November 09, 2020

***In accordance with 36 CFR §218, Bark, Oregon Wild, 350PDX, and Physicians for Social Responsibility hereby object to the Environmental Assessment ("EA") and draft Decision Notice for the Zigzag Integrated Resource Project.***

*Responsible Official:* Richard Periman, Forest Supervisor, Mt. Hood National Forest

*Objection Period End Date:* November 9, 2020

*Location:* Salmon and Sandy River watersheds, Zigzag Ranger District, Mt. Hood National Forest

## Objector's Interests & Participation:

Lead objector Bark is a non-profit organization based in Portland, Oregon and has worked to protect the MHNF since 1999. Bark's mission is to bring about a transformation of public lands on and around Mt. Hood National Forest (MHNF) into a place where natural processes prevail, where wildlife thrives and where local communities have a social, cultural, and economic investment in its restoration and preservation. Bark has over 25,000 supporters[1] who use the public land lands surrounding Mt. Hood, including the areas proposed for logging in this project, for a wide range of uses including, but not limited to: hiking, skiing, nature study, non-timber forest product collection, spiritual renewal, and other recreation.

Since this project was proposed, more than 100 Bark members and volunteers visited the Zigzag project area for hikes and groundtruthing events. The value of the activities engaged in by Bark members and staff will be damaged by the implementation of this project. In addition, Bark staff and volunteers attended both the 2019 field trip and public open house organized by the Forest Service and

participated in the public input process that these events' structures allowed for this project.

350PDX is a non-profit, grass-roots organization dedicated to promoting climate justice and addressing the causes of climate disruption. Since the forests of the Pacific Northwest have incredible potential for carbon storage, protecting and restoring our native forests is one of 350PDX's priorities. When intact, these forests also provide clean drinking water for millions of people, provide public spaces for recreation and emotional restoration, and protect the traditional lands and practices of Indigenous people. 350PDX has submitted comments on the Zigzag project during Scoping and at the Preliminary Assessment. Our organization has 300 volunteers and 8000 supporters, primarily in the Portland Metro area.

Oregon Wild represents 20,000 members and supporters who share our mission to protect and restore Oregon's wildlands, wildlife, and water as an enduring legacy. Our goal is to protect areas that remain intact while striving to restore areas that have been degraded. Oregon Wild submitted detailed comments on 2-12-2020, during the scoping period, and on 8-7-2020, during the Preliminary Assessment comment period.

Oregon Physicians for Social Responsibility (Oregon PSR) is a non-profit organization with staff in Multnomah County and Marion County and 2,000 health professionals and public health advocates statewide. We are an organization of health professionals and public health advocates working collaboratively with community partners to educate and advocate for societal and policy change that protects human health at the local, state, national, and international level. Our organization is concerned with the environmental health impacts of logging in the Zigzag project area as well as the mental health impacts of altering an area people have depended on for recreation, research, and spiritual renewal. Human health and wellbeing are affected by the loss of natural spaces and the climate impacts of logging our best carbon sequestration resources. We have commented with concerns on this project in the past and continue to be alarmed by its negative consequences on Mt. Hood National Forest.

As you know, the Zigzag project area is a part of the forest that people pay attention to and care about immensely. And that care and connection was reflected in the massive outpour of public comment on the Proposed Action, despite the chaos and uncertainty related to the COVID-19 pandemic, and there being no formal collaborative group or process for people to plug into.

To the Objectors' supporters, allies, and other contacts who worked hard to provide input, the quick turnaround and release of the EA and Draft Decision by the agency was felt as noticeably dismissive. This is not to say that the agency did not work hard to consider potential impacts of the project, or public comment. But for an area like Zigzag, which is so significant to so many people, it is prudent for the agency to reflect the efforts by the public to be heard into the transparent consideration of their input in the NEPA process.

From the Objectors' perspective, this draft decision follows the recent Waucoma Decision, which allowed tensions and disagreements to continue unresolved in collaborative settings, as was recommended by the Objection response by the FS. And after the North Clack Objection resolution meeting last year, there seemed to be an informal commitment by the agency to do a better job of noting when specific public input was considered and valued in the future. It is difficult to see this tone reflected in any of these Objection responses or in the Zigzag project response to public comment, and we hope to explore this more during resolution and in the future.

And lastly, we recognize that Bark's recent court victory in the Crystal Clear Restoration litigation may have resulted in interpersonal friction between Forest Service staff and Bark. Instead of perpetuating these tensions and distrust of one another, we would like to come to the table with some shared understanding of areas we can move forward together to improve the relationships between the Forest Service, Objectors and other members of the engaged public, *and* the conditions on the Forest. This objection includes some of these areas, where we see both room for improvements in this project, and potential for partnering to build trust during a time when more of it is sorely needed.

As required by 36 C.F.R. § 218.8(d), the lead objector's name, address, telephone number and email:

Michael Krochta, Bark
P.O. Box 12065
Portland, OR 97212
503-331-0374, michael@bark-out.org

Table of Contents

## PROTECTIONS OF LEGACY TREES & DEAD WOOD

### VIOLATIONS OF LAW, REGULATION AND POLICY

**1) Failure to protect existing snags and legacy trees would a) violate Northwest Forest Plan and b) Mt. Hood Land and Resource Management Plan**

As detailed in our PA comments, thinning mature stands and/or removing mature trees can reduce the quality of habitat and delay attainment of defining old-growth characteristics such as snags and dead wood that provide essential ecological services, including fish & wildlife habitat, carbon storage, slope stability, and capture-storage-release of water and nutrients.

The "fire origin" stands in Zigzag are over 100 years old and naturally regrew after fire or after post-fire logging. Within these stands, tree ages and sizes vary, and legacy[1] trees and snags scattered throughout the units. It is not just fire-origin units that include mature forest habitat characteristics. Some "plantation" units Bark has visited also include legacy trees and snags, among other structural components of a healthy forest.

Not all of these stands include forest typically thought of as "late seral" or "mature" in structure. However, the best way for the FS to ensure that there is an overall increase of mature and old growth forest habitat in the future is to protect areas that do have this structure. These mature stands act as important "life boats" that

[1] For this project, legacy trees are defined as large live trees that survived a stand-replacing wildfire. They are typically much larger and much older than the trees that grew up after the fire and they often have fire scars

will carry closed-canopy dependent wildlife through the habitat bottleneck created by decades of overcutting. One example is the Region 6 Sensitive Cascades axetail slug, which tends to inhabit Douglas fir-western hemlock stands with a vine maple understory. Areas where down wood retains pockets of moisture and where vine maple leaves form a layer to hold moisture is preferred habitat for this and several other species.

