recovery of soil infiltration to values similar to an undisturbed forest. In other words, the years of compaction by vehicles effectively and permanently impacted runoff and sedimentation from lack of infiltration.

Stream crossings along with roads are also a major source of sediment to streams (Furniss et al. 1991). Williams (1999) summarizes how roads impact aquatic habitat - increased sediment in streams connected with roads causes increased aggradation of stream beds, filling of pools, enlarged channel widths, widening width-to-depth ratios, downgrading of channels, and lost contact with floodplains (See also Jackson and Beschta 1984; Lisle 1982).

2.4.2.1 Summary of Inadequate Roads Analyses

Central Oregon LandWatch concludes that ONF failed to take a hard look at road impacts in the project area and, therefore, overlooks road density, development, and use as significant causative factors in preventing attainment of historic range of variability, desired future conditions, and riparian and wetland restoration goals. Omitting this balanced, objective, hard look in the FEIS analyses is also a failure to comply with laws, policies, and standards that were developed to protect riparian areas and wetlands, such as the INFISH Standards and Guidelines.

2.4.3 Treatment Projects (DEIS Scoping Comment 1, Comment 2, Comment 3; DEIS Comment 2, Comment 3)

The ONF contends that many forest stands have changed in density and species composition from a variety of causes such as selective timber harvest, livestock grazing, and fire suppression for many decades (FEIS, Subsection 3.1, Forested Vegetation, Existing Conditions – Species Composition/Dense Stand Conditions). The purpose of using the concept of historic range of variability is to reduce stand densities in both uplands and riparian areas to restore vegetation toward an "historic" stand density and composition, particularly in stands formerly dominated by ponderosa pine but currently supporting younger stands of dense mixed conifer. The ONF states that "The proposed project is needed to restore characteristic (i.e., historic) dry forest vegetative conditions in the Black Mountain project area, thereby increasing resilience to insects, disease, fire, and drought; reducing the risk of uncharacteristic high severity fires; enhancing and restoring hardwood communities; and protecting and enhancing wildlife habitat for an array of species" (FEIS, Purpose and Need, Page 10).

Central Oregon LandWatch is concerned about treatments in riparian areas because the ONF fails to adequately analyze impacts to riparian areas and streams, which are also part of the historic dry forest vegetative conditions and are even more seriously in need of restoration than upland forest stands. Under the Preferred Alternative, the proposed action includes a total commercial harvest of 4,645 acres of which 442 acres of commercial harvest are proposed in RHCAs. Thinning includes all 5,087 acres of commercial harvest in uplands and RHCAs as well as additional acres of thinning in noncommercial harvested areas of 1,399 acres. Prescribed burning is planned for 6,105 acres of vegetation management units (harvesting, thinning, or both) and another 4,428 acres of "naturally" created fuels or areas that have not had harvest or thinning. Therefore, a combined 10,533 acres are planned for prescribed burning which is 31 percent of the entire project area.

Scablands (upland areas that have sparsely vegetated grasses, shrubs, or juniper and have shallow clay soils) occupy approximately 32 percent of the Black Mountain project area (10,901 acres) (FEIS, Existing Condition – Sediment Deliver, Page 102). Therefore, the ONF is treating almost one-half of the *forested* portion of the project area without restoring riparian areas.

We acknowledge that the ONF is pursuing vegetation management projects in an attempt to move forest stand conditions to a more resilient state for wildland fires and climate change[3]. However, COLW believes the amount of area slated for treatment will further harm riparian areas and streams for several reasons.

(1) The amount of disturbance will impact almost one-third of the project area further contributing to soil disturbance, especially in areas that will undergo all three treatments of harvest, thinning, and prescribed burning on the same area. Project area streams already have an excess of fine sediment, and this level of activity with up to three treatments and development of additional temporary roads, particularly in RHCAs, will further degrade streams by adding additional sediment.

(2) Opening the density of conifers will allow more access by livestock, which will further impact stream and bank conditions. Livestock are well known for preferring to graze and loaf in riparian areas, which causes excess grazing, post holing, and trampling. Grazing further contributes to stream damage including loss of shade and riparian vegetation, increased sediment, increased width/depth ratios, and lethal stream temperatures.

(3) The ONF disturbance model applied only assumptions that analyzed sediment from harvested units and roads; the ONF failed to account for sediment caused by disturbances from thinning and prescribed burning. This is an omission of best available data. Since over 10,000 acres will have disturbance from thinning and burning, the ONF failed to account for increased sediment yield to streams from these activities and substantially underestimated impacts to streams and riparian areas.

The ONF's inaccurate and misleading sediment modeling is a failure to prepare a transparent, objective, "accurate scientific analysis" using "high quality information" that the ONF itself developed (40 CFR 1500.1(b); Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements (40 CFR 1502.24); See also Council on Environmental Quality regulations (1981) stating that "The phrase "'range of alternatives'" refers to the alternatives discussed in environmental documents. It includes all reasonable alternatives, which must be rigorously explored *and objectively evaluated*…" [emphasis added]; See also 40 CFR 1502.14(a) "…agencies shall: (a) Rigorously explore and objectively evaluate all reasonable alternatives…) (*Save the Peaks Coal.* v. *U.S. Forest Serv*., 669 F.3d 1025, 1037-38 (9th Cir. 2015) "Agencies have a 'duty to ensure the scientific integrity of the [EISs] discussion and analysis'"; *League of Wilderness Defenders-Blue Mountains Biodiversity Project* v. *U.S. Forest Serv*., 689 F.3d 1060, 1073-75 (9th Cir. 2012), "An agency must 'ensure the 'scientific integrity' of the discussions and analyses in an EIS'").

Last, the young trees that are planned for removal in the RHCAs must be left to provide shade and future large woody material. Young conifers are sometimes the only vegetation left for shade and large wood, especially in areas impacted by heavy livestock grazing. Once cut or burned, the area will be open for more intense livestock grazing, and without enclosure fencing, these stream reaches will continue to decline.

[3] We note, however, that the likelihood of a wildland fire encountering one or more of the units in this project is negligible (Attachment A), which severely undermines the purpose and need for this project.

The ONF states that young conifers in riparian areas are causing stream degradation. "The existing condition of the natural stream buffers in the Black Mountain project has dense stands outside of HRV which outcompete the understory for basic resources like water, light, and nutrients. This loss of understory vegetation reduces the sediment buffer effectiveness" (FEIS, Sediment Delivery, Page 104). The implication/assumption is that dense conifers contribute to stream degradation; however, this implication/assumption is not supported by any science. To the contrary, conifers in riparian zones are a *consequence* of stream degradation, *not a cause*. For example, streams have downgraded and lost contact with the floodplain in many reaches of Porter Creek, largely due to livestock grazing, not due to dense conifers (See Figure 2 – Main Issue Topic 2.0 Objection).

Figure 2 – Main Issue Topic 2.0 Objection. Reach of Porter Creek in early May 2019 when there was flowing water (above of the "swimming hole").

Note downgraded channel, wide width/depth ratio, and cutbanks caused by livestock grazing. The reach was dry by late June 2019 in what was once a perennial flow reach. Photo taken by Central Oregon LandWatch.

The Oregon Department of Fish and Wildlife conducted habitat and fish population surveys of three streams in the early 1990s on the ONF that were examples of different levels of management activities and the resulting impacts to riparian vegetation and fish habitat (Dambacher and Jones 2007). The researchers found that Brush Creek, largely within the Lookout Mountain Roadless Area, with the exception of the lowest reach near Big Summit Prairie, had a very low level of management including low intensity of cattle grazing and timber harvest. Consequently, the riparian and stream had lower water temperatures, high amounts of shade, large woody debris, and good bank stability, all characteristics of good stream habitat. The other two streams, Porter and Roba Creeks, which successively had higher levels of livestock grazing and moderate to high levels of timber harvest, had lower quality stream habitats including less shade and higher water temperatures. Fish population surveys correlated well with habitat quality. Although available habitat for redband trout in the three streams differed by no more than a factor of 1.6, there was a 20-fold higher abundance of redband trout in Brush Creek, the stream with a low level of livestock grazing and timber harvest, and good riparian and stream characteristics.

There is abundant science on the effects of timber harvest and thinning treatments on fish habitat. Al-Chokhachy et al. (2010) conducted a review of management activities and physical habitat condition for headwater streams based on physical stream habitat data (2003–2007) and evaluated the condition status of 217 reference streams and 934 managed streams in the interior Columbia River and upper Missouri River basins. The authors concluded that:

> A greater frequency of managed reaches had low habitat condition and a lower frequency of managed reaches had high habitat condition. Analyses evaluating the relationship between management activities and the condition of physical habitat in streams indicated a significant negative relationship with lower index scores in stream reaches within catchments containing higher densities of roads. When roads and livestock grazing occurred within catchments, we found the presence of grazing had an additional, significant negative effect on the relationship between road density and the condition of physical habitat of streams.

There is some science on the impacts of prescribed burns in riparian habitats, although most of the literature is about treating upland areas. While many authors conclude that prescribed burning can have a positive effect, some authors warned that there can be consequences to soil productivity and livestock need to be managed to avoid impacts to any gains made by burn treatments. Neary et al. (2005) stated that "Managers need to be aware of the impacts that fire can have on soil systems, and that these impacts can lead to undesired changes in site productivity, sustainability, biological diversity, and watershed hydrologic response." The same authors (Id.) concluded that "Best Management Practices certainly have value in reducing sediment losses from prescribed fires and that a 66-foot (20 m) buffer strip in a steep watershed reduced sediment loss after prescribed fire from 800 percent of the control watershed to 142 percent."

Monleon et al. (1997) found that N mineralization was reduced at sites burned either 5 or 12 years earlier by low- to medium-severity prescribed fire. They suggested that fire-induced changes in N mineralization contributed to a decline in the long-term site productivity of ponderosa pine stands in central Oregon. Beyers et al. (2005) noted two other factors when considering prescribed fire – (1) it is important to retain a substantial amount of large woody debris on forest sites after timber harvesting or when using prescribed fire and both wildland fire and, (2) prescribed fire reduces organic matter content and increase the potential for loss of soil by erosion.

River and streambanks in many places of the Crooked River basin including headwater tributaries on the ONF lack riparian vegetation, cover, and large woody debris and are actively eroding or unstable (Stuart et al. 1996). Effects on fish habitat from loss of riparian vegetation include increased stream temperature, loss of cover, increased erosion, a widening and shallowing of the stream channel, and reduction or loss of perennial flow. Degraded habitat is characterized by increased sediment, increased water temperatures, a decline in pool depth, quality and frequency, reduced large woody material, increased cutbanks and bank instability, and high width/depth ratios. Water quantity and quality problems, primarily flow reduction or loss, temperature, sedimentation, and turbidity, and limit fish distribution and production (Bottom et al. 1985 as referenced *in* Stuart et al. 1996).

The ONF acknowledged that there would be impacts to streams and riparian areas. "Commercial thinning, noncommercial thinning, prescribed burning, hardwood enhancement, large wood source units, and the material source expansion would reduce canopy, groundcover, and have some level of ground disturbance with the potential to affect peak flow." (FEIS, Environmental Consequences – Peak

Flow, Page 100). But the FEIS states that implementation of Resource Protection Measures, design features, Best Management Practices, stream restoration, and repair to roads and culverts would hasten recovery and dissipate the conveyance of overland flows contributing to peak flows (Id. at Page 101) and thereby mitigate the impacts of these treatments. We are skeptical based on past vegetation treatment projects implemented on the ONF, including Gap, Jackson, Spears, Howard Elliot Johnson, Wolf, and many others, that this vegetation management project will be managed differently from other ONF-managed projects, such that riparian areas will be restored to historic conditions. The ONF has not supported this expected outcome in the FEIS. Specifically, it has failed to indicate how it will resolve the underlying problems of high road densities and intensive livestock grazing preventing establishment of historic conditions as evidenced across the ONF. Again, the ONF has failed to take a required hard look at the full spectrum of issues directly, indirectly, and cumulative related to riparian degradation on the ONF and in the project area.

2.4.3.1 Summary of Inadequate Treatment Analyses

Central Oregon LandWatch concludes that the failure to fully analyze and fully mitigate impacts of treatment activities that cause disturbance over large areas of the project area and in RHCAs will continue to further degrade streams. The ONF fails to disclose plans to reduce impacts from high road densities and livestock grazing that are major causative factors preventing the attainment of historic range of variability for streams, riparian areas, and wetlands. The ONF largely focuses on vegetation treatment projects for upland sites and omits treatments that will support restoration in miles of stream reaches on the project area from the preferred alternative. By failing to incorporate measures to resolve impacts to riparian areas and wetlands, which is well supported by science, into its preferred alternative, the ONF is in noncompliance with laws, policies, and standards that were developed to protect and restore riparian areas and wetlands, such as the INFISH Standards and Guidelines. Further, the ONF has not met the NEPA hard look test in its analyses; therefore, its decision cannot be informed by sufficient information supported by best available science.

2.4.4 Livestock Grazing (DEIS Scoping Comment 1, Comment 2; DEIS Comment 2, Comment 3)

The ONF uses the term “legacy” livestock grazing referring to the history of heavy livestock grazing that occurred on the forest prior to implementation of large numbers of cattle and sheep in the first half of the 20th century. However, despite implementation of Allotment Management Plans (AMPs), stream recovery has been slow to nonexistent, and in many cases, in continued decline while livestock grazing continues to impede recovery toward riparian management objectives in both the LRMP and INFISH.

This significant adverse impact is evident on streams such as Porter Creek where habitat quality parameters for shade, temperature, width/depth ratios, large woody debris, and pool frequency continue to be well below forest and INFISH standards despite allotment plan revisions in 1989 (30 years ago) and again in 2009 (10 years ago) (See 2 – Main Issue Topic 2.0 Objection). While efforts have been made to improve livestock grazing management with activities such as pasture fences, rotations, and maintaining and repairing structural improvement such as spring developments, riparian areas are not moving toward recovery as specified in the LRMP.

In its Summit Trail System Project FEIS (U.S. Forest Service 2016), the ONF reported that “Cattle impacts were most notable in reach 2. The enclosure around the cottonwoods in this section was non-functioning and mostly dead. Field observations identified substantial bank damage due to cattle crossing, post-holes, and hoof-shear damage in reaches 2 and 3.” In other words, despite two AMP

revisions 30 years ago and 10 years ago, livestock damage to Porter Creek was ongoing and detrimental to streams; fences that were built to protect riparian vegetation were largely "dead."

The best fish habitat and population abundance for redband trout are found typically in places that are lightly grazed, with low road densities, and with a low amount of vegetation management. Examples of good remaining trout habitat on the ONF are Brush Creek on Lookout Mountain, and Rock and Cottonwood Creeks draining into the John Day River at the east end of the forest. Other stream reaches that have steep rugged side slopes that limit cattle access such as the reach of Deep Creek above the mouth of Big Springs Creek and the reach of Porter Creek below the "swimming hole" exhibit better habitat quality (Figure 3 – Main Issue Topic 2.0 Objection). Reaches with cliffs and steep sides often exhibit less impacts from livestock grazing and have good riparian shrubs and better stream habitat despite conifer overstories than reaches where livestock have access to graze.

Figure 3 -Main Issue Topic 2.0 Objection. Porter Creek looking downstream of the "swimming hole."

Notes: Downstream of this area, Porter Creek drops into a steep sided canyon for part of the lower reach and is largely unused or accessed by cattle. Note the abundant shrub component in early May 2019 despite the conifer overstory (Note also pups, Summer and Liberty, in the foreground). Photo by Central Oregon LandWatch.

Conversely, streams and reaches with high road densities and heavy livestock grazing universally have very poor habitat characterized by a high width/depth ratio, inadequate amounts of shade and large woody material, and high stream water temperatures that regularly exceed state water quality standards (Figure 3 – Main Issue Topic 2.0 Objection). Clearly, livestock grazing is much implicated in the continuing poor conditions of streams on the national forest, and in some cases, significantly contributing to downward spirals of habitat since the LRMP was signed in 1989. The ONF will never accomplish restoration of historic range of variability in riparian habitats (and meet the goals of the LRMP desired future condition) until the ONF adequately manages livestock grazing.

We note that in the project area, Porter and Peterson Creeks have a few short reaches planned for livestock fencing, and COLW commends that action as a start toward meaningful restoration. The substantive planned restoration of riparian areas includes fencing small portions of streams along Peterson and Porter Creeks (FEIS, Maps 11-12).

> The East Porter Creek riparian pasture fence would be approximately 2 miles in length, while the Allen Creek fence would be 0.8 miles in length (FEIS, Environmental Consequences – Upland Forest Habitat, Page 261). Riparian protection fencing is proposed only in the Peterson Creek pasture of the Badger allotment, and the Porter Creek pasture of the Big Summit allotment. Approximately 56 acres of the Peterson Creek pasture and 18 acres of the Porter Creek pasture may be excluded to protect restoration activities if the use of natural barriers is not sufficient. If these fences are constructed, livestock grazing outside of the enclosures may increase in the adjacent/available riparian areas (FEIS, Environmental Consequences – Upland Forest Habitat, Page 326).

Unfortunately, much or all of the fencing proposed in the project area is predicated on uncertain funding or "natural barriers" that are also uncertain in their effectiveness to limit livestock grazing in riparian areas. The ONF needs to commit to funding, constructing, monitoring, and maintaining not only fences proposed under the preferred alternative, but it must add more areas and longer reaches of fencing to Peterson and Porter Creeks and their tributaries, which are to be maintained and monitored.

For example, the reach along Porter Creek for several miles above the "swimming hole" needs extensive restoration and protection from livestock grazing (Figure 2 – Main Issue Topic 2.0 Objection). Much of that area has relatively flat terrain, is easily accessible to livestock and has been intensively grazed for decades. The remnant willows and cottonwoods are slowly dying out and not replaced by younger trees because cows have trampled and grazed them to the point of vanishing. The stream banks are largely cutbanks, and the stream has downgraded and is no longer in contact with the floodplain. The few fence enclosures to protect remnant cottonwoods are not maintained and, the livestock operator has been known to use the enclosures as livestock gathering pens along Porter Creek, defeating the purpose of protecting the riparian areas and cottonwoods.

Impacts of livestock grazing to riparian areas, wetlands and streams is well supported in the literature (Chaney et al. 1990; Kauffman and Krueger 1984). Belsky et al. (1999) concluded that "Livestock grazing was found to negatively affect water quality and seasonal quantity, stream channel morphology, hydrology, riparian zone soils, instream and streambank vegetation, and aquatic and riparian wildlife. No positive environmental impacts were found." Krausman et al. (2009) reported that "Riparian areas, considered to be among the most productive and critical habitats for wildlife, have a well-documented history of deterioration or destruction as a result of livestock's preference for these areas for grazing, watering, and loafing." This is reflected in stream conditions reported on the ONF as failing to meet state water quality standards (Figure 2 – Main Issue Topic 2.0 Objection). Figure 2 clearly depicts the grazing allotments on the ONF and Crooked River National Grasslands and identifies large areas of the forest, including the project area, that fail to meet water quality and stream/riparian habitat standards.

2.4.4.1 Summary of Inadequate Livestock Grazing Analyses

Central Oregon LandWatch concludes that the failure to fully analyze and fully mitigate impacts of livestock grazing that causes continued degradation of streams in the project area fails to meet the intent of restoring the historic range of variability in riparian and wetland habitats. Without adequate analyses of, and mitigative actions for, livestock grazing, RHCAs will continue to degrade. The ONF fails to include measures to substantially reduce or mitigate livestock grazing that is a major causative factor preventing the attainment of historic range of variability for streams, riparian areas, and wetlands in its preferred alternative. The ONF largely focuses on vegetation treatment projects for upland sites and omits treatments that will support restoration in miles of stream reaches on the project area from the preferred alternative.

By failing to incorporate measures to resolve impacts to riparian areas and wetlands, which is well supported by science, into its preferred alternative, the ONF is in noncompliance with laws, policies, and standards that were developed to protect and restore riparian areas and wetlands, such as the INFISH Standards and Guidelines. Further, the ONF has not met the NEPA hard look test in its analyses; therefore, its decision cannot be informed by sufficient information supported by best available science.

2.5 Suggested Remedies for Issue Statement #2.1 to Improve the Proposed Decision

Central Oregon LandWatch requests that the Responsible Official be instructed to revise or to prepare a supplemental DEIS made available for additional public review that includes the following measures (See Subsection 1.5, Suggested Remedies for Issue Statement #1.1 to Improve the Proposed Decision, for supporting rationale):

1. Instruct the Responsible Official to revise the affected environment to accurately discloses the total amount of road density and use within the project area and on the ONF. Assess the densities of all ML 1-5 roads (closed, decommissioned, temporary, reconstruction roads, and user-created trails). Once accurately described, explain how road densities meet forest standards.

2. Instruct the Responsible Official to revise the alternatives to include measures to reduce or stop the activities that contribute toward riparian and stream degradation. Such measures should include:

    - Substantial reductions in proposed road miles in the project area. Only 17.6 and 2.97 miles of roads are proposed for closure and decommissioning, respectively. Substantially increase the number of roads for closure and decommissioning (physically, not just on the MVUM map) so that the miles of ML 1-5 roads in the subwatersheds, and especially along RHCAs, are well below the 3 miles/square mile standard.

    - Elimination or reduction of all treatments for commercial timber harvest, thinning, and prescribed burning in riparian areas unless they will be completely protected from livestock grazing.

- Retention of all trees in RHCAs. Where any trees are proposed for removal in RHCAs, these trees must be placed instream and not harvested for commercial purposes. All trees within the potential tree height of that species must be left for shade and future large woody debris recruitment.

- Commitments to fund, construct, monitor, and maintain fences proposed to limit cattle access to streams. Substantially increase the amount of funding dedicated to fencing projects, and construct fences along many more miles of streams than currently proposed to block cattle access to degraded reaches along Peterson and Porter Creeks. Fence all existing cottonwood stands along Porter Creek.

- Increases in the amount of mitigation (e.g., fencing, remove treatment units in RHCAs, close additional miles of roads) and monitoring needed to restore riparian areas and wetlands to historic ranges of variability.

3. Instruct the Responsible Official to revise the environmental consequences to re-analyze impacts of roads using the revised assessment described in Remedy 1, treatment projects, and livestock grazing by fully disclosing the direct, indirect, and cumulative adverse impacts from these past, present, and future management activities on riparian areas, wetlands, aquatic biota, fish and wildlife habitat, and wildlife behavior.

4. Instruct the Responsible Official to revise the affected environment and environmental consequences to disclose past impacts to riparian areas and streams that were part of the historic dry forest vegetative conditions on the ONF. Include detailed information in the impact assessment of anticipated short- and long-term impacts to current riparian conditions, and adequately explain how treating almost one-half of the *forested* portion of the project area is justified without restoring riparian areas.

5. Instruct the Responsible Official to revise the affected environment and environmental consequences to disclose actual soil and sediment conditions in the project area an overall ONF. Include data on project area streams that have an excess of fine sediment. Revise the impacts assessment to address the proposed three treatments and development of additional temporary roads, particularly in RHCAs. Describe anticipated levels of further stream degradation by added additional sediment from these treatments and road development and use.

6. Instruct the Responsible Official to revise the affected environment and environmental consequences to explain how riparian restoration can meet desired future conditions and historic range of variability when cattle will be allowed to access significantly damaged RHCAs after treatments have occurred.

7. Instruct the Responsible Official to revise the ONF disturbance model by including sediment caused by disturbances from thinning and prescribed burning. Subsequently, revise the environmental consequences analyzes. Since over 10,000 acres will have disturbance from thinning and burning, the ONF failed to account for increased sediment yield to streams from these activities and substantially underestimated impacts to streams and riparian areas.

8. Instruct the Responsible Official to revise the alternatives justifying the assumption that dense conifers contribute to stream degradation, which is the context for the purpose and need for the proposed action. Use best available science to support this assumption.

2.6 List of Citations to Support Issue Statement and Remedies #2.1

40 CFR 1500.1(b), Purpose.

40 CFR 1502.14(a), Alternatives including the proposed action.

40 CFR 1502.22, Incomplete or unavailable information.

40 CFR 1502.24, Methodology and scientific accuracy.

Al-Chokhachy, R., Roper, B.B., and E.K. Archer. 2010. Evaluating the Status and Trends of Physical Stream Habitat in Headwater Streams within the Interior Columbia River and Upper Missouri River Basins Using an Index Approach. Transactions of the American Fisheries Society 139:1041–105.

Belsky, A. J., A. Matzke, and S. Uselman. 1999. Survey of livestock influences on stream and riparian ecosystems in the western United States. J. Soil & Water Conserv. 54(1): 419.

Bottom, D.L., P.J. Howell, and J.D. Rodgers. 1985. The effects of stream alterations on salmon and trout habitat in Oregon. Oregon Department of Fish and Wildlife, Portland, OR.

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3.0 Main Issue Topic – Inadequate Description and Assessment of Elk Habitat

Issue Statement #3.1 – The Ochoco National Forest fails to execute the National Forest Management Act and the 1989 Land and Resource Management Plan Standards and Guidelines by not surveying for calving and wallows sites prior to implementation of the Black Mountain Vegetation Management Project. This oversight is also in violation of the duty to take a hard look under the National Environmental Policy Act. *Note*: cumulative effects are addressed in Main Issue Topic 6.0.

3.2 Central Oregon LandWatch DEIS Comment

1. Regarding reproductive sites for calving and wallows, the DEIS claims that known sites cannot be identified, and further claims that reproductive sites move around. But the Forest Plan Standard and Guideline is clear about protecting these sites during their respective spring and fall seasons. The recent decision from Judge Hernandez in the Ochoco Summit OHV Project confirms that more data regarding the location of elk calving sites and wallows must be considered. We recommend the ONF be more proactive about protecting these reproductive sites. The project area is limited in suitable calving and wallow areas due to the dry nature to the area. Therefore, all riparian areas, aspen stands, spring and seep areas are logical calving and wallow sites and can be easily inventoried and avoided, and do not change annually. The DEIS does not take a "hard look" at these LRMP standards as required by NEPA.