As you know, the presence of large live trees and snags (and dense forest surrounding them) is important in meeting habitat requirements of Westside indicator species like flying squirrels and federally listed spotted owls, and is currently in short supply due to past and present management. The impact of logging on large snag density[2] clearly shows that the lack of large snags across a managed forest landscape relates to the logging of that landscape. Further, the usefulness of artificially created snags by wildlife has been thrown into doubt.[3]

The Zigzag Proposed Action specifically would result in lower levels of both large and small snags and down wood compared to no action.[4] Thinning would result in less trees available to naturally die and become snags. In addition, the reduced competition from the thinning reduces density-dependent mortality in the residual trees, allowing them to be healthier and live longer before succumbing to competition, insects, or disease. The increased health and resistance of the thinned forest stands to future insect infestations and disease will make natural snag development less likely for the next 20 plus years. *Wildlife Biological Evaluation and Specialist Report at 87.*

FW-218 p. Four-74 states that **"Wildlife tree prescriptions shall provide for all primary cavity nesting species indigenous to the treated site"**. However, artificially created snag habitat varies substantially from naturally created snags

---

[2] Issue 42 (March 2002) Dead wood all around us: think regionally to manage locally, by Janet Ohmann and Karen Waddell

[3] USDA Forest Service Gen. Tech. Rep. PSW-GTR-181. 2002

[4] Windom, M. and Bates, L. 2008. Snag density varies with intensity of timber harvest and human access. Forest Ecology and Management 255(7) pp. 2085-2093.

in the type, distribution, and amount of decay which occurs.[5],[6],[7] Due to the way girdled trees die and decompose, they do not have the same medium for cavity nesters and foragers who require a naturally created soft interior with hard exterior, making these snags unusable for several wildlife species associated with FW-218. Because of this, to meet this and other forest-wide standards related to cavity nesters, **retention of existing, naturally formed snags should always come before creating snags artificially.**

To further illustrate this point, brought up by Bark in Scoping and PA comments, Barry et al[8] used a long-term experiment to assess how harvest treatment and snag configuration influenced nesting in and foraging on 25 to 27-year-old Douglas fir snags by cavity-nesting birds. Comparing contemporary measures of bird use to estimates obtained from historical surveys conducted on the same group of snags, they quantified how bird use changed over time. Despite observing created snags for >750 hours across 2 consecutive breeding seasons, they found limited evidence of nesting activity. Only 11% of created snags were used for breeding, with nesting attempts by 4 bird species; however, they detected 12 cavity-nesting species present on the study sites. Furthermore, nearly all nests (94%) belonged to the chestnut-backed chickadee, a weak cavity-excavating species that requires well-decayed wood for creating nest cavities. The surveys also recorded few observations of birds using created snags as foraging substrates, with only 1 foraging event recorded for every 20 hours of observation. Researchers detected 82% fewer nests and recorded 7% fewer foraging observations during contemporary field work despite spending >7.5 times more effort observing created snags relative to historical surveys.

---

[5] Réka Aszalós, Viktor Szigeti, Krisztián Harmos, Szabolcs Csernák, Tamás Frank, Gábor Ónodi, Foraging Activity of Woodpeckers on Various forms of Artificially Created Deadwood, Acta Ornithologica, 10.3161/00016454AO2020.55.1.007, **55**, 1, (2020)

[6] A.M. Barry, J.C. Hagar,J.W. Rivers, 2017. Long-term dynamics and characteristics of snags created for wildlife habitat. Forest Ecology and Management. Volume 403, 1 November 2017, Pages 145-151. https://doi.org/10.1016/j.foreco.2017.07.049

[7] Matthew E. Hane, Andrew J. Kroll, Aaron Springford, Jack Giovanini, Mike Rochelle, Edward B. Arnett, Survival dynamics of mechanically topped Douglas-fir (Pseudotsuga menziesii) and western hemlock (Tsuga heterophylla) snags in Douglas-fir plantations, Oregon, USA, Forest Ecology and Management, 10.1016/j.foreco.2018.10.047, 433, (105-110), (2019)

[8] Barry, A.M., Hagar, J.C., Rivers, J.W., 2018. Use of created snags by cavity-nesting birds across 25 years. J. Wildl. Manage. 82, 1376–1384.

This research concluded that created Douglas-fir snags provided limited opportunities for nesting and foraging by most cavity-nesting birds. **Artificially created snags cannot act as a stand-in for maintaining habitat for cavity nesters directly, this fact is relevant to the agency's ability to comply with the following Standards and Guidelines**:

- Where new timber harvest units occur (e.g. regeneration harvest and commercial thinning), wildlife trees (i.e. snags and green reserve trees) should be maintained in sufficient quantity and quality to support over time at least 60 percent of the maximum biological potential of primary cavity nesting species, e.g. woodpeckers. *FW-215 p. Four-74*
- As a minimum, snags are to be retained within the harvest unit at levels sufficient to support species of cavity-nesting birds at 40 percent of the potential population levels. *Northwest Forest Plan Matrix standards page C42*

Promising to create snags artificially after timber harvest does not guarantee compliance with these Standards and Guidelines, since girdled trees do not supply quality habitat for cavity nesters.

Furthermore, snags that are left standing after proposed treatments would be more prone to wind damage and snow breakage than they would have been without treatment. And many snag-dependent species also require closed-canopy forest for their habitat. **This highlights the importance in planning skips to include areas with the greatest concentration of naturally occurring snags.** This is especially important given that in many units, snag density is already at or below that required by the Forest Plan:

- A continuous supply of hard snags for community structural diversity shall be maintained in harvested areas. At least 2 to 3 hard snags and 2 to 3 live trees per acre should be retained in harvest units. *FW-163 FW-164 p. Four-68*

Zigzag's PDC *K1. Snags and Down Wood* states: "Snags would be retained in all units where safety permits. If snags must be cut for safety reasons, they would be left on site. To increase the likelihood that snags would be retained, they may be included in skips" (similar language exists for legacy trees at PDC K5). Objectors further recommended in PA comments that **skips in units containing large amounts of larger snags and down wood not be limited to the 5% of the unit area generally identified for skips in PDC N6**. Some units may require more area in skips, or unit boundary adjustments if legacy features are to be protected.

As an example, units 62, 64, 65, and 68, contain legacy snags are scattered throughout the stand – since this and other surrounding units are proposed to be logged via helicopter, Bark expressed concern in comments that snag retention in these units would be less possible as the turbulence created by the helicopter has the potential to cause trees to fall every which way, making it unsafe for the feller on the ground. Another example is Unit 129, which contains scattered large trees and a "regeneration harvest" proposal, which prescribes only 15% green-tree retention.

In these types of stands, it is particularly important for legacy trees and snags to be placed in skips so no operators would be in harm's way. Realistically, many of these trees would likely be felled unless they were in skips, reducing the amount of important snag habitat.[9]

Project Design Criteria allow for felling legacy trees and snags to ensure contractor safety. The PDCs state that snags would be retained *only where safety permits*, and if snags must be cut for safety reasons they would be left on site.