U.S. Forest Service, Ochoco National Forest, Response to the DEIS Comment (FEIS, Appendix G)

<u>Elk Habitat Response #119</u>

Resource Protection Measures (RPMs) are included in project design and Riparian Habitat Conservation Area (RHCA) prescriptions to protect the character of riparian areas. These include no treatment buffers of various widths adjacent to stream channels and equipment restrictions. RPMs are also included to minimize disturbance from human activity during calving season. Project activities in riparian areas (e.g. RHCAs, hardwood stands) that begin during calving season (May 15-June 30) would require surveys prior to implementation to determine if calving elk are present. If calving elk are present, project activities would be postponed until completion of calving season. Project activities implemented in riparian areas (e.g. RHCAs, hardwood stands) that begin before calving season would continue during calving season because disturbance is already occurring and it is unlikely elk would select these locations for calving. RPMs are included in project design to protect wallows during rutting season. Project activities that begin during rutting season (September 1-October 15) would require surveys prior to implementation to determine if any wallows are present. If wallows are located, they would be flagged and no activities would be permitted within 0.25 miles of the wallow during the rutting season. Project activities that begin before the rutting season would not require surveys and would continue through the rutting season because disturbance is already occurring and it is unlikely elk would select these locations for wallows. Please refer to pages 207 and 212-213 of the FEIS for additional information and Appendix C and Appendix E for a complete list of RPMs.

Applicable Ochoco National Forest Land and Resource Management Plan Standards and Guidelines

The Ochoco National Forest (ONF) Land and Resource Management Plan (LRMP) Wildlife and Fish - Forest-wide Standards and Guidelines - Rocky Mountain Elk and Mule Deer requires the ONF to

> "Protect the character of elk calving sites. Minimize disturbance from human activity during calving season (approximately May 15 to June 30). Also protect wallows during rutting season (September 1 to October 15)" (U.S. Forest Service 1989 at Page 246).

3.3 Objections with Connection to Prior Central Oregon LandWatch Comments by Comment Number Above

The following objections are specific to the summarized Issue Statement above. The Central Oregon LandWatch (COLW) DEIS Comment Number 1, above, and the ONF Response #119, are directly connected to the content of these objections because they are the sole focus of the objections (36 CFR 218(d)(6)).

3.3.1 Inadequate Response to Comments and Inadequate Elk Habitat Assessments

The ONF fails to adequately respond to COLW comments and concerns regarding identification/survey for known elk calving and known wallows sites. The ONF bases its position for not conducting surveys on the following referenced information:

> "Identification of specific calving sites is infeasible because they change from year to year because an elk's reproductive strategy is adapted to seasonal fluctuations in forage quantity and quality (Sadlier 1987). Additionally, the timing and location of calving is related to variations in plant phenology, timing of peak forage quality between geographic areas, and the differences in age of the primary sires or cow body condition (Raedeke et. al 2002). Peer reviewed literature describing calving and fawning habitat that is specific enough for GIS analysis does not exist (Wisdom 2018, personal communications)." (FEIS, Subsection 3.2, Wildlife, Management Indicator Species, Existing Condition – Rocky Mountain Elk and Mule Deer, Distribution, Project Area, Page 207).

The ONF also states that maintaining an accurate inventory of wallow sites is infeasible because like calving areas, they may change from year to year based on seasonal fluctuation in forage or availability of water (Id.). The ONF's failure to identify specific calving sites, and its explanation for not conducting such surveys, is in noncompliance with 40 CFR 1502.22(a) "If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement."

Further, the duty to identify and protect calving and wallows sites prior to project implementation is a forest plan duty (*WildEarth Guardians* v. *Jeffries*, 370 F. Supp. 3d 1208 (D. Or. 2019), "A court's "'scope of review does not include attempting to discern which, if any, of a validly-enacted Forest Plan's requirements the agency thinks are relevant or meaningful;'" *Native Ecosystems Council* v. *U.S. Forest Serv.*, 418 F.3d 953, 963 (9th Cir. 2005), "If the ONF thinks any provision of LRMP is no longer relevant, "'the agency should propose amendments to the [forest plan] altering its standards, in a process

complying with NEPA and NFMA, rather than discount its importance in environmental compliance documents'").

Contrary to ONF conclusions, other best available science has concluded that elk exhibit site fidelity for calving locations. Using data collected for more than 1 year, Vore and Schmidt (2001) found that four of five females gave birth less than 100m from where they had previously birthed. Many cows return to the same areas each year to calve (Leege 1968; Ralphs 1981; Innes 2011). Boyce (1991) reported migratory elk in northwestern Wyoming travelling over 100 km from summer to winter ranges to be highly philopatric during these periods, suggesting maternal females may be returning to calving areas in consecutive years. Other studies report migratory elk generally returning to the same locations to calve in consecutive years (Roberts 1974; Marcum 197; Seidel 1977).

The demonstrated strong cow-calf site fidelity during calving and post calving periods indicates these locations may be more important for elk survival than breeding or winter locations. The importance of abundant forage to meet the nutritional demands associated with parturition and concealment cover to hide neonates are likely reasons for high site fidelity during the partum and postpartum periods (Allen 2014). Wolf et al. (2009) reported a strong positive relationship with subsequent site use; revisited sites were often of higher forage quality and lower predator risk than unfamiliar locations.

The entire project area is identified as elk spring, summer, and fall habitat (Id.). As such, calf birthing likely occurs across the area. The Phillips et. al 2000 model projected no growth (i.e., no recruitment) of elk when disturbed an average of 10 times or more during the calving period; Shively et. al 2005 suggested that it may take up to 2 years of no disturbance for elk numbers to rebound. Elk reproductive requirements are a critical management objective for the ONF because elk are an ONF Management Indicator Species, and the ONF has committed to help the Oregon Department of Fish and Wildlife (ODFW) meet its current Management Objectives for elk populations in the Ochoco Game Management unit.

ONF stated objectives are to minimize disturbance to elk during the calving season and to rutting elk by requiring surveys *prior to project unit implementation* (Appendix C, Best Management Practices and Resource Protection Measures, Resource Protection Measures #52, #53, Page 436) [emphasis added]. Resource Protection Measure (RPM) #52 states:

> "Project activities in riparian areas (e.g., Riparian Habitat Conservation Areas, hardwood stands) that begin during calving season (May 15 - June 30) would require surveys *prior to implementation* to determine if calving elk are present. If calving elk are present, project activities would be postponed until completion of calving season." [emphasis added]

RMP #53 states:

> "Project activities that begin during rutting season (September 1-October 15) would require surveys *prior to implementation* to determine if any wallows are present. If wallows are located, they would be flagged and no activities would be permitted within 0.25 miles of the wallow during the rutting season." [emphasis added]

These two RPMs are not acceptable to COLW because surveys for elk calving and wallow sites cannot take place ***prior*** to the calving and rutting season. The animals cannot be located during the proposed

survey period; females typically did not visit these sites before giving birth until within 2 days of parturition (Vore and Schmidt (2001)). Elk are particularly vulnerable to disturbance and predation during reproductive and breeding periods (Shively et. al 2005). By failing to survey during a relevant timeframe, the ONF is not proposing effective management measures to ensure elk habitat are protected during critical population survival life stages. The ONF do not identify where known calving or wallows sites are located or their juxtaposition to proposed treatment units where significant elk habitat disturbance is planned (See also *WildEarth Guardians* v. *Jeffries*, 370 F. Supp. 3d 1208 (D. Or. 2019), ONF failed to disclose, analyze, and mitigate impacts to elk calving and wallows sites).

3.3.1.1 Unlawful Deferral of Data Identification and Subsequent Analyses

The ONF cannot delay its efforts to identify calving and wallow sites until after a decision has been made on planned vegetation management. The nondiscretionary duty of the ONF is to demonstrate Forest Plan consistency at the time of the decision, not at a speculative future date; such consistency logically includes wildlife management necessary to meet big game goals and objectives set forth in the Forest Plan (*Ohio Forestry Ass'n v. Sierra Club*, 523 U.S. 726, 729-30 (1998), before a final decision on a logging permit can be made, the U.S. Forest Service is required to ensure its consistency with the overall Forest Plan; *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1377 (9th Cir. 1998), a site-specific decision, such as one to sell timber, must be consistent with the LRMP for the larger area; See also *Inland Empire Public Lands Council v. U.S. Forest Serv.*, 88 F.3d at 757 (9th Cir.1996) reiterating 16 USC 1604(i) requirements that resource plans and permits, contracts, and other instruments for the use and occupancy of National Forest System lands *shall* be consistent with the land management plans) [emphasis added]. The ONF has failed to explain how its proposed decision is consistent with the Forest Plan in this regard, and as such, cannot justify an informed decision.

Deferring to future analyses after a decision has been made is in noncompliance with NEPA when the lead agency has enough information to engage in reasonable forecasting without speculation (*Klamath-Siskiyou Wildlands Center et al.* v. *National Oceanic Atmospheric Administration, National Marine Fisheries Service et al.,* No. 3:2013cv03717 – Document 122 (N.D. Cal. 2015) at Page 44; *N. Plains Res. Council, Inc.* v. *Surface Transp. Bd.*, 668 F.3d 1067, 1079 (9th Cir. 2011)). "General statements about 'possible effects' and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided" (*Te-Moak Tribe of W. Shoshone of Nev.* v. *U.S. Dept. of the Interior*, 608 F.3d 592, 603 (9th Cir. 2010) as cited in *Klamath-Siskiyou Wildlands*)." "[i]t is not appropriate to defer consideration of cumulative impacts to a future date when meaningful consideration can be given now," *Kern* v. *U.S. Bureau of Land Management*, 284 F.3d 1062, 1075 (9th Cir.2002) as cited in *Klamath-Siskiyou Wildlands*). Here, the ONF fails to justify why more definitive information is not available to support its decision by fully describing expected impacts to elk habitat from its proposed vegetation management actions affecting these sensitive resources. The ONF unreasonably schedules its analysis to a timeframe that is nonsensical because it will render no valid or reliable data on calving and wallowing habitat in the project area.

3.3.1.2 Noncompliance with Forest-wide Standards through Monitoring and Mitigation Measures

Further, the ONF fails to describe appropriate monitoring and mitigation measures aimed at protecting elk population survival. As such, the ONF cannot comply with LRMP forest-wide standards and guidelines for Rocky Mountain Elk and Mule Deer (U.S. Forest Service 1989 at Page 4-246) because, while not specifically addressed in the LRMP, without effective monitoring, the ONF cannot protect the character of elk habitat or adaptively manage to minimize disturbance in either the short- or long-terms.

The ONF also omitted compliance with U.S. Forest Service implementation and effectiveness monitoring requirements (USDA Forest Service 1991). Implementation monitoring is necessary to ensure the preferred alternative activities are implemented in compliance with elk standards and guidelines. Per Forest Service Manual, Section 2621.5, effectiveness monitoring will ensure forest-wide standards and guidelines for elk are effective, and that the ONF is meeting its management indicators aimed at desired future conditions for big game species, including elk, on the ONF while simultaneously implementing the preferred alternative.

3.4 Suggested Remedies for Issue Statement #3.1 to Improve the Proposed Decision

Central Oregon LandWatch requests that the Responsible Official be instructed to revise or to prepare a supplemental DEIS made available for additional public review that includes the following measures (See Subsection 1.5, Suggested Remedies for Issue Statement #1.1 to Improve the Proposed Decision, for supporting rationale):

1. Instruct the Responsible Official to revise the preferred alternative to include annual surveys of all potential calving and wallow sites 1 year in advance of unit treatment implementation. Specifically, ensure the preferred alternative includes surveys for calving and wallow locations *the year prior* to proposed project treatment unit implementation.

2. Instruct the Responsible Official to revise the preferred alternative to require that elk surveys occur within the calving and rutting periods within the project area.

3. Instruct the Responsible Official to revise the preferred alternative to include measures to identify elk calving and wallow sites within the project area.

   Potential survey areas for elk calving sites and wallow areas can be significantly narrowed across the Black Mountain Vegetation Management project area. According to the ONF, "there are 139 acres of aspen mapped within the project area, although other aspen (stands) are known to occur" (FEIS, Subsection 3.1, Forest Vegetation, Affected Environment, Plant Association Groups, Page 39). Further, the ONF concludes that the project area contains a total of 178.17 miles and 4,910.22 acres within all RHCA categories (FEIS, Table 38). In addition to these data, the ONF likely maintains Geographic Information Systems (GIS) data on springs and seeps in the project area, which are essential elk rutting and calving habitat.

   After combing these known data with likely available GIS data for seeps and springs, the ONF can then overlay GIS data on proposed vegetation management units (both commercial and non-commercial), prescribed fire units, and riparian restoration units, to identify survey locations for elk calving and wallow sites potentially significantly affected by the preferred alternative.