However, **OSHA Regulations specifically state that if a danger tree is not felled or removed, it shall be marked, and no work shall be conducted within two tree lengths of the danger tree unless the employer demonstrates that a shorter distance will not create a hazard for an employee.** *29 C.F.R. § 1910.266(h)(1)(vi).* In short, the Forest Service has the option to buffer danger trees and snags, not cut them. While we recognize that the Forest Service needs to protect worker safety, we believe there are options beyond felling danger snags and recommend incorporating these OSHA Regulations into the PDCs related to legacy trees and snags.

Where there are pockets of large trees, multi-aged stand conditions, and dead wood habitat within units, as there are in parts of Units 4, 6, 8, 18, 20, 31, 33, 43, 62, 64, 68, 119, 130, 132, 168, 178, 182, Bark recommended (in Scoping and PA comments) excluding these sections from the units in the form of skips or unit boundary adjustments. Specifically, we recommended that the isolated northeast corner of 168 should be dropped completely from this project due to being both structurally diverse, unmanaged, and riparian.

---

[9] At the 2019 Zigzag public meeting, it was shared that the FS was planning on creating "patch cuts" in unit 62 to promote "deer and elk habitat". This unit is extremely steep and unlikely to be used by deer and elk at any time of year. This rationale should be removed from this unit.

## REQUESTED REMEDY

In summary, the Zigzag project as proposed would result in an immediate and future net reduction of habitat for cavity nesters across the landscape contributing to the regional deficit which will not be remedied by artificial snag creation. **As resolution the FS should devise language in the Decision to reflect these changes or additions to PDCs:**

- Through use of skips, exclude all legacy trees and legacy snags. If trees pose a danger, they shall be placed in skips, marked, and no work shall be conducted within two tree lengths of the danger tree unless the employer demonstrates that a shorter distance will not create a hazard for an employee;
- Skips in units containing legacy trees and snags shall *not* be limited to the 5% of the unit area generally identified for skips in PDC N6.

**Additional resolution:**

- Work with Bark and other interested objectors while designing unit boundaries and contract language to protect these values, and monitor the results together in the field;
    - This monitoring should include at least one in-person visit to agreed-upon skips before implementation, and one after implementation[10];
- Remove the isolated northeast corner of Unit 168 from the Proposed Action.

## RED TREE VOLES

## VIOLATIONS OF LAW, REGULATION AND POLICY

**1) Failure to protect Survey and Manage species would a) violate Northwest Forest Plan and b) not fulfill the "hard look" requirement of NEPA.**

---

[10] The Northwest Forest Plan's standards and guidelines (S&Gs) for maintaining viable populations of pileated woodpeckers emphasize monitoring. This includes implementation monitoring to determine if S&Gs are being followed, effectiveness monitoring to determine if they are achieving desired results, and validation monitoring to determine if underlying assumptions are sound.

Red tree voles (RTV) are Category C Survey and Manage species under the Northwest Forest Plan, and according to the IUCN Red List are "near-threatened". Threats to the species include loss of forest habitat and forest fragmentation. This species has limited dispersal capabilities and early seral stage forests are a barrier to dispersal. Red tree vole Habitat Areas[11] within proposed timber sales require a minimum of 10-acres and are intended to provide for the protection of the physical integrity of the nest(s) and retain adequate habitat for expansion of the number of active nests at that site. The Habitat Areas must include a buffer of one site-potential-tree height around nests on the outer edge of such polygons and include any confirmed inactive red tree vole nests that are located within 100 meters (330 feet) of a confirmed active red tree vole nest.

In the Zigzag project, several proposed units met the survey protocol prerequisite[12] required by the agency to conduct surveys for RTVs. According to the FS, RTV surveys were required by protocol in 16 of the proposed treatment units equaling a total of 449 acres, all within the Horseshoe portion of the project area. Surveys were not required in the other proposed treatment units primarily due to ages of the stands or elevation constraints (all of the Mud Creek area) of the species.

Presence of red tree vole was confirmed within three proposed units in the Zigzag project area. Based on these survey results, acres were dropped from proposed treatment to protect red tree voles and for other resource concerns.

We noted within Zigzag units that several trees had been flagged by surveyors, presumably to mark the dominant trees in the stand. However, several trees which were suitable for RTV which were not flagged, **which we shared in PA comments.** We appreciate the agency's effort to survey for RTVs in Zigzag using new, more thorough protocols which proved to be successful in North Clack. Another lesson learned from North Clack is that in order to best protect RTVs, it is prudent to incorporate new information into project design as it surfaces.

The FS is required to "manage all known sites" until high-priority and non-high-priority RTV sites are determined. The NWFP defines a "known site" as the "historic and current location of a species reported by a credible source, available to field offices, and that does not require additional species verification or survey by the Agency to locate the species." The plan adds that

[11] https://www.blm.gov/or/plans/surveyandmanage/files/mr-rtv-v2-2000-09-att1.pdf

[12] https://www.blm.gov/or/plans/surveyandmanage/files/sp-RedTreeVole-v3-0-2012-11.pdf

a "credible source" may include "amateurs" and "private individuals" provided they have sufficient "academic training and/or demonstrated expertise" in identifying the species.

NEPA mandates that an agency take a "hard look" at a proposed project's environmental consequences, adequately considering every significant aspect, and informing the public of its reasoning and conclusions. 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." In the recent case regarding the White Castle Timber Sale, the Courts found that BLM violated NEPA when not take a "hard look" at environmental impacts when it rejected NESTs data without sufficient consideration or explanation. *Oregon Wild vs. BLM,* 2015 WL 1190131 *12 (D.Or).

The COVID-19 pandemic, wildfires, and other factors largely prevented volunteer tree climbers from surveying in Zigzag as they did in North Clack. We expect volunteer tree climbers, such as NEST, to continue to work within the Zigzag planning area after the project decision is signed.

## REQUESTED REMEDY

If more RTV nests are found after the Zigzag decision is signed, the currently proposed Management Areas may not protect the best available red tree vole habitat as is required by the Northwest Forest Plan, nor would they fulfill the “hard look” requirement of NEPA. **We request, as a resolution to this objection, that any information submitted to the Forest Service after the Decision is released be incorporated into that Decision and subsequent implementation.** This can easily be done through a clarification to the PDC:

- K4. Red Tree Vole - There is the possibility that red tree vole sites may be found, even after a decision is made for this project. **If locations of sites are shared with agency staff, agency staff shall coordinate confirmation and validation of these sites before any ground disturbing activities begin**. Additional deletions or buffers may be incorporated where appropriate based on the direction in the Survey and Manage Standards and Guidelines (page 24), and the Red Tree Vole Management Requirements, as guided by the Pechman exemptions.

## VIOLATIONS OF LAW, REGULATION AND POLICY

### 1) Failure to accept information relevant to analysis violates NEPA

The stated desired condition for Zigzag is to "have a landscape accessed by an appropriate network of roads that provide for management access and visitor safety while minimizing risk to aquatic resources". Since so many system roads in the project area would also be used as temporary roads, we include our objection points for both types of roads (system and "temporary") under this section.

Given that aquatic resources are so prevalent within the project area, there should be an emphasis on reducing the road network in the Zigzag project area, specifically through road decommissioning. Within the Zigzag project area, the Salmon River watershed has been identified by the Forest Service as being analogous to Tier 1 Key Watershed. The Upper Sandy is a proposed Key Watershed. The Northwest Forest Plan (NFP) states that "(t)he amount of existing system and non-system roads within Key Watersheds should be reduced through decommissioning of roads." *NFP at B-19*.

As proposed, the Zigzag project would close 6.5 miles of system road and decommission 2.3 miles. **We shared information and outlined our recommendations for system roads in Scoping and PA comments**, which were not directly addressed in response to comments.

Objectors have stated both general and specific concerns about the "temporary" roadbuilding the agency states is required to achieve the Purpose and Need. In the Zigzag project, the FS is proposing to build 3.9 miles of new "temporary" road (3.2 miles in Mud Creek, 0.7 miles in in Horseshoe), 2.6 miles of "temporary" road rebuilding (1.3 in Mud Creek, 1.3 in Horseshoe), and 4.2 miles of system road rebuilding for temp roads (3.2 in Mud Creek, in 1 Horseshoe). In total, 10.7 miles of roadbuilding is proposed. **In our Scoping and PA comments, we detailed our rationale for concern over these roads**, which was not directly addressed in response to comments.

### 2) Proposed road density violates Mt. Hood Land and Resource Management Plan

An exception to FW-208, related to road density, is proposed for the Zigzag Integrated project. Summer range open road density would be reduced from 3.5 to 2.8 miles per square mile which is still above the 2.5 miles per square mile in standard FW-208. In winter range, the open road density would be reduced from 4.7 to 4.5 miles per square mile which is still well above the 2.0 miles per square mile in standard FW-208. Within the summer range in the Horseshoe area, the open road density would be 3.0 miles per square mile and within the Mud Creek area, would be 2.7. The open road density in the winter range area would drop to 4.5 miles per square mile. **While it would be challenging to reduce road densities any further within the project area, Objectors provided opportunities to reduce road-related impacts to at least partially remedy this inconsistency with the Forest Plan.** These opportunities were not considered in the analysis and the proposed road density remained above LRMP Standards and Guidelines.

**3) Failure to consider viable alternatives: a) no temporary roads in Horseshoe area; b) no <u>new</u> temporary roads in Key Watersheds**

When we first spoke with the District Ranger and agency specialists, we were told that there would not be reopening of previously decommissioned roads as temporary roads in the Horseshoe area. The Proposed Action however does include some reopening of these roads for logging, as well as rebuilding previous and building new temporary road alignments. Given that this area is within listed fish critical habitat, and that the roads there were decommissioned to reduce impacts to aquatic species, **we clearly asked the FS to thoroughly develop an alternative that does not require building temporary roads in the Horseshoe area.**

The standard and guideline for Key Watersheds requires no net increase of system and non-system roads. In the Mud Creek Tier 1 Key Watershed, 7.7 miles of temporary road would be constructed or reconstructed and then rehabilitated in Key Watersheds, while 1.5 miles of system roads are proposed for decommissioning. Given that the impacts of temporary roads are long-lasting and that temporary roads are often reused repeatedly, it seems misaligned with the goal of this standard and guideline to propose this level of roadbuilding in the Key Watershed. It was also unclear how many miles of roadbuilding in Key Watersheds are new vs. “existing", which is relevant to thinking about the net-increase to road density. **Bark requested that the agency develop and pursue an alternative which does not build <u>new</u> temporary roads in Key Watersheds.**

To these requests the FS responded that "even though several comments expressed concern about the quantity of new temporary roads, or the quantity of old temporary road and decommissioned road alignments proposed for reuse, none specified a level at which there would be no concern." *EA at 9.*

Furthermore, the alternative of logging with helicopters instead of constructing or reconstructing temporary roads *was* considered by the agency, but this was not our request. Our requests above were to consider dropping temporary roads in 1)Horseshoe and/or 2) new roads in Key Watersheds.

Some of the most constructive and beneficial interaction between the public and an agency occurs when citizens identify or develop reasonable alternatives that the agency can then evaluate. In fact the FS must, "objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."[13] In this case, Bark has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EA, which could reduce the environmental impacts of the proposal.

## REQUESTED REMEDY

**1) Pursue provided opportunities to reduce road-related impacts, including actively decommissioning 1828-024; 1828-022**

The **1828-024** road is a Decommission with Delay road (per the 2010 Zigzag Decommissioning EA) which terminates into a popular illegal and dangerous target shooting spot where Objectors have, over the years, increasingly observed trees being shot down and trash being shot at and left on-site. For this reason and others, we recommended in Scoping that the **1828-024 road should be decommissioned.**

A new temporary road is proposed off the 1828-024 into unit 32 through Riparian Reserves. The PA lists this road as "Passive decommission to maintain recreational opportunities." This is concerning given the history of this road (these "recreational opportunities" include illegal activity) and the increased access it could provide if not blocked properly. Keeping this road on the system also appears to contradict

[13] CEQ NEPA Regulations, 40 C.F.R. § 1502.14.

the statement by the agency that "Decommissioning more roads was considered but not developed because the remaining roads were found to be needed for long-term management of the area and because resource impacts were found to be minimal." We maintain our request that the FS consider actively decommissioning this road, which is not needed for long-term management, to protect riparian values and curtail unauthorized activity.

The **1828-022** road has a decision to decommission *without* delay per the 2010 Zigzag Decommissioning EA. This road has not been actively decommissioned. Its junction with the 1828 is passively decommissioned for 15-20 feet in but then appears stable and drivable. **If this road is reopened and used to for access, we request that it then be actively decommissioned upon completion of this project, since its "passive" decommission state will be altered.** This should be reflected in the agency's road table for the project area.

**2) Drop Unit 6 and Unit 119**

We have stated concerns for the new "temporary" road proposed into **Unit 6**. The route would cut directly through very structurally diverse habitat containing old growth noble firs, large snags, and down wood. This multi-aged unit contains several old growth trees and healthy mature forest. Building this new temporary road off a popular route would also invite increased human intrusion into the area. Given the relatively lengthy road compared to the size of the unit, **we offer as a remedy that dropping this unit would easily eliminate the need to place a long, new "temporary" road at this sensitive location.**

**Unit 119** has a proposed 0.61-mile new temporary road running through it. In PA comments, Bark requested that this road be dropped from the proposal. Our stated concerns are that it would encroach into a significant unroaded area identified by the FS, adding road density and disturbance to an area where elk seasonally move through when they migrate west out of the Salmon Creek meadow. This road would also cross into the Salmon River WSR corridor. Unit 119 itself is structurally diverse and the road appears to go through some of the best habitat up on the Mud Creek ridge.

The FS showed in their analysis an unroaded and undeveloped block in the vicinity of Unit 119 in the Mud Creek area. This area is 247 acres and is adjacent to the Salmon-Huckleberry Wilderness to the east. Units 102, 108 and 119 are in this block. Unit 119 especially includes sections of structural and topographical diversity and is currently unroaded and intact. Logging in these units would would alter this unroaded and undeveloped block by 27%.