4. Instruct the Responsible Official to revise the preferred alternative to include measures to eliminate project treatment units found to contain calving and wallow sites from proposed vegetation management activities.

5. Instruct the Responsible Official to revise the preferred alternative to include implementation and effectiveness monitoring and mitigation measures aimed at protections for elk habitat and wallowing and calving habitat and behavioral pattern requirements. Mitigation must meet

forest-wide standards and guidelines for elk and management indicators aimed at desired future conditions for big game species.

3.5 List of Citations to Support Issue Statement and Remedies #3.1

40 CFR 1502.22(a), Incomplete or Unavailable Information

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Phillips, Gregory E.; Alldredge, A. William. 2000. Reproductive success of elk following disturbance by humans during calving season. The Journal of Wildlife Management. 64(2): 521-530. [83254]

Ralphs, Robert M., tech. ed. 1981. Elk habitat relationships of central Idaho. [Boise, ID]: [Idaho Department of Fish and Game]. 57 p. Unpublished report on file at: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory, Missoula, MT.

Roberts H.B. 1974. Effects of logging on elk calving habitat. Moyer Creek, Salmon National Forest, Idaho.

Seidel, J. W. 1977. Elk calving behavior in west central Colorado. *In* Western States Elk Workshop, Colorado Division of Wildlife report, Aspen, CO.

Shively, Kirk J.; Alldredge, A. William; Phillips, Gregory E. 2005. Elk reproductive response to removal of calving season disturbance by humans. The Journal of Wildlife Management. 69(3): 1073-1080. [83247].

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Wolf, M., Frair, J., Merrill, E., and Turchin, P. 2009. The attraction of the known: the importance of spatial familiarity in habitat selection in wapiti (*Cervus elaphus)*. Ecography, 32(3), 401-410.

4.0 Main Issue Topic – Arbitrary and Capricious Road Density Assessment

Issue Statement #4.1 – The Ochoco National Forest fails to analyze and fully disclose the direct and indirect environmental effects to all resources in the project area by not including all roads physically found on the landscape. The FEIS contains incorrect assumptions, misuse of data, and misleading analyses. These analytical failures have triggered violations of the National Environmental Policy Act, National Forest Management Act, and the Travel Management Rule. *Note*: cumulative effects are addressed in Main Issue Topic 6.0.

4.2 Central Oregon LandWatch DEIS Comments

4.2.1 Rocky Mountain Elk

1. The DEIS does not provide the detailed analysis data to determine Habitat Effectiveness Index (HEI) per the [Ochoco National Forest Land and Resource Management Plan] LRMP nor HEI nor distance banding. The calculation tables and worksheets using PIN #11 need to be attached as an appendix. Further, Tables 65 and 66 average canopy cover for the PAG's (plant association groups), which is displayed and separated in the LRMP into ponderosa pine and mixed conifer. For example, the cover for PP is 11% and MC is 34% but in the Black Mountain Project analysis the average canopy cover of 23%. The [Ochoco National Forest] ONF has not provided full disclosure of why and how they averaged canopy cover.

   Tables 65 and 55 in the DEIS also average HEI for ponderosa pine and mixed conifer. The HEI for ponderosa pine is 7 and for mixed conifer 52 in the third decade of the plan, which is now, and the average is in PIN #11, which is the instruction for doing an HEI analysis. Therefore, the DEIS is averaging the canopy cover and HEI to say the Project is consistent with the LRMP. We are concerned that the ONF is using this analysis (using averages and not current HEI goals) to justify harvesting "overstocked" stands.

2. The DEIS discusses forage like it is a limiting factor in the Project area and is also used to justify timber harvest in the uplands and riparian areas saying that it will "improve" elk calving habitat. In reality, 55% of the Project area is in grass and shrub dominated communities which is forage for elk. What is deficient in the Project area is elk security habitat, largely due to the road densities of at least 3.6 miles per square mile (these densities are calculated with ML 1 through 5 roads). See Table 87 in the DEIS. In addition, the commercial and pre-commercial thinning and the prescribed fires will reduce what little elk security habitat is in the Project area.

3. In addition, much of the area is heavily roaded, which has significantly diminished the connectivity and quality of elk habitat. Page 77 states: "Currently 92% of the project area can be accessed within 0.5 miles by an open road. After the proposed closure of additional roads, that number would be reduced to 90% of the project area. 97% of the project area would remain accessible to fire suppression resources within 0.5 miles of Maintenance Level 1 roads.

4.2.2 Roads

4. The DEIS only uses Maintenance Level (ML) 2 to 5 roads to determine road density for use in the HEI and the distance band analyses. Frustratingly, the DEIS does not provide rationale why they used only these roads given that all roads on the landscape impact big game. By limiting the scope of roads used in the analysis, the document minimizes the impacts to big game and their habitat requirements for cover.

   In addition, the ONF has a long history of not closing roads once they are constructed. Public access is primarily "managed" via the travel management plan and "motor vehicle use maps" that depict open roads. For this Project,

   > "An estimated 23.4 miles of temporary road would be needed to allow access to some of the activity areas proposed for commercial thinning under both Alternatives 2 and 3… .Once no longer needed for project activities, these temporary roads would be decommissioned by blocking access, installing waterbars, and/or tilling (scarifying or ripping depending on the soil depth) the running surface." (page 86)

   Unfortunately, most of the ML1 "closed" roads on the forest are not in fact closed, and many are driven on by both ONF staff and members of the public. Many of the temporary roads are not closed and are driven on by the public as well.

   Table 87 on page 281 shows 192.6 miles of ML 1-5 roads in the Project area. If ML 1-5 roads are used to calculate open road density, the road density in the Project area is 3.66 roadway miles/square mile, exceeding the LRMP Standard and Guideline. The wildlife HEI calculations only use ML 2-5 roads thereby underestimating current road densities, which produces in an inaccurate roadway density that Project is within LRMP standards. The DEIS should use all ML 1-5 roads.

U.S. Forest Service, Ochoco National Forest, Response to the DEIS Comments (FEIS, Appendix G)

<u>Rocky Mountain Elk and Roads Response #111</u>

Forest Service roads are assigned a Maintenance Level (ML) of 1-5 defined by the level of service provided and maintenance required for the road. ML 1 roads are considered "closed" which means they are suitable for nonmotorized uses but closed to motorized traffic and receive minimal custodial maintenance. It is prohibited to possess or operate a motor vehicle on ML 1 roads (36 CFR 261.15) and they are not shown on Motor Vehicle Use Maps (MVUM). ML 2-5 roads are considered "open" which means they are open to motorized traffic and receive varying levels of maintenance depending on the service provided (FSH 7709.59).

The Ochoco National Forest Land and Resource Management Plan (Forest Plan) includes standards for open road densities specific to management of big game habitat in several Management Areas (MA). MA F22 – General Forage is included in the Black Mountain project area and has an open road density standard of 3 miles per square mile. As directed by the Forest Plan, the Habitat Effectiveness Index (HEI) model is used for estimating elk habitat effectiveness and open road densities. Results of the HEI model completed for the Black Mountain project show the open road density is currently 2.66 miles per square mile and would be reduced to 2.31 miles per square mile with the road closures and decommissioning

proposed in Alternatives 2 and 3. The current open road density (2.66) and the projected open road density (2.31) are both below the Forest Plan standard of 3 miles per square mile.

Rowland et al. (2005) suggested using a distance band approach to valuate effects of roads on elk instead of using the HEI open road density that current Forest Plan standards are based on. While the HEI open road density method is required by the Forest Plan, the distance band approach was also used in the Black Mountain project to analyze disturbance to elk from roads.

Road closures in the Black Mountain project may include placement of barriers such as trees, rocks, berms, or gates. Physical barriers may also be installed or reinforced on roads that are currently Maintenance Level 1 (closed) roads (i.e. closed prior to Black Mountain), however, it should be noted that physical barriers are not required on ML 1 roads (USFS 2014*b*).

Rocky Mountain Elk Response #112

The HEI tables in the Forest Plan are based on data and outputs aggregated at the Forest Level. Because on the ground conditions will vary significantly from this average the Forest wide management objectives were disaggregated down to the District/watershed level in the Plan Implementation Note (PIN 11). PIN #11 describes the steps on how to calculate HEI values and determines the acres of cover needed, the species weighted average needed to derive one average cover quality, compute one average cover quality value from both pine and mixed conifer, and compute one average "percentage of area in cover" value. The HEI value of 7 has been identified in PIN #11 as the average for the PP and MC HEI values for the Howard-Porter Watershed. Therefore, weighted averages were used to take into account for both the PP and MC PAGS.

Applicable Ochoco National Forest Land and Resource Management Plan Standards and Guidelines (DEIS Comment 1)

The Ochoco National Forest (ONF) Land and Resource Management Plan (LRMP) Transportation System Forest-wide Standards and Guidelines states that "Roads and trails will be at the lowest density which meets long-term resource needs" (U.S. Forest Service 1989 at Page 4-224).

	DECADE				
	1	2	3	4	5
HEI					
Ponderosa Pine	4	4	7	7	7
Mixed Conifer	63	56	52	46	35
% Area in Cover by Species					
Ponderosa Pine	9	9	11	12	13
Mixed Conifer	39	43	34	33	26
Average % Crown Closure					
Ponderosa Pine	51	51	41	41	51
Mixed Conifer	70	62	61	54	52
Open Road Density (miles/sq. mile)	3	3	3	3	3

U.S. Forest Service 1989, Table 4-38. Habitat Effectiveness Index (HEI) Management Area F-22 General Forest (U.S. Forest Service 1989 at Page 4-259).

4.3 Objections with Connection to Prior Central Oregon LandWatch Comments by Comment Number Above

The following objections are specific to the summarized Issue Statement above. The Central Oregon LandWatch (COLW) DEIS Comments and the ONF Responses, above, are directly connected to the content of these objections because they are the sole focus of the objections (36 CFR 218(d)(6)). The objection subheadings demonstrate the connection between COLW comments and the objection content (36 CFR 218(d)(6)).

The ONF fails to adequately respond to COLW comments regarding the accounting of all roads on the landscape and their effects on Rocky Mountain elk, and the use of total landscape roads in calculating the HEI in the project area.

4.3.1 Motorized Access and Lack of Ochoco National Forest Management Accountability (DEIS Comment 2 and Comment 3)

The ONF motorized vehicle use policy for the national forest prior to 2011 was "open unless designated closed" (U.S. Forest Service 2016 at Page 248). Forest users essentially had motorized access to anywhere they could drive as long as they were not causing resource damage (i.e., not causing wildlife disturbance, damage to meadows and scablands, spread of weeds, etc.). With implementation of the 2011 Travel Management Plan (TMP) (U.S. Forest Service 2011), roads and off-road use was closed unless designated as open per the annual Motor Vehicle Use Maps (MVUM) maps. Compliance with the 2011 TMP and MVUM maps across the ONF is low. The Ochoco Summit Trail System Supplemental FEIS states that vehicle use of the closed roads and user-created trails receive moderate to high levels of unauthorized motorized vehicle use (Id.). The Oregon Department of Fish and Wildlife (ODFW) conducted a motorized vehicle survey on randomly sampled closed roads per the 2015 MVUM for 3 weeks from mid-May to early June, 2016. By June 3, 2016, the last day of the survey, 60 percent of the closed roads had received motorized vehicle use (Jackle 2016).

Within the project area public road use becomes more moderate in the spring after snow melt and continues to increase through the summer. The heaviest road use occurs in late summer and fall with the commencement of deer and elk hunting seasons (FEIS, Subsection 3.8, Transportation, Affected Environment, Road Use Patterns, Page 275). Many of the ML 1 roads, user-created off-highway vehicle trails, temporary roads, and decommissioned roads are currently being driven by forest visitors, other recreationist and off-highway vehicle users, simply because these roads are physically open. There are no road closure signs on the vast majority of these roads, and there is little to no law enforcement presence to ensure roads remain unused by vehicles or to educate the public. Open roads are attractive to ONF recreational users. Without deterrents such as monitored barriers and signs, and enforcement measures, these roads are frequently driven, causing continual disturbance to sensitive resources and wildlife, including elk. The Expert Report of Michael G. Gerdes submitted as part of the U.S. Forest Service Ochoco Summit Trail System Project EIS (2014, 2016) comments, explains these phenomena in detail and provides additional examples based on empirical evidence and scientific research. This Expert Report is provided with the COLW objections.

4.3.2 Improper Standard used in the Analyses of Road Effects (DEIS Comment 1, Comment 2, Comment 3, Comment 4)

The ONF is arbitrary and capricious in only using Management Level (ML) 2-5 roads to determine open road density per square mile. Road density is one of the main factors influencing the effectiveness of big game habitat (Lyon 1979; Gaines et al. 2003; Rowland et al. 2000, 2005; Wisdom et al. 2005, 2006; McCorquodale et al. 2010; McCorquodale 2013; Proffitt et al. 2012; Ranglack et al. 2014; Rowland et al. 2005; Millspaugh et al. 2001; Forman et al. 2003, Oregon Department of Fish and Wildlife 2003). Elk are unable to distinguish between Forest Service-created motorized roads and temporary roads used for treatment unit activities. The ONF underestimates the actual impact of road density on elk, because it only includes the open road density (ML 2-5), and does not account for closed (ML 1) and temporary roads in its impact assessments on elk security habitat and calving and rutting requirements.