Habitat for species dependent on large, undisturbed areas of land, such as northern spotted owls and elk, are disturbed and displaced by the edge effect of surrounding forest roads and old clearcuts, and the noise generated by vehicles on adjacent forest roads. This reduces the habitat effectiveness of the unroaded and undeveloped blocks for species that need unfragmented habitat and solitude. The FS states that species requiring large undisturbed areas of land would likely persist in the project area, and the species in question would find similar forest types in adjacent Wildernesses, Inventoried Roadless Areas, and other undisturbed blocks elsewhere on the Forest.

However, Bark found that the area of Unit 119 is *specifically* used by elk to migrate through this area. This possibly has to do with the unit being centered on Mud Creek ridge. Indeed, wintering elk migrate from the eastern edge of the Forest and arrive in the Salmon River Meadows area, directly adjacent to Unit 119, each spring. Calves are born in the meadows and the small herds remain in the area into July when they move up in elevation around Mt. Hood until late November when they migrate back to the eastern edge of the Forest.

**We offer, as a remedy to our roads concerns, that dropping this unit would easily eliminate the need to place a new "temporary" road at this location.** This would allow the FS maintain habitat connectivity - by dropping Unit 119 and the 0.61 miles of new roadbuilding which are proposed there.

## RIPARIAN AREAS, SOILS, GEOLOGY

### VIOLATIONS OF LAW, REGULATION AND POLICY

**1) Thinning in Riparian Reserves is not needed to meet ACSOs, so violates the Northwest Forest Plan**

In the Zigzag project, the FS proposes 175 acres of Variable-density thinning with skips in Riparian Reserves (RRs) in the Horseshoe area, and 119 acres in the Mud Creek area. According to the draft decision, "The analyses in the Water Quality Report and the Fisheries and Aquatic Resources Report and Biological Evaluation show that the proposed actions are **appropriate** for riparian reserves." (emphasis added) However, as Objectors analyze the Proposed Action, it appears that logging in the RRs will have a negative short-term effect, but no meaningful, positive long-term effect.

Riparian Reserves are a part of the NFP's broad Aquatic Conservation Strategy. This system was established to "restore and maintain the ecological health of watersheds and aquatic ecosystems." *Klamath Siskiyou Wildlands Ctr. v. U.S. Forest Serv.,* 373 F. Supp. 2d 1069, 1092 (E.D. Cal. 2004). Th NW Forest Plan prohibits timber harvest in Riparian Reserves except when **needed** to "acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives." *NWFP at C-32-3.* Thus, the key question: is commercial logging **necessary** to acquire the vegetation needed to meet the ACS objectives (ACSO)?

The Forest Service has failed to establish the need for commercial thinning to attain ACSOs – claiming only that the riparian vegetation is "overstocked" with relatively uniform trees with low levels of diversity, and that logging would be appropriate. Objectors' experience on the ground in the project area leads us to believe that this is a drastic oversimplification of the riparian areas, which include many well-functioning stands. Even if the Forest Service's generalization were true, it wouldn't support the ecological need to log in Riparian Reserves, as the Forest Service has not established why the logging and road building of the Zigzag Project is **needed** to attain ACSOs.

According to the Fisheries Report, past stand-replacing fires and logging history have resulted in stands with a stem density above background conditions, and reduced the area's resilience to fire and disease. *Fisheries Specialist report at 75.* However, the report goes on note that despite these historic disturbances, there is sufficient habitat resiliency in the watershed to recover from most disturbance events and natural processes are generally stable. *Id.* The watershed has fertile soil, enough rainfall, and abundant surface and groundwater to quickly begin, and then maintain, the recovery process. Due to the impairment of hydrologic function and the reduced stand health and fire resiliency, the extent of human induced disturbance has created conditions in the watershed that are considered functioning at risk. *Fisheries Specialist report at 75*

It appears that the FS's main justification for logging in Riparian Reserves is to make the area more resilient to wildfire, but this is not supported by best available science or the recent experience of fire behavior on the westside of Mt. Hood (as detailed below). The Forest Service has not demonstrated the threshold conditions that allow commercial logging in Riparian Reserves.

**2) Failure to incorporate information relevant to analysis violates NEPA**

Complying with NEPA does not simply mean jumping through a series of procedural hoops; rather, it is essential that a federal agency meaningfully engage

with the information and concerns presented by the engaged public and reflect this engagement in its decisions. See *Or. Natural Desert v. BLM,* 625 F3d 1092, 1099–1100 (9th Cir. 2010) ("NEPA relies upon democratic processes to ensure … that 'the most intelligent, optimally beneficial decision will ultimately be made.").

Despite objectors' past requests for the Forest Service to review and discuss site-specific data submitted throughout the NEPA process, it consistently failed to do so, violating NEPA's "hard look" requirement. See e.g. *Blue Mts. Biodiversity Project v. Blackwood,* 161 F.3d 1208, 1213-14 (9th Cir. 1998) (holding EA inadequate where it failed to reference material containing scientific viewpoints opposing agency's conclusions about the environmental consequences of post-fire logging); *N. American Wild Sheep v. USDA*, 681 F.2d 1172, 1179 (9th Cir. 1982) (agency failed to take the requisite 'hard look' where "significant questions raised by respondents to the initial draft of the EA were ignored or, at best, shunted aside with mere conclusory statements."); 40 C.F.R. § 1500.1(b) (government has a duty to use high quality information and accurate scientific analysis).

Information below was submitted by objectors but was not acknowledged or responded to by the FS during the NEPA process. This includes suggestions for resolution through requested remedy:

***Unmapped Riparian Areas Within Proposed Units***

In the past, we have brought to the Forest Service's attention instances where sale contract maps did not reflect all wet areas within proposed units, which resulted in ground-based logging occurring over riparian areas.

In Scoping, and in PA comments Bark shared locations and descriptions of several riparian areas which were not on Scoping maps at the time[14]. The agency has since stated that riparian features that are not perennial or intermittent streams such as seeps, springs, ponds or wetlands would be protected by the establishment of buffers or skips that incorporate the riparian vegetation.

According to the FS, the list of riparian areas we provided with geospatial coordinates and photos would be examined by the implementation team and when verified, would be dealt with according to the Project Design Criteria. The agency suggested that showing buffers on maps would be premature until areas are field

[14] At the time of the release of the Draft Decision, Bark was informed that members of the ID team, including specialists considering riparian impacts, had not seen Bark's comments.

verified – however they also shared that most of the areas were already known. **Therefore, it is not premature to show these buffered areas on the final unit maps.**

**We shared this information to help create a more informed representation of baseline condition,** because "(i)f an EA does not reasonably compile adequate information and sets forth statements that are materially false or inaccurate the Court may find that the document does not satisfy the requirements of NEPA, in that it cannot provide the basis for an informed evaluation or a reasoned decision." *Western North Carolina Alliance v. N. Carolina Dept. of Transp.,* 312 F. Supp. 2d 765, 776- 77 (E.D.N.C. 2003), citing *Sierra Club v. United States Army Corps of Eng'rs*, 701 F.2d 1011, 1030 (2d Cir.1983). Further, a "material misapprehension of the baseline conditions existing in advance of an agency action can lay the groundwork for an arbitrary and capricious decision." *Friends of Back Bay v. U.S. Army Corps of Engineers,* 681 F.3d 581, 588 (4th Cir. 2012).