The ONF offers no explanation or justification based on biology/science for the exclusion of ML 1 and temporary roads in calculating road density affects to elk forage, security, connectivity, rutting, and calving habitat. The ONF merely states that ML 1 roads are considered "closed," which means they are (a) suitable for nonmotorized uses, but (b) closed to motorized traffic and, (c) receive minimal custodial maintenance. It is prohibited to possess or operate a motor vehicle on ML 1 roads (36 CFR 261.15), and they are not shown on Motor Vehicle Use Maps (MVUM).

The ONF is silent on the exclusion of temporary roads in its analyses of road density effects on elk populations. ONF's exclusion of all roads on the landscape to biologically account for and analyze impacts to elk is disingenuous. As stated above, elk are unable to distinguish between Forest Service-created motorized roads and temporary roads used for treatment unit activities. The ONF has failed to consider an important aspect of the problem, the hallmark of arbitrary and capricious decision-making (*Mtr. Vehicle Mfrs. Ass'n* v. *State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)).

Many studies have demonstrated the significant effects that roads have on elk (Lyon 1979; Gaines et al. 2003; Rowland et al. 2000, 2005; Wisdom et al. 2005, 2006; McCorquodale et al. 2010; McCorquodale 2013; Proffitt et al. 2012; Ranglack et al. 2014). Rowland et al. (2005) described numerous effects of motorized vehicles on elk. These direct impacts to individual animals and populations ranged from increased vulnerability to harvest from legal and illegal hunting to vehicle collisions. The largest impact is the indirect impact caused by fragmentation of habitat within heavily roaded areas leaving too few areas for animals to escape, and displacement or avoidance, leaving less functional habitat for elk to use Rowland et al. (2005). Roads have been documented to cause reduced habitat availability and carrying capacity, movement of elk from public to private lands, abandonment of entire herd ranges when roads exceed a given threshold, higher herd stress levels, increased energetic costs that reduce productivity (Millspaugh et al. 2001), and reduced local and regional populations (Forman et al. 2003). Increasing motorized and non-motorized recreational pursuits is believed by state elk managers to threaten some herds and have contributed to shifts of elk from some public lands onto adjacent private lands (Oregon Department of Fish and Wildlife 2003).

Considering the above research demonstrating that all roads on the landscape effect elk, COLW calculated road density in the project area using ML 1-5 roads, which yielded a road density of 3.62 miles of road per square mile[4]. Accounting for construction of temporary roads for project operations,

[4] FEIS Table 2 shows total project acres of 34,013 or 53.15 square miles. FEIS Table 85 shows total ML 1-5 Forest Service roads of 192.61 miles.

an additional 34.76 miles of temporary roads would increase the road density to 4.3 miles of road per square mile[5]. Both COLW-calculated road densities within the project area under the preferred alternative exceed LRMP standards and guidelines (*Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 961 (9th Cir. 2005), [It is] "well-settled that the Forest Service's failure to comply with the provisions of a Forest Plan is a violation of NFMA").

Additionally, the ONF LRMP requires "roads and trails to be at the lowest density which meets long-term resource needs" (U.S. Forest Service 1989 at Page 4-224). The ONF is silent as to compliance with this requirement under the preferred alternative. It is also silent on how it is complying with the Travel Management Rule specific to new road development in light of current road densities that do not meet LRMP road-related goals, standards, and guidelines. Finally, the ONF does not explain what the long-term resource needs are, or how the preferred alternative meets these needs. The ONF must provide some analysis that it meets this substantive requirement (See also *Or. Natural Res. Council Fund* v. *Goodman*, 505 F.3d 884 (9th Cir. 2007), Forest Service failed to comply with a series of LRMP standards and guidelines).

4.4 Summary of Inadequate Assessment of Adverse Road Effects on Elk Habitat and Behavior

The ONF has failed to account for road effects to elk forage, security, connectivity, rutting, and calving habitat, behavior, and risks. In minimizing the number of roads used to meet the road density standard and using that figure to calculate HEI, the ONF gives an erroneous interpretation of current wildlife habitat conditions within the project area. This wholly inaccurate assessment is a failure to apply best available information and, therefore, leads to the invalid conclusion that the ONF is meeting its (1) LRMP wildlife goals and objectives, (2) LRMP standards and guidelines for road density (3 mi/mi^2), and (3) HEI objectives(See also *WildEarth Guardians* v. *Jeffries*, 370 F. Supp. 3d 1208 (D. Or. 2019, ONF failed to conduct legally adequate road density analysis under NEPA and NFMA, including by failing to adequately account for ML-1 and user-created routes).

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4.5 Suggested Remedies for Issue Statement #4.1 to Improve the Proposed Decision

Central Oregon LandWatch requests that the Responsible Official be instructed to revise or to prepare a supplemental DEIS made available for additional public review that includes the following measures (See Subsection 1.5, Suggested Remedies for Issue Statement #1.1 to Improve the Proposed Decision, for supporting rationale):

1. Instruct the Responsible Official to revise the affected environment to acknowledge there are no road closure signs on the vast majority of project area (and ONF) roads, and to describe its law enforcement presence to ensure roads remain unused by vehicles or to educate the public. Revise the preferred alternative to include deterrents such as monitored barriers and signs, and enforcement measures on all closed roads.

2. Instruct the Responsible Official to revise the preferred alternative and affected environment to include use of all roads on the landscape in its calculation of road density within the project area.

[5] FEIS Table 91 shows 34.76 miles of temporary roads.

3. Instruct the Responsible Official to revise the preferred alternative environmental consequences to include the re-calculation of HEI and HEI using the distance road banding method, incorporating the revised road density calculation derived from Remedy #1.

4. If the re-calculated HEI and HEI distance banding results in the need to remove treatment units from the project area, instruct the Responsible Official to revise the preferred accordingly.

5. Instruct the Responsible Official to revise the preferred alternative, affected environment, and environmental consequences to analyze and comply with the Travel Management Rule specific to new road development in light of current road densities that do not meet LRMP road-related goals, standards, and guidelines.

6. Instruct the Responsible Official to revise the preferred alternative, affected environment, and environmental consequences to analyze and comply with LRMP goals, standards, and guidelines, specifically, "Roads and trails will be at the lowest density which meets long-term resource needs."

4.6 List of Citations to Support Issue Statement and Remedies #4.1

Forman, R. T. T., D. Sperling, J. A. Bissonette et al. 2003. Road ecology: science and solutions. Washington, DC: Island Press.

Gaines, W. L., P. H. Singleton, and R. C. Ross. 2003. Assessing the cumulative effects of linear recreation routes on wildlife habitats on the Okanogan and Wenatchee National Forests. U.S. Department of Agriculture, Forest Service, General Technical Report PNW-GTR-586, Portland, OR.

Jackle, G. 2016. Unpublished data. Ochoco Summit Trail – Wildlife and Vehicle Use Summary. Oregon Department of Fish and Wildlife. 1 Page

Lyon, L. J.1979. Habitat effectiveness for elk as influenced by roads and cover. Journal of Forestry 79:658-660.

McCorquodale, S., P. Wik, P. Fowler, and T. Owens. 2010. Elk Survival and Mortality Factors in the Blue Mountains of Washington, 2003-2006.Washington Department of Wildlife. Olympia, WA. 65 pp.

McCorquodale, 2013. A brief review of the scientific literature on elk, roads, and traffic. Washington Department of Fish and Wildlife. Olympia, WA. 26 pp.

Millspaugh, J.J., R.J. Woods, and K.E. Hunt. 2001. Fecal glucocorticoid assays and the physiological stress response in elk. Wildlife Society Bulletin 29:899-907.

Oregon Department of Fish and Wildlife. 2003. Oregon's elk management plan. Portland, Oregon. 63 pp.

Proffitt, K.M., J.A. Gude, K.L. Hamlin, and M.A. Messer. 2012. Effects of hunter access and habitat security on elk habitat selection in landscapes with a public and private land matrix. The Journal of Wildlife Management; DOI: 10.1002/jwmg.491. 11 pp.

Ranglack D., B. Garrott, J Rotella, K. Proffitt, J. Gude, and J. Ganfield. 2016. Security areas for maintaining elk on publicly accessible lands during archery and rifle hunting seasons in southwestern Montana. Montana Fish Wildlife and Parks. 38 pp.

Rowland, M. M., M. J. Wisdom, B. K. Johnson, and J. G. Kie. 2000. Elk distribution and modeling in relation to roads. Journal of Wildlife Management 64:672-684.

Rowland, M.M., M.J. Wisdom, B.K. Johnson, and M.A. Penninger. 2005. Effects of roads on elk: implications for management in forested ecosystems. In: M. Wisdom (ed.) The Starkey Project: A Synthesis of Long-term Studies of Elk and Mule Deer. Transactions of the 2004 North American Wildlife and Natural Resources Conference, Alliance Communications Group, Lawrence, KS. Pp. 42-52.

U.S. Forest Service. 1989. Final Environmental Impact Statement: Land and Resource Management Plan, Ochoco National Forest and Crooked River National Grassland. U.S.D.A. Forest Service, Pacific Northwest Region (August 1989).

U.S. Forest Service. 2011. Travel Management Project. Deschutes National Forest, Ochoco National Forest, and Crooked River National Grassland. Record of Decision. Deschutes, Jefferson, Crook, Klamath, Lake, Grant and Wheeler Counties, OR. August 2011.

U.S. Forest Service. 2016. Supplemental Final Environmental Impact Statement: Ochoco Summit Trail System. Ochoco National Forest, Prineville, OR. Incorporated by reference per 36 CFR 218.

Wisdom, M.J., N.J. Cimon, B.K. Johnson, E.O. Garton, and J.W. Thomas. 2005. Spatial Partitioning by Mule Deer and Elk in Relation to Traffic. Pages 53-66 *in* Wisdom, M. J., technical editor, The Starkey Project: a synthesis of long-term studies of elk and mule deer. Reprinted from the 2004 Transactions of the North American Wildlife and Natural Resources Conference, Spokane, WA.

Wisdom, M.J., A.A. Ager, H.K. Preisler, N.J. Cimon, and B.K. Johnson. 2006. Effects of Off-Road Recreation on Mule Deer and Elk. Pages 67-80 *in* Wisdom, M. J., technical editor, The Starkey Project: a synthesis of long-term studies of elk and mule deer. Reprinted from the 2004 Transactions of the North American Wildlife and Natural Resources Conference, Alliance Communications Group, Lawrence, KS.

5.0 Main Issue Topic – Arbitrary Effects Determination for Gray Wolf

Issue Statement #5.1 – The ONF reached an arbitrary and capricious "may affect, not likely to adversely affect" determination for Endangered Gray wolves under the Endangered Species Act.

Issue Statement #5.2 – The ONF failed to take a "hard look" at the impacts to wolves and wolf habitat under the National Environmental Policy Act. *Note*: cumulative effects are addressed in Main Issue Topic 6.0.

5.3 Central Oregon LandWatch Scoping Comments

1. The agency must take a hard look at the impacts of the Project on Threatened, Endangered, and Sensitive ("TES") Species, and ONF Management Indicator ("MIS) Species and their habitats, including but not limited to Redband trout, Gray wolf, Western bumblebee, Oregon Spotted frog, Pronghorn, Rocky Mountain elk, Pileated woodpecker, North American wolverine, and Sensitive Plants. The Forest Service must prepare a Biological Assessment / Biological Evaluation that addresses the impacts of the Project on all TES species, and engage in consultation with the U.S. Fish and Wildlife Service/National Marine Fisheries Service where required or appropriate. In evaluating the environmental impacts of the Project, the Forest Service has a duty to explain how the Project is fully consistent with the Standards and Guidelines of the Ochoco Forest Plan and the Inland Native Fish Strategy, particularly with respect to impacts on TES species.

5.4 Central Oregon LandWatch DEIS Comments

1. The ONF has not gone through formal consultation with the U.S. Fish and Wildlife Service regarding wolves. The Project will significantly reduce hiding cover for big game species and displace them to other geographic areas and onto private lands. In turn, that will displace dispersing wolves out of the Project area. This and other impacts of the Project on wolves should be fully disclosed and discussed in the DEIS.

U.S. Forest Service, Ochoco National Forest, Response to the DEIS Comment (FEIS, Appendix G)

Gray Wolf Response #85

We acknowledge the commenters concern. Please refer to pages 161-163 of the FEIS for a detailed discussion of effects to the gray wolf.

5.5 Objections with Connection to Prior Central Oregon LandWatch Comments by Comment Number Above

The following objections address the combined issues summarized in the Issue Statements above. The objection subheadings demonstrate the connection between Central Oregon LandWatch comments and the objection content (36 CFR 218(d)(6)).

5.5.1 Failure to Demonstrate a Hard Look at Impacts to Threatened, Endangered, and Sensitive Species because of an Arbitrary and Capricious Biological Assessment and Biological Evaluation (DEIS Scoping Comment 1, DEIS Comment 1)

Under Section 7 of the ESA, action agencies must ensure that their activities do not jeopardize the continued existence of endangered species like the wolf (16 U.S.C.1536(a)(2)). Agencies carry out this substantive mandate by following a series of consecutive procedural steps.

(1) An agency proposing to take an action (the action agency) must first make inquiries of the U.S. Fish and Wildlife Service or National Marine Fisheries Service, or both (the consulting agencies), regarding the presence of any threatened or endangered species in the area of the proposed action (the action area) (See 16 U.S.C.1536(c)(1); 50 CFR 402.02).

(2) If endangered species may be present, the action agency must prepare a biological assessment or biological evaluation[6] to determine whether such species is "likely to be affected" by the action (16 U.S.C.1536(c)(1)).

(3) If the actions agency's evaluation determines that a threatened or endangered species "is likely to be affected," the agency must consult with the U.S. Fish and Wildlife Service or National Marine Fisheries Service (See 16 U.S.C.1536(a)2); 50 CFR 402.14(a)).

The threshold for consultation is low: the action agency must consult with the consulting agency or agencies if the action "may affect" a listed species (50 CFR 402.14(a)). If the action agency determines that the proposed action may affect, but is "not likely to adversely affect" (NLAA) a listed species, it may engage in informal consultation (50 CFR 402.13, 402.14(b)). If the consulting agency concurs in writing with the action agency's determination, the consultation process is concluded (Id. at 402.13, 402.14(b)(1)). An NLAA finding is only appropriate upon finding that the effects of the action are expected to be "discountable, or insignificant, or completely beneficial" (U.S. Fish and Wildlife Service, Endangered Species Consultation Handbook: Procedures for Conduction Consultation and Conference Activities Under Section 7 of the [ESA] (March 1998) (i.e., "ESA Handbook"), at Page 3-12). Accordingly, an NLAA determination is inappropriate "if **any** adverse effect to listed species **may** occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions," unless the effect is discountable or insignificant" (Id. at Page 3-13). "Insignificant" effects are those that are so mild that the effects cannot be meaningfully measured, detected, or evaluated, and "discountable" effects are those that a reasonable person would not expect to occur (Id. at Pages 3-12 to 3-13, B-55).

Although the procedural obligations in ESA Section 7 are designed to facilitate informed agency decision-making to avoid jeopardizing listed species, mere compliance with the procedural obligations does not relieve the action agency of its substantive duties (*Res. Ltd., Inc.* v. *Robertson*, 35 F.3d 1300, 1304 (9th Cir. 1994)). Substantively, Section 7 requires that agencies ensure that their actions are "not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical habitat]" (16 U.S.C.1536(a)(2)). Accordingly, the action agency may not "abrogate its responsibility to ensure that its actions will not jeopardize a listed species" (*Res. Ltd.,* 35 F.3d at 1304).

[6] Biological assessments are defined by regulation, and are required for "major construction activities" (See 50 CFR 402.12). Biological evaluations are the generic document used for purposes of Section 7 determinations when biological assessments are not required (See Forest Service Manual 2670.50).

Here, the ONF determined that the project may affect, but is not likely to adversely affect the Gray wolf. This determination is arbitrary and capricious for several reasons (U.S. Forest Service 2019). For example, the ONF dismissed any impacts to wolf security habitat under Alternative 2 and Alternative 3 claiming that open road densities would be reduced (FEIS, Subsection 3.6, Environmental Consequences – Gray Wolf, Direct and Indirect Effects, Alternatives 2 and 3, Loss of Security Habitat, Page 162). However, the agency erred by failing to assess the short-term impacts of temporary road construction and use of haul routes during project implementation.

Further, while the ONF admitted that the project would increase disturbances to big game species—the preferred prey of wolves, it arbitrarily dismissed this impact in its analyses stating that a "harvestable surplus" of big game species would remain [after project implementation] (Id., Impact to Prey Species, Page 162). Subsequently, the agency then failed to link its impact conclusion with the NLAA standard. In addition, the ONF admitted to cumulative impacts on wolves and wolf habitat from the effects of the action added to the effects of other past, present, and reasonably foreseeable future actions. Again, the ONF dismissed the significance of the impacts by citing the "wide-ranging behavior" of wolves as an impact minimization behavior (Id. at Pages 162 to 163). The ONF provides no scientific support for this conclusion. Under the ESA, an agency cannot attempt to minimize the environmental impact of an activity by adopting a scale of analysis so broad that it marginalized the site-specific impact of the activity (*Pac. Coast. Fed'n of Fishermen's Ass'ns* v*. NMFS*, 265 F.3d 1028, 1035–37 (9th Cir. 2001)).

5.6 Summary of an Arbitrary and Capricious ESA Determination and Failure to Take a Hard Look at Gray Wolf Impacts

In summary, the ONF's NLAA determination was arbitrary, capricious, and contrary to the ESA. For similar reasons, the agency failed to take a hard look at the project's direct, indirect, and cumulative effects in violation of NEPA. Although the ONF obtained a concurrence letter from the U.S. Fish and Wildlife Service, as discussed above, a consulting agency's concurrence does not relieve the action agency of its obligations under Section 7 (See *City of Tacoma* v. *FERC*, 460 F.3d 53, 76 (D.C. Cir. 2006), "[T]he action agency must not blindly adopt the conclusions of the consultant agency, citing that agency's expertise. Rather, the ultimate responsibility for compliance with the ESA falls on the action agency").

5.7 Suggested Remedies for Issue Statement #5.1 to Improve the Proposed Decision

1. Instruct the Responsible Official to engage in formal consultation with the U.S. Fish and Wildlife Service because the project is likely to adversely affect the endangered Gray wolf.

5.8 Suggested Remedies for Issue Statement #5.2 to Improve the Proposed Decision

Central Oregon LandWatch requests that the Responsible Official be instructed to revise or to prepare a supplemental DEIS made available for additional public review that includes the following measures (See Subsection 1.5, Suggested Remedies for Issue Statement #1.1 to Improve the Proposed Decision, for supporting rationale):

1. Instruct the Responsible Official to revise the affected environment descriptions and the environmental consequences analyses to provide a detailed and accurate analysis of the project's direct, indirect, and cumulative impacts on wolves and wolf habitat in accordance with NEPA. Base this new information on best available science provided by COLW in these objections.

5.9 List of Citations to Support Issue Statement and Remedies #5.1 and #5.2

50 CFR 402.02, Interagency Cooperation, Endangered Species Act.

16 U.S.C.1536, Endangered Species.

U.S. Fish and Wildlife Service. 1998. Endangered Species Consultation Handbook: Procedures for Conduction Consultation and Conference Activities Under Section 7 of the [ESA] (March 1998).

U.S. Forest Service. U.S. Forest Service. 1991. Forest Service Manual. 2670.50: Threatened, Endangered, and Sensitive Plants and Animals, Definitions.

U.S. Forest Service. 2019. Ochoco National Forest, Black Mountain Vegetation Management Project Biological Evaluation and Biological Opinion, May 2019, Prineville, OR.

6.0 Main Issue Topic – Cumulative Effects Analyses Deficiencies

Issue Statement #6.1 – The ONF dismissed Central Oregon LandWatch cumulative effects scoping and DEIS comments. Additionally, the cumulative effects analyses across resources impacting forest health and, therefore, fish and wildlife habitat do not comply with the National Environmental Policy Act for the following reasons:

(a) an unreasonably narrowed list of past, present, and reasonably foreseeable future actions;
(b) an unreasonably narrowed geographic scope;
(c) lack of defined spatial boundaries;
(d) inconsistent spatial boundaries;
(e) missing adverse effects analyses and disclosure;
(f) failure to apply details of actions into the cumulative analyses;
(g) failure to analyze grazing and climate change;
(h) inadequate analysis of elk impacts;
(i) missing cumulative effects assessment for transportation; and
(j) missing overall summary of cumulative effects by alternative necessary to make an informed decision.

6.2 Central Oregon LandWatch DEIS Scoping Comments

1. Pursuant to NEPA, the agency must "provide full and fair discussion of [the] significant environmental impacts" of the proposed action." 50 C.F.R. § 1502.1. In particular, the agency must take a "hard look" at the direct, indirect, and cumulative impacts of a proposed project…. Moreover, the agency must fully address and provide a meaningful evaluation of the combined and synergistic impacts of all past, present, and reasonably foreseeable future projects within and adjacent to the Project Area, including but not limited to Blue Mountains, Canyon, Gap, Howard Elliot Johnson, Ochoco Summit Trails System, Spears, Wolf, livestock grazing activities, and unlawful off-road vehicle use. *See* 40 C.F.R. §§ 1508.7, .25(a)(2).

2. The geographic areas occupied by species outside the project impact zone are a relevant and crucial factor for the Forest Service to consider. LandWatch requests that the Forest Service selects geography scopes for each species based on the unique attributes of those species, particularly range, habitat needs, and food availability, based on the best available science. This will likely lead to different analysis areas for cumulative impacts than the Project analysis area.

3. The 2014 NOI discloses that activities such as those proposed for the Project "may reduce habitat effectiveness for some wildlife species, including forest raptors and big game." LandWatch agrees, and fully expects that the DEIS will address the (1) the habitat needs of each species; (2) the existing habitat conditions in the Project area; and (3) how the Project's direct, indirect, and cumulative effects will affect each species, based on the best available science.

6.3 Central Oregon LandWatch DEIS Comment

1. The DEIS also fails to correctly analyze the cumulative effects of sedimentation. A good example is at page 113, where the DEIS states that the proposed Summit OHV trail is supposed to occur at the same time as the Black Mountain Project. The DEIS asserts that "cumulative effects would only occur if implementation of Ochoco Summit trails and Black Mountain haul and roadwork occur at the same time." A cumulative effects analysis should consider past, present and foreseeable future Projects, not just concurrent activities.

U.S. Forest Service, Ochoco National Forest, Response to the DEIS Comment (FEIS, Appendix G)

The ONF's response to this comment focused only on the comment example, whereby Central Oregon LandWatch (COLW) suggested the cumulative effects analysis of sedimentation conditions should include a review of concurrent actions, such as the Summit OHV trail. ONF did not provide its rationale for the main point of this comment, which is a demonstration of how the ONF correctly analyzed the cumulative effects of sedimentation.

Sedimentation Cumulative Effects Response #13

The ONF combines the COLW comment with others, and characterizes the COLW comment as:

> Cumulative effects in the DEIS need to be revised where appropriate to remove the Summit Trail System Project. The US District court has ruled the Ochoco Summit OHV Trail System project cannot proceed and this should be addressed.

The ONF response to this partially accurate characterization (addressing only the COLW example) is:

> The DEIS was released for public comment on December 14, 2018 and included the Ochoco Summit Trails Project in the cumulative effects where appropriate. Due to a U.S. District court ruling in January 2019, the Ochoco Summit Trails Project is no longer moving forward. As such, all references and/or analysis of the Ochoco Summit Trails Project were removed from the Black Mountain EIS between draft and final.

6.4 Objections with Connection to Prior Central Oregon LandWatch Comments by Comment Number Above

The following objections are organized in the same order as those summarized in the Issue Statement above. The objection subheadings demonstrate the connection between COLW comments and the objection content (36 CFR 218(d)(6)).

6.4.1 Dismissal of Central Oregon LandWatch DEIS Scoping Comments (As Required by NEPA Regulations)

The ONF did not incorporate the COLW scoping comments requesting the cumulative analyses include (1) an inclusive list of past, present, and reasonably foreseeable future actions; (b) broad, ONF-wide spatial boundaries/geographic scope for analyses; and (3) identification and incorporation of specific wildlife habitat and unique attribute requirements. By overlooking the COLW scoping comments, the ONF ignores CEQ guidance for cumulative impact assessments and the link with public scoping:

"Agencies should be guided in their cumulative effects analysis by the scoping process, in which agencies identified the scope and significant issues to be addressed in an environmental impact statement" (Council on Environmental Quality 2005).

6.4.2 Unreasonably Narrowed List of Past, Present, and Reasonably Foreseeable Future Actions (DEIS Scoping Comment 1)

FEIS Table 5 provides a summary of past actions that have contributed to the existing condition in the project area; present actions that currently contribute effects; and future actions that are anticipated to contribute effects (FEIS, Page 34). This ONF summary of actions is too narrow to provide an adequate assessment of the cumulative effect of past and present actions in combination with proposed actions in the Black Mountain project area. Specifically, by limiting the list of reasonably foreseeable future actions to only six management activities (vegetation, fuels, and riparian management combined), the ONF overlooks the cumulative relationship of road use and development and vegetation management activities in all other managed areas across the national forest with proposed road use and development, vegetation management, and possibly other activities (e.g., recreational use, unlawful road use, etc.) under the preferred alternative.