Specifically, unit 168 contains extensive areas of riparian habitat that is not mapped and still inside the updated unit boundaries. The northeast corner of this unit includes diverse unlogged forest and is separated from the rest of the unit by streams and has no road access. Plants within the riparian areas inside the unit include bog orchid (*Platanthera dilatata*), marsh marigold *(Caltha biflora)* and shooting stars *(Dodecatheon)* – all indicators of riparian condition. The table we provided in PA comments details the locations of unmapped riparian areas within unit 168 and others – these areas should be dropped from the units they are within. Again, these are different areas than ones we identified in Scoping and are still inside the most current timber sale unit map (received July 2020) boundaries.

There are several sections of stream in Horseshoe above listed fish habitat, but also in Mud Creek units like 168, that alternate linearly above and below ground. In Zigzag, it is not spelled out how subterranean reaches of perennial or intermittent streams are classified re: Riparian Reserves and no-cut buffers. It is not clear whether they are treated the same as perennial or intermittent, or if there is any difference from, for example, above ground reaches of the same stream.

In these cases, it is very difficult to know the extent of the drainage network, and the hydrology and soils are often very sensitive to ground-based disturbance. Some subterranean reaches of streams can be linear extensions of the streams they are connected to, while others may extend across a flat bench or spread laterally under the ground before meeting a stream channel again. It can be apparent that this is the case when the topography flattens out and riparian vegetation (i.e. skunk cabbage, devil's club) is prevalent. When this condition occurs within the units,

Bark recommended in Scoping and PA comments that no ground-based heavy machine operations should occur within RRs. Any thinning could occur using hand equipment, and a non-commercial thin will leave wood within the Reserves.

## REQUESTED REMEDY

The PA states that "(r)iparian features that are not perennial or intermittent streams such as seeps, springs, ponds or wetlands would be protected by the establishment of protection buffers or skips that incorporate the riparian vegetation." To ensure these habitats are protected, we request:

1) Where they are *already known* by the agency to exist (as is stated in the EA), include buffers on these riparian areas on the project Decision maps in the form of unit boundary adjustments and subsequent acreage adjustments.
2) Where further verification is necessary, include buffers on these riparian areas on the contract maps in the form of unit boundary adjustments and subsequent acreage adjustments. Notify Bark to these changes before contracts are advertised.
3) Where a stream has alternating reaches of subterranean flow and above-ground scour, buffer subterranean reaches between two areas of scour the same as those above-ground reaches.
4) Where subterranean water presence is apparent, but is not linear, allow no ground-based heavy machine operations to occur within Riparian Reserves.

### ***Soils & Geology***

According to the FS, known unstable or potentially unstable areas have already been deleted from the proposed units. This is not consistent with Bark's experience in units like 4, 6, 12, 13, and 68, which each contain areas of rocky cliffs and other steep outcroppings.

- Steep rock outcrop Unit 4: 45.39272, -121.86054
- Cliffs in Unit 6: 45.39661, -121.85481; and 45.39606, -121.85548
- Rock outcrop Unit 8: 45.40164, -121.85302
- Rock outcrop Unit 13: 45.40284, -121.84575
- Rock outcropping Unit 68: 45.37506, -121.85802

We are concerned that the geology effects analysis is inadequate as only one short paragraph was prepared: "Zigzag Integrated units overlying active landslides

included units 2, 4, 7, 40, and 44 in the Horseshoe portion of the planning area. Areas of units that overlapped active landslides were deleted from the units. No active landslides were noted in the Mud Creek portion of the planning area. No new road construction is proposed in areas of instability."

The Consideration of Comments reads: "Some suggested there were rock outcrops, that slopes were steep… Although the exact particulars of each location are not responded to individually, the agency has assessed the impacts and benefits of the proposed treatments, has developed project design criteria to minimize impacts, and in some cases has acted on suggestions where appropriate." However, there are not PDCs that relate specifically to rock outcrops or the unstable areas mentioned.

PDC C10 allows tethered ground-based equipment to operate on slopes up to 60%, which is markedly steeper than any ground-based logging seen by Objectors in FS projects thus far.

**REQUESTED REMEDY**

In the Final Decision, please provide detail on how geology and soil resources in unstable areas will be protected by use of PDCs in the Zigzag project, including what types of areas will be excluded from final units based on geologic/soils concerns.

## FIRE & FUELS MANAGEMENT

**VIOLATIONS OF LAW, REGULATION AND POLICY**

**1) Failure to take a hard look at fuels management violates NEPA**

Despite Bark's request in comments for more specificity regarding proposed fuels treatments, after reading the draft Decision Notice, the EA and the Fire & Fuels Specialist's report, we can find no clear disclosure of proposed actions regarding fire and fuels, or reference to relevant scientific research to support any actions. plans to take.

The EA begins to cause confusion in a section titled Other Opportunities: "Inside many of the vegetation management actions described above, fuel treatments will occur. This is considered a connected action, to break up the contiguity of fuels and to provide a safer setting for fire suppression forces in the event of wildfire." *EA at 7.* Digging deeper in the EA to find out what these "fuels treatments" are, we

found little to no specificity. The section on fuel treatments only discusses slash disposal, with this vague and non-specific conclusion: "Other fuel treatments are estimated based on initial field visits. It is often difficult to estimate the eventual quantity and distribution of activity fuels; therefore, sometimes adjustments are needed after post-logging inspections. Project design criteria would be used to guide changes to fuel treatments, if any." *EA at 12-13*. While the fuels treatment section seems to only apply to post-logging fuels, eg slash, other places in the EA use the term "fuels treatment" to allude to the logging itself, such as: "PDCs have been designed to meet scenery goals and reduce the typical **direct effects of logging and fuels treatments** such as gaps between stands, alterations to canopy density and texture, the presence of stumps and slash on the ground." *EA at 38*. See also: "The proposed vegetation treatments would compartmentalize the landscape into blocks that are spatially separated and **adds fuel reduction along primary roads**." *EA at 45.* To compound the confusion yet further, in the Fuels and Fire Hazard section of the EA, the No Action analysis states that "With no action, there would be no activity fuels to treat" reinforcing the earlier notion that the only fuels treated are the post-logging slash and not standing trees. *Id.*

To add to the internal inconsistency around fuels management, the Fisheries Specialist's report cite fuel reduction as one of the primary reasons logging should occur in Riparian Reserves (*Specialist's Report at 75*) but the draft DN says this: "Since the purpose and need of the Zigzag Integrated Resource Project is not related to fuel reduction or curbing wildfire, and because the fires did not encroach into the project analysis area, I find that the analysis already conducted is sufficient to move forward with this project." *DN at 10.*

This all should be clarified. If the only "fuels treatment" the Zigzag project is proposing is to manage post-logging slash, we have no objections. If, however, the Forest Service is suggesting that thinning these forests will affect the behavior of future fires, as seems the thrust of the Fisheries report and the Fire & Fuels Specialist's report, then we object on the grounds that this approach is highly controversial according to relevant science, requiring a thorough EIS NEPA analysis. See *Bark v. United States Forest Serv.*, 958 F.3d 865 (9th Cir. 2020).