For example, the ONF omits Canyon, Wolf, Zane, and Spears vegetation management projects from its list of past, present and reasonably foreseeable future actions, and unlawful road use should be acknowledged as a past, present, and reasonably foreseeable future action affecting the entire ONF. Further, road development and use should be an identified past, present, and reasonably foreseeable future action, and not subsumed in the six management actions in Table 5. While road development and use in an area removed from the Black Mountain Project Area may have a minor, individual effect on elk habitat and patterns, for example, collectively, road density impacts become significant across the entire ONF forest landscape by causing behavioral disturbance and elimination of habitat ("…Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7)).

The ONF cannot support its assumption that only six managed areas have a cumulative nexus on the adverse effects of road development and use on forest-wide big game and sensitive species habitat and behavioral patterns, as one example of an ecosystem-wide cumulative issue. Since species, such as elk, deer, and wolves, inhabit the whole of the ONF, the ONF has a duty to analyze its proposed activities with *all* ongoing activities and reasonably foreseeable future activities that result in increases to habitat and wildlife pattern disturbances under its management purview. The ONF cannot draw arbitrary lines across the landscape and claim that wildlife effects, or nearly any resource effect, will not transverse such boundaries (*W. Watersheds Proj.* v. *Kraayenbrink*, 632 F.3d 472 493 (9th Cir. 2011), agency has a duty to consider "combined and synergistic effects").

Additionally, the ONF overlooks the potential cumulative effects of trends in climate change, by resource, on the entire forest in conjunction with proposed activities under the preferred alternative. While the ONF includes a discussion of greenhouse gases and climate change in the FEIS, this analysis is narrowed to contributions to greenhouse gasses from thinning practices, fire and insect resilience, and forest influences on carbon dioxide sequestration (FEIS, Subsection 3.18, Climate Change and Greenhouse Gasses, Page 356). Table 5 does not include climate change as a reasonably foreseeable future action, and none of the cumulative analyses for any resource addresses climate change impacts and anticipated trends, including impact trends on fish and wildlife habitat and behavior.

It is reasonable for the ONF to assess anticipated cumulative effects from climate change based on best available science and empirical evidence on its national forest. An EIS is in noncompliance with NEPA when the lead agency has enough information to engage in reasonable forecasting without speculation (*Klamath-Siskiyou Wildlands Center et al.* v. *National Oceanic Atmospheric Administration, National Marine Fisheries Service et al.,* No. 3:2013cv03717 – Document 122 (N.D. Cal. 2015) at Page 44; *N. Plains Res. Council, Inc.* v. *Surface Transp. Bd.*, 668 F.3d 1067, 1079 (9th Cir. 2011)). At a minimum, the ONF must "define parameters even if only in the foreseeable short term" (*Klamath-Siskiyou Wildlands* at Page 44).

6.4.3 Unreasonably Narrowed Cumulative Effects Geographic Scope as the Project Area Boundary or Activity Area (DEIS Scoping Comment 2; DEIS Comment 1)

The ONF improperly narrows its spatial assessment of cumulative effects for forest vegetation (i.e., species composition, late and old structure, hardwood communities), insect and disease management, coarse woody material (CWM), large woody debris, water quality, connectivity corridors, and other resources to the project area boundary (or, in some analyses, 1 mile outside of the project area). Similarly, the ONF limits its cumulative effects analysis on soils to an "activity area;" ignoring the overall, cumulative effect of vegetation management activities, and other activities, in all areas of the ONF. "…Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). Although an agency is entitled to deference in determining the geographic scope of its cumulative impacts assessment, it must adequately explain and support its choice (See *League of Wilderness Defs./Blue Mts. Biodiversity Project* v. *Connaughton*, No. 3:12-cv-02271-HZ, 2014 U.S. Dist. LEXIS 170072 (D. Or. Dec. 9, 2014)).

The ONF failed to provide adequate support for its narrow cumulative effects analysis area. The ONF has a duty to evaluate the cumulative effects of all existing and planned vegetation management and other activities with a nexus to the project. For some resource topics, the proper geographic scope for the cumulative effects analysis area may be the entire forest.

Additionally, per Council on Environmental Quality regulations,

> "The preparation of an area-wide or overview EIS may be particularly useful when similar actions, viewed with other reasonably foreseeable or proposed agency actions, share common timing or geography. For example, when a variety of energy projects may be located in a single watershed, or when a series of new energy technologies may be developed through federal funding, the overview or area-wide EIS would serve as a valuable and necessary analysis of the affected environment and the potential cumulative impacts of the reasonably foreseeable actions under that program or within that geographical area" (Council on Environmental Quality 1981a).

The "variety of vegetation management projects" on the ONF is analogous to the "variety of energy projects…located within a single watershed" in the CEQ example.

ONF's management and the cumulative effects of harvest and stand conditions do not end at the spatial boundary of one management area. As examples of improper geographic scopes of analyses in the FEIS:

- Insect and disease risks can effect stands beyond the project area boundary as evidenced by the ONF's affected environment description ("As stand densities have increased and understories of late seral grand fir and Douglas-fir have developed, many more trees have become susceptible to attack *and entire stands have developed characteristics which make them susceptible to insects or diseases*" (FEIS, Subsection 3.1, Forest Vegetation, Existing Condition – Insects and Disease, Page 57)) [emphasis added]. Proposed vegetation management for insects and disease may have a cumulative, long-term, beneficial risk effect across the ONF in conjunction with other ongoing or planned vegetation management activities. However, the ONF analyzed cumulative effects from this risk only within the project area.

- Prevention or reduction management of dwarf mistletoe branch "brooms" may have a cumulative adverse effect on species that use this plant to nest, hide, or forage within the larger ONF (FEIS, Subsection 3.1, Forested Vegetation, Environmental Consequences – Riparian Habitat Conservation Areas, Existing Condition -Insects and Disease, Cumulative Effects, Page 59). However, while the ONF analyzes direct, indirect, and cumulative effects to dwarf mistletoe in relation to specific, dependent species, it narrows the analyses to the project area (See FEIS, Subsection 3.6, Wildlife, Environmental Consequences - Johnson's Hairstreak, Cumulative Effects, Page 182). There is no discussion of the cumulative, adverse effect to these unique habitats or supported species across the ONF landscape.

- Connectivity corridors are critical forest-wide wildlife habitat; almost by definition, impacts to these corridors must be assessed on a large scale to fully comprehend the cumulative effect of past, present, and reasonably foreseeable future actions on this important, *connected* habitat. However, the ONF narrowed its review of connectivity effects to combined impacts within the project area (and provides a statement about past harvest treatments that we fail to understand, particularly as it pertains to cumulative effects). "There are no other proposed vegetative treatments within the project area which would affect upland vegetation within mapped connectivity corridors. Past harvest and other treatments that have occurred within connectivity corridors were considered when the corridors were delineated" (FEIS, Subsection 3.6, Wildlife, Environmental Consequences – Connectivity Corridors, Cumulative Effects, Page 228).

- Coarse woody material (CWM) has been impacted by, and has impacts on, the entire ONF by the ONF's own admission "The amount and distribution of downed CWM has been affected by past forest management activities and by insect and disease cycles" (FEIS, Subsection 3.3, Soils, Existing Condition – Coarse Woody Material, Page 90). CWM benefits to forest-wide health and, therefore, directly and indirectly to fish and wildlife habitat, are clearly explained by the ONF:

> "CWM, even in limited amounts, plays many important roles. It is crucial for retaining moisture and moderating soil temperature. It serves as a long-term reservoir for nutrients. It provides surface roughness and complexity that disrupts surface flow and minimizes erosion. It creates microsites that support vegetative diversity. It also provides habitat for a diverse array of fungi and macro-/micro-invertebrates that improve soil structure and quality, cycle organic carbon, and facilitate nutrient cycling" (Id.).

The cumulative effects assessment for these four example resources are, therefore, inadequate because (1) the ONF fails to analyze the cumulative effect of *known past*, present, and future actions on ONF

diseased stand, connectivity corridor, and CWM conditions when combined with the proposed vegetation management activities; and (2) the affected environment for these resources is described on a forest-wide scale, but the ONF unreasonably, and inconsistently narrows its cumulative effects assessment to a site-specific scale (i.e., the project area). ONF management planning must consider the comprehensive effects of its actions on the entire landscape under its management purview.

Consistent with our DEIS comments on this proposed action, COLW remains concerned over the narrowed geographic scope regarding cumulative soils/sediment analyses, which is ultimately related to overall forest health degradation, including fish and wildlife habitat. By its own definition, the ONF does not conduct a cumulative assessment of soils, but merely an additional assessment of direct effects under the guise of a cumulative review. The spatial boundary for the soils cumulative assessment was an activity area. "An activity area is defined as 'the total area of ground impacted by an activity and is a feasible unit for sampling and evaluating'" (FEIS, Subsection 3.3, Soils, Environmental Consequences – Detrimental Soils Conditions, Cumulative Effects, Page 89). Activity areas are clarified as project units, that is, the treatment units within the project area (Id.). By assessing soil impacts at this localized scale only, the ONF neglects to disclose the aggregate soil conditions from all its ongoing and planned activities on the entire ONF. Even if the analysis reveals only minor impacts in the short- and long-terms, the potential effects must be analyzed on a larger, vicinity scale than treatment units in one project area.

Summary of Unreasonably Narrowed Geographic Scope Issues

Harvesting forest vegetation in the Black Mountain Project Area will have a resulting, cumulative effect on the total amount and composition of vegetation, the risk of insect and disease to other stands, alterations to wildlife corridors and tree-dependent habitat, road-related disturbances, habitat alterations in riparian areas and from CWM and large woody debris impacts, and total sedimentation effects/possible water quality impacts forest-wide. Proposed vegetation management under the preferred alternative will significantly alter the forest composition on the ONF when considered in the aggregate, which in turn, will affect available wildlife habitat and alter wildlife patterns across the ONF, among other possible cumulative effects (e.g., to water quality). An informed decision about the preferred alternative cannot be supported because these cumulative effect analyses within the proper geographic scope of the entire ONF were not conducted under any alternative.

6.4.4 Lack of Defined Spatial Boundary/Geographic Scope for Riparian Habitat Conservation Area Cumulative Effects Assessment, Inconsistent Spatial Boundary/Geographic Scope, Lack of Adverse Effect Analyses and Disclosure (DEIS Scoping Comment 2 and Comment 3)

It is difficult to understand how the ONF assessed cumulative effects for the Riparian Habitat Conservation Areas (RHCA) because no description of the spatial boundary was provided in the FEIS (Subsection 3.1, Forest Vegetation, Environmental Consequences – Riparian Habitat Conservation Areas, Cumulative Effects, Page 57). Although lacking a defined geographic scope, the ONF recognized the cumulative benefit of managing vegetation in RHCAs on a forest-wide planning level and, therefore, supports the need to assess cumulative effects on a larger scale than the project area boundary to make an informed decision. As such, the RHCA cumulative assessment is inconsistent with its cumulative analyses for other types of forest vegetation, revealing an obvious and known omission by the ONF to properly address cumulative effects resulting from all vegetation management across the ONF.

As presented, the RHCA cumulative assessment is an attempt to persuade the decisionmaker to select the significantly impactful preferred alternative by overlooking adverse effects to riparian habitat, particularly in the short-term. The ONF focuses entirely on long-term cumulative benefits - across the entire ONF - of substantial removal of riparian habitat (Id.). The RHCA cumulative effects analysis is highly prejudicial because it omits the known significant, adverse, short-term effects of substantial riparian vegetation removal and associate management activities and the combined adverse impacts on fish, wildlife, and other resources with other, ongoing ONF activities. While the ONF does discuss cumulative effects from RHCA management under other resource topics in the FEIS, it does not highlight adverse impacts in the specific RHCA analysis of cumulative effects on Page 57, nor does it cross-reference to other resource analyses. An informed decision cannot be made if the reader must hunt for related information and then make an independent assessment of overall cumulative effects on the national forest, particularly in the absence of an RHCA impact summary.

The ONF's persuasive, nonobjective cumulative assessment in Subsection 3.1 violates NEPA's intent to prepare an objective, transparent analyses of direct, indirect, and cumulative effects of proposed federal actions. "The phrase "'range of alternatives'" refers to the alternatives discussed in environmental documents. It includes all reasonable alternatives, which must be rigorously explored *and objectively evaluated*…" (Council on Environmental Quality 1981b) [emphasis added].

6.4.5 Failure to Apply Details from the List of Past, Present, and Reasonably Foreseeable Future Actions into the Analyses of Cumulative Effects (DEIS Scoping Comment 1 and Comment 3; DEIS Comment 1)

Establishing that the spatial boundaries/geographic scope for most resource assessments is unreasonably narrowed to the project area, it follows that the ONF also failed to adequately describe effects from the list of actions in Table 5 in conjunction with the preferred alternative actions. No detail about the listed projects was described under any cumulative effects analysis or in the affected environment descriptions for forest resources. As such, Table 5 is merely a list of activities; it does not provide the decisionmaker with any detail to understand how these past and present activities have altered the landscape so that when combining the effects of these activities with proposed activities under the alternatives, a reasonable comparison of cumulative impacts can be determined. The decisionmaker cannot assess if the listed past and present actions resulted in "individually minor but collectively significant" cumulative impacts that have taken place over a period of time because there is no detail about the actual activities and how they have affected the environment (40 CFR 1508.7). An EIS "must analyze the combined effects of the actions in sufficient detail to be 'useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts" (*Muckleshoot Indian Tribe* v. *U.S. Forest Serv*., 177 F.3d 800 at 810, (9th Cir. 1999)).