For the record, there is scientific consensus that logging in westside forests is not likely to affect fire behavior. The recent fires in Mt. Hood National Forest confirmed this fact, as did numerous reflection sand articles about these fires. For example, in a recent article from OPB/Oregon Live titled "Despite what the logging industry says, cutting down trees isn't stopping catastrophic wildfires," forest fire experts stated that logging is not the way to affect fire behavior in westside forests: "The

belief people have is that somehow or another we can thin our way to low-intensity fire that will be easy to suppress, easy to contain, easy to control. Nothing could be further from the truth," said Jack Cohen, a retired U.S. Forest Service scientist who pioneered research on how homes catch fire.[15] Matt Donegan, a former timber investor and consultant who led Governor Brown's Wildfire Response Council, acknowledged thinning may not be effective in the rainy forests of western Oregon because the trees would grow back before wildfire.[16]

These opinions are amply supported by scientific research, which has found that few options exist for reducing fire severity in wetter, high-elevation and coastal forests of the Pacific Northwest, historically characterized by infrequent, stand-replacement fire regimes. In these ecosystems, thinning and hazardous fuel treatments are unlikely to significantly affect fire behavior, because fuels are abundant and fires typically occur under extreme weather conditions (i.e., during severe drought).[17] Given the natural high severity fire regime, and the rapidity with which vegetation grows back in wet forests, decreasing forest density by removing overstory trees is not known to affect fire behavior.

The Fire Specialist's Report, published September 3, 2020, after the draft PA comment period was closed and less than one week before fires ripped through the forests of the Cascades, assumes a scenario where fire will occur in the logged area within the next five years, and be driven by 15 mph winds. This scenario is perhaps remotely possible, yet it is far from the most likely future and should not be the *only* scenario analyzed regarding the impact of this logging on fire behavior.

**REQUESTED REMEDY:**

---

[15] https://www.opb.org/article/2020/10/31/logging-wildfire-forest-management/

[16] Id.

[17] Joanne J. Ho, Robert A. Norheim, Jessica E. Halofsky, David L. Peterson, Brian J. Harvey 2019. Changing Wildfire, Changing Forests - How climate change is affecting fire regimes and vegetation in the Pacific Northwest (storymap) https://uw.maps.arcgis.com/apps/Cascade/index.html?appid=9c0f8668f47c4773b56c9b9ae6c301e3

1) Disclose exactly what the Forest Service proposes to do to "treat fuels" and/or modify fire behavior in the Zigzag Project.

2) If the Forest Service is proposing to log fuels breaks, or to claim that logging in Riparian Reserves will make them more fire resilient, the Forest Service must recognize the scientific controversy around this issue, engage the research and create supplemental NEPA analysis that discusses the efficacy of logging to affect fire behavior in westside forests.

## CLIMATE CHANGE AND CARBON STORAGE

### VIOLATIONS OF LAW, REGULATION AND POLICY

**1) Failure to take a hard look violates NEPA**

As noted throughout this document, Objectors are disappointed that the Forest Service missed an opportunity to improve both its analysis and its project by incorporating the extensive, well-researched public comments regarding climate change impacts and the Zigzag project. Instead, the Forest Service applied its language that has been showing up in a similar form in every NEPA document over the last 5 years. Forest Service had every opportunity to provide a better, more complete analysis, drawing not only from public comments but also from its own draft Climate Vulnerability Assessment and USDA Climate Hub. Instead, FS again barely met the expectations of NEPA, science and the public largely dismissing a wealth of resources available to do a real assessment.

Forest Service failed to engage with most issues raised in comments regarding the climate analysis. We incorporate by reference all issues Objectors raised in scoping and comments, including failure to use best available science, and generally failing to take a hard look at climate change, as required by NEPA. *See Bark comments, at 38-50.* For the purposes of this narrative, we will focus on the two issues included in the draft Decision: whether a "hard look" requires a more in-depth carbon analysis and whether this action will make the stands more resilient in a changing climate.

A) Level of analysis necessary for a hard look

Despite the Ninth Circuit's admonition that "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" this is exactly what the

Zigzag EA provides. *Neighbors of Cuddy Mountain v. U.S. Forest Service,* 137 F.3d 1372,1380 (9th Cir. 1998). As noted above, the Climate Change analysis is copied from past planning documents and did not substantively engage with any of the information Objectors submitted in multiple pages of scoping and PA comments, which included extensive cites to relevant, recent scientific studies. While the EA stated that "The cited science has been considered along with that science cited in this report. That consideration is documented in the administrative record," there is nothing to confirm this assertion in the EA, Specialist's Report or Response to Comments. As the Ninth Circuit recently found in a case regarding the Crystal Clear Timber Sale on Mt. Hood National Forest: "In its responses to these comments . . . the USFS reiterated its conclusions about vegetation management but **did not engage with the substantial body of research cited by Appellants**." *Bark v. United States Forest Serv.*, 958 F.3d 865, 870 (9th Cir. 2020) (emphasis added). In that case, the Forest Service's failure to engage the submitted science led the court to invalidate the Crystal Clear EA. We encourage the Forest Service to follow the guidance of the court and resolve this objection by preparing a more detailed analysis that takes a hard look at climate change.

What would a hard look entail? Many commenters suggested that the Forest Service prepare a quantitative assessment of the carbon impacts of this project to help better inform both the public and the decision maker. The Forest Service declined to do so, stating in the draft decision that: "I have decided that a quantitative carbon analysis is not appropriate at the project scale" and "I have reviewed the science and I believe there are far too many disagreements regarding the assumptions and unknowns about the factors that would go into a quantitative analysis that would render the results speculative." The draft decision did not explain *why* a carbon analysis would be inappropriate, unless the following statement that it would be "speculative" is the reason.

This decision rationale is out of touch with the best available science, which is not surprising given that the most recent research included in the specialist's report is from 2015. As noted in Objectors' comments, there is a wealth of information about how to assess the carbon impacts of logging. See *Comments at 39*. For example, as noted in scoping and PA comments, the Oregon Global Warming Commission's Forest Carbon Accounting Project Report highlights the importance of project-level tracking of carbon emissions, and question whether converting standing timber into wood products can be an effective strategy for maintaining or increasing overall forest carbon storage. The report includes an OSU study that looked at the carbon consequences of different levels of thinning. The research indicates that carbon stores decrease by 100 tons per hectare with light thinning and decrease by 250

tons per hectare with heavy thinning, which then takes 50 years to recover its pre-thin carbon levels. The Forest Service could have easily extrapolated the carbon impacts from logging Zigzag using this information. Indeed, the BLM has been doing site specific quantified carbon analysis of its timber sales for the past 10 years.