To present adequate information, a catalog (i.e., list) of past and present activities can be documented, but if so, the EIS must then explain how these activities have affected the existing environment. Once this relationship is explained, the EIS should then describe how the combined effect of these activities on the current condition of the environment, together with reasonably foreseeable future actions—and their details—will result in known or anticipated future effects to the human environment (*Lands Council* v. *Powell*, 395 F.3d 1019, at 1027 (2005), "…there is no catalog of past projects and no discussion of how those projects (and differences between the projects) have harmed the environment;" *Ecology Center* v. *Castaneda,* 574 F.3d 652 (9th Cir. 2006), "[w]e have repeatedly held that general statements about prior projects affecting environmental conditions are insufficient; 'quantified or detailed data' about the effects of specific projects is necessary;" *Mountaineers* v. *U.S. Forest Serv.*, 445 F. Supp. 2d

1235, 1248 (W.D. Wash. 2006), "It is the additive effect of both agency and other actions taken together that constitutes the gravamen of an appropriate cumulative impacts analysis under NEPA").

Here, the ONF did provide a "catalog" of its list of past and present projects (Table 5), but it failed to elaborate on these projects to describe their specific activities and how they impacted/altered the environment to its current condition. Per CEQ guidance in response to court rulings, a catalog of activities is not required; the important requirement is to explain the cause-and-effect relationship that identified activities have on the direct and indirect effects analyses for each alternative (Council on Environmental Quality 2005).

The ONF claims that "The analysis in this FEIS relies on current environmental conditions (existing condition) as a proxy for impacts of past actions. This is because existing conditions reflect the aggregate impact of all past agency actions, human actions, and natural events that have occurred in the project area" (FEIS, Chapter 3 – Environmental Consequences, Cumulative Effects, Past, Present, and Reasonably Foreseeable Future Actions, Page 33). However, the ONF cannot rely on insufficiently described existing conditions whereby known projects have not been described in enough detail to understand their effect on the existing landscape (*Klamath-Siskiyou Wildlands Center et al.* v*. National Oceanic Atmospheric Administration, National Marine Fisheries Service et al.,* No. 3:2013cv03717 – Document 122 (N.D. Cal. 2015) at Page 42, noting there were no adequate data about the time, type, place, and scale of [past, present, and to the extent known, future] actions…"; *Ecology Center* v*. Castaneda,* 574 F.3d 652 (9th Cir. 2006) ruling that "[w]e have repeatedly held that general statements about prior projects affecting environmental conditions are insufficient; 'quantified or detailed data' about the effects of specific projects is necessary").

Further, the ONF should have then explained in "sufficient detail how different project plans" and "methods" affected the environment (for example, were roads concentrated in one portion of the planning area such that wildlife habitat is more preserved in another area? How have different Riparian Habitat Conservation Area harvest methods affected wildlife habitat and other resources in the overall ONF environment and the project area?) (*Klamath-Siskiyou Wildlands* at Page 42). These direct and indirect effects can be explained in the affected environment discussion with cross-references in the cumulative discussions, but they were not addressed in the DEIS in any section.

6.4.6 Failure to Analyze Grazing and Climate Change as Reasonably Foreseeable Future Actions (DEIS Scoping Comment 1, Comment 2, Comment 3; DEIS Comments Pertaining to Wildlife Concerns)

Grazing

The ONF did not address the cumulative effect of livestock grazing within RHCA's on vegetation management under any alternative in its assessment of aquatic biota-related effects (FEIS, Subsection 3.5, Aquatic Biota, Cumulative Effects, Page 150). The ONF overlooked the indirect and cumulative effects of grazing on key fish and wildlife habitat-related elements such as sediment delivery, pool quality, unstable banks, and RHCA vegetation ecology. It is not clear why the agency addressed the impacts from livestock grazing as a direct effect of the action, and not as a cumulative effect. By omitting these analyses, the ONF failed to comprehensively address a key vegetation disturbance element that may significantly hinder objectives and desired conditions from RHCA conversion management. In turn, this oversight prevents an informed decision on the short- and long-term adverse and beneficial effects to wildlife habitat and behavioral patterns dependent on RHCA-aquatic ecosystems.

Similarly, the ONF cannot possibly support its conclusion that there will be no cumulative effects to soils because there is no past, present, or reasonably foreseeable future actions in the project area that will affect soil conditions (FEIS, Subsection 3.3, Soils, Environmental Consequences – Detrimental Soils Conditions, Cumulative Effects, Page 90). Livestock grazing is a known past, present, and future activity that has a significant effect on soils conditions across the ONF. Combined with significant impacts from proposed vegetation management activities under the preferred alternative, the presumed, cumulative effect on ONF soils is likely significant as well. COLW is concerned with the anticipated effects on soil conditions across the ONF because adverse soil conditions have a direct, indirect, and cumulative nexus to overall forest health and related fish and wildlife habitat.

Climate Change

The ONF concludes there will be no cumulative effects to equivalent harvest area, peak flow, and stream temperatures because there are no past, present, or reasonably foreseeable future actions that would overlap with proposed actions within the project area (FEIS, Subsection 3.4, Hydrology, Environmental Consequences – Peak Flow, Page 101; Stream Temperature, Page 117). The ONF narrows its assessment of reasonably foreseeable actions by neglecting to address the impacts of climate change on the entire ONF and its relationship to water quality, quantity, and fish habitat.

6.4.7 Failure to Adequately Analyze Cumulative Effects on Rocky Mountain Elk (DEIS Scoping Comment 3)

The ONF cannot support its conclusion that "Effects from the implementation of Alternative 2 and 3 from the Black Mountain project combined with the effects from aspen enhancement and riparian restoration in Fox Canyon and Big Summit *would result in no cumulative effect* for Rocky Mountain elk or Mule deer" (Subsection 3.6, Wildlife, Environmental Consequences – Rocky Mountain Elk and Mule Deer, Cumulative Effects, Page 214) [emphasis added]. While the ONF provides a list of past, present, and reasonably foreseeable future actions affecting elk in the three subwatersheds used as its cumulative assessment geographic scope, it fails to disclose the significance of road development and use, reductions in canopy cover and corresponding tree density from commercial and non-commercial harvest, and prescribed fire effects to security habitat on elk populations *across the national forest*, particularly given the limited amount of suitable Rocky Mountain elk security habitat remaining on the ONF (Id.). In doing so, the ONF overlooks the potential for significant, cumulative impacts on elk behavioral patterns from road disturbances, commercial and non-commercial harvest, and prescribed fire (See Main Issue Topic 3.0, Inadequate Description and Assessment of Elk Habitat). The ONF also omits an analysis of the cumulative impacts on cover, calving, and wallowing habitat from proposed activities when combined with ongoing and planned activities across the entire ONF and in relation to climate change trends impacting big game habitat (*Klamath-Siskiyou Wildlands Ctr.* v. *U.S. BLM*, 387 F.3d 989, 993 (9th Cir. 2004), explaining that in assessing the cumulative effects of multiple actions affecting the same area, the NEPA analysis must contain "'some quantified or detailed information'" suitable for analysis of the total impact of all projects that might affect a given area"). .

6.4.8 Missing Cumulative Effects Analyses for all Road Assessment Categories (DEIS Scoping Comment 3)

There are no cumulative effects analyses for any road-related assessment in Subsection 3.8, Transportation. As such, an informed decision cannot be made about the cumulative effect of travel

management on other resources including fish and wildlife habitat and wildlife behavior under any alternative.

6.4.9 Missing Summary of Cumulative Effects for all Resources (DEIS Scoping Comment 1, Comment 2, Comment 3; DEIS Comment 1)

The ONF omits an overall summary of the short- and long-term cumulative effects resulting from proposed vegetation management under any alternative. As such, we fail to understand how an informed decision can be made when comparing the cumulative effects of the proposed project actions with all other past, present, and reasonably foreseeable actions on the ONF (including climate change) in relation to fish and wildlife habitat, population, and wildlife behavior impacts.

It is unlikely the decisionmaker can independently combine all of the numerous resource effects to develop a clear understanding of the full, cumulative impact outcome under each alternative. An informed decision cannot be made by balancing the level of impact significance expected under each alternative without a summary of cumulative effects for each alternative.

6.5 Suggested Remedies for Issue Statement #6.1 to Improve the Proposed Decision

Central Oregon LandWatch requests that the Responsible Official be instructed to revise or to prepare a supplemental DEIS made available for additional public review that includes the following measures (See Subsection 1.5, Suggested Remedies for Issue Statement #1.1 to Improve the Proposed Decision, for supporting rationale):

1. Revise the EIS to respond to the specific COLW DEIS comment pertaining to the adequacy of the ONF sedimentation cumulative effects analyses.

2. Instruct the Responsible Official to revise the affected environment descriptions to comprehensively describes existing conditions across the entire ONF resulting from past and present actions to fully understand their effect on the landscape (e.g., fully explain existing ONF road conditions and mileage and how they were created). Each cumulative effects summary should be revised to include detailed descriptions of past and present project actions that have altered the project area and the ONF overall (i.e., the time, type, place, and scale). Once this information is fully detailed, the ONF should then combine the impact information from past and present project actions with (1) planned projects under each alternative for each resource being analyzed, and (2) reasonably foreseeable future project actions affecting each alternative and each resource.

   Specifically, include detailed fish and wildlife habitat conditions and wildlife patterns resulting from these past and present actions. Clearly link this information to the cumulative effects analyses for fish, wildlife, and other resources in the ONF.

3. Instruct the Responsible Official to revise the cumulative effects analyses for each resource topic to include Canyon, Spears, Zane, and Wolf vegetation management projects, road development and use, unlawful road use, recreation activities, climate change, and any other identified past, present, or reasonably foreseeable future action into the analysis of the cumulative effect of road use and development on big game and other potentially affected wildlife species. Revise Table 5 accordingly.

4. Instruct the Responsible Official to revise the spatial boundaries/geographic scope of the cumulative effects analyses where they are inappropriately narrowed to the project area. Enlarge the spatial boundary of all cumulative assessments to include the entire ONF. Acknowledge that harvesting forest vegetation in the Black Mountain Project Area will have a resulting, cumulative effect on the total amount and composition of vegetation, the risk of insect and disease to other stands, alterations to wildlife corridors and tree-dependent habitat, road-related disturbances, habitat alterations in riparian areas and from CWM and large woody debris impacts, and total sedimentation effects/possible water quality impacts in the larger ONF.

5. Instruct the Responsible Official to revise the cumulative effects analysis for RHCAs to include known significant, adverse, short-term effects of substantial riparian vegetation removal and associate management activities and the combined adverse impacts on fish, wildlife, and other resources with other, ongoing ONF activities.

6. Instruct the Responsible Official to revise the cumulative effects analysis to include the direct, indirect, and cumulative effects of grazing on key fish and wildlife habitat-related elements such as sediment delivery, pool quality, unstable banks, and RHCA vegetation ecology.

7. Instruct the Responsible Official to revise the cumulative effects analysis to address livestock grazing as a known past, present, and future activity that has a significant effect on soils conditions across the ONF. Prepare a cumulative analysis that links current soils conditions in the ONF from past and present activities to impacts from proposed vegetation management activities and the expanded list of reasonably foreseeable future activities under the preferred alternative. Address the cumulative result on overall forest health and fish and wildlife habitat.

8. Instruct the Responsible Official to revise the cumulative effects analysis to include an assessment of travel management cumulative effects. Relate these effects to all applicable resource conditions including big game habitat and disturbance factors.

9. Instruct the Responsible Official to revise the cumulative effects analysis to address the impact of road development and use, commercial and non-commercial harvest, and prescribed fire on Rocky Mountain elk across the entire ONF.

10. Instruct the Responsible Official to revise the cumulative effects analysis to include the cumulative impacts on big game and elk cover, calving, and wallowing habitat from proposed activities when combined with ongoing and planned activities across the entire ONF and in relation to climate change trends impacting big game habitat.

11. Instruct the Responsible Official to provide a comprehensive cumulative effects summary for all alternatives. Include a table depicting cumulative effects by resource, alternative, and alternative management element. Prepare a supplemental or revised DEIS with a rationale for selecting the preferred alternative based on this comprehensive analysis.

6.6 List of Citations to Support Issue Statement and Remedies #6.1

Council for Environmental Quality. 2005. Guidance on the Consideration of Past Actions in Cumulative Effects Analysis. Memorandum. June 24, 2005. 4 pages.

Council on Environmental Quality. 1981a. Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations. Question 24b. Memorandum to Agencies. March 23, 1981.

Council on Environmental Quality. 1981b. Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations. Question 1a. Memorandum to Agencies. March 23, 1981.

Council on Environmental Quality NEPA regulations 40 CFR 1508.7

ATTACHMENT A