Far from being inappropriate or speculative, analyzing the impacts to carbon stocks from logging is a key component of taking a hard look. While the state of the law about analyzing climate change in the NEPA process is still in development, the Ninth Circuit established a rule regarding timber sales that a NEPA analyses must consider a project's "impact on global warming in proportion to its significance." *Hapner v. Tidwell* 621 F.3d 1239, 1245 (9th Cir. 2010). As noted in a review of NEPA analysis and climate change "There is no reasonable interpretation of the existing regulatory framework that would suggest that GHG emissions and other climate change impacts should be left out of NEPA analyses. On the contrary, the trend in the federal courts and at the state level suggests climate change impacts should definitely be considered under NEPA."[18]

Even if a quantitative analysis is not strictly necessary to take a hard look, specific inquiry into the impacts of the project on climate change is necessary. The EA also fails in this regard, as it also contains little to no qualitative information, that details the scientific narrative around logging and its impact on carbon stores. The Forest Service could have, for example, discussed research regarding the forest's limited ability to sequester carbon for a period after the removal of biomass/disturbance which subsequently turns the forest into a carbon source.[19] Not only that, but also the act of removing trees requires industrial carbon emissions. Moreover, reducing tree densities increases weathering of dead biomass, which would increase the rate of carbon emissions from decay. FS analysis could have included this information from the Oregon Global Warming Commission's Forest Carbon Accounting Project Report and applying it to the Zigzag project: "Based on credible evidence today, forest harvest does not appear to result in net carbon conservation when compared to carbon retention in unharvested

---

[18] Smith, Michael D. Smith, Bass, Ron, NEPA and Climate Change, Part 2: Ten Steps to Taking a Hard Look, Environmental Practice 12 (2) June 2010.

[19] Mitchell SR, Harmon ME, O'Connell KEB. 2009. Forest fuel reduction alters fire severity and long-term carbon storage in three Pacific Northwest Ecosystems. Ecological Applications, 19:3; 643-655.

forests…Current analysis suggests that treatments which include medium to heavy thinning result in reduced carbon stores that do not recover in any meaningful time periods."

But the EA and draft decision had neither quantitative nor qualitative analysis and provided no clear rationale as to why the FS did not take the hard look required by NEPA. This is a violation of law, regulation and policy that could be resolved with a supplemental analysis that engages the extensive available research provided to the Forest Service in public comments to come up with a new approach to analysis that forever abandons the cut and paste approach of the last five years.

B) Logging does not increase the forests' climate resiliency

There is a sentiment in the draft decision that Objector wholly agrees with: "I have decided that making stands more resilient to the future climate is important and appropriate." However, the follow-up statement "I believe that the proposal is a prudent action to move stands in the right direction to be well positioned to thrive in a changing climate," is not necessarily supported by best available science.

As noted in comments, recent research showing that growing existing forests intact to their ecological potential—termed *proforestation*—is the most effective, immediate, and low-cost approach to both increasing carbon storage and climate change resilience across suitable forests of all types. Proforestation serves the greatest public good by maximizing co-benefits such as nature-based biological carbon sequestration and unparalleled ecosystem services such as biodiversity enhancement, water and air quality, flood and erosion control, public health benefits, low impact recreation, and scenic beauty. *See Bark Comments at 42*.

Indeed, best available science agrees that maintaining intact mature forests is the best way to make the ecosystems more resilient to a changing climate. Human-caused climate change will not only affect natural systems, but it will also intensify the impacts of human activities such as off-road vehicles, roadbuilding and logging. As noted in Objectors' comments, when looking at climate impacts in National Forests, one report concluded that, "climate change will directly affect the ecosystem services provided by national forests and will exacerbate the impacts of current natural and anthropogenic stress factors." *Comments at 43*. This is not a projection; it is already happening. We are already seeing an increase in drought, fire and flood in the region and these are predicted to steadily increase. Many streams on Mt. Hood will experience higher winter flow and reduced summer flows as temperature rises and the variability of precipitation increases. The well

documented shift from snow to rain, coinciding with increases in temperature, affects hydrologic trends.[20]

To help mitigate against the worst impacts from climate change, the recommended form of protecting the biodiversity in riparian areas is by maintaining landscape connectivity. Rivers encounter many types of terrain along their route and are used directly by animals as thoroughfares between different habitats, or indirectly as rivers' tributaries create a multitude of microhabitats in one given terrain which help sustain groups of populations. Rivers themselves also act to support different population directly or indirectly through the provision of food sources. Logging in Riparian Reserves goes against this principle.

Similarly, maintaining habitat connectivity is essential to help organisms respond to climate change. By assisting the abilities of creatures to exist in less affected microclimates, adapt, or migrate, greater amounts of biodiversity can be maintained and preserved. The FS can do this by avoiding fragmentation of habitat zones and increasing connectivity between habitats, as well as increasing ecosystem redundancy. Protecting currently "unmanaged" areas helps establish habitat for existing organisms and increases ecosystem health and biodiversity, which help mitigate the stress of climate change and increase resilience.

The FS is not engaging the best available science in its planning and cannot affirmatively support its finding that the proposed logging and road building is a "prudent action to move stands in the right direction to be well positioned to thrive in a changing climate."

## REQUESTED REMEDY

To resolve this objection, we request the Forest Service review the scientific research on this issue and create a more up-to-date, well-reasoned analysis of the impacts of this project on increasing climate resiliency in the Zigzag project area.

## ZIGZAG PROJECT OBJECTION RESOLUTION

[20] Draft Climate Vulnerability Assessment for The Columbia Gorge Scenic Area and Mt. Hood & Willamette National Forests, 2019, p 8-9.

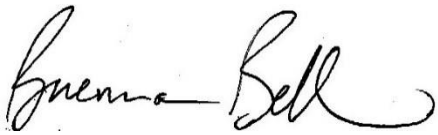
Many of the above suggestions for resolution are carryovers from Objectors' comments and represent issues that the FS declined to address in its EA. We hope that these suggestions find more fertile ground during the objection process and that this project can become one that restores the forest and makes communities more resilient to climate change.

We would welcome a productive pre-decisional objection resolution meeting with MHNF staff. If you have any clarifying questions about this objection, please do not hesitate to contact us.

Thank you,

Michael Krochta

Forest Watch Coordinator, Bark



Brenna Bell

Staff Attorney, Bark

Felice Kelly, PhD

Co-lead Forest Defense Team, 350PDX

Doug Heiken

Oregon Wild

Damon Motz-Storey

Healthy Climate Program Director

Oregon Physicians for Social Responsibility