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Hilary Henry
Sweet Home District Planner
4431 Highway 20
Sweet Home, OR 97386

Submitted online via https://cara.fs2c.usda.gov/Public//CommentInput?Project=64261

Re: Upper Canyon Project (#64261)

Please consider the following comments on the Upper Canyon project, submitted on behalf of Cascadia Wildlands and Oregon Wild. Cascadia Wildlands is a 25-year-old, non-profit conservation organization that works to defend and restore Cascadia's wild ecosystems in the forests, in the courts, and in the streets. Cascadia Wildlands envisions vast old-growth forests, a stable climate, rivers full of wild salmon, wolves howling in the backcountry, and vibrant, diverse communities sustained by the unique landscapes of the Cascadia bioregion. Over 12,000 members and supporters across the country help sustain the organization and its movement for change. Oregon Wild represents 20,000 members and supporters who share its mission to protect and restore Oregon's wildlands, wildlife, and water as an enduring legacy.

Project Description

The Upper Canyon project area consists of approximately 20,748 acres along Canyon Creek and is located on the Sweet Home Ranger District approximately 16 miles east of Sweet Home in Linn County, Oregon. The District is proposing to treat plantations using a combination of thinning, skips, dominant tree release, and gaps on 1,069 acres of plantations under 80 years old, which would take place between 2025 and 2030 and generate 15 to 20 million board feet. The District would enhance meadows by reducing encroaching young conifers through fall and leave treatments, tree girdling, tree removal, and pile burning on 80 acres. Additional actions include road closure, road decommission, weeds treatments, and fuel treatments. The agency states the following needs for the project:

- Provide a sustainable supply of timber products;
- Actively manage timber plantations and landscape to promote growth, diversity, and structural complexity;
- Manage Riparian Reserves to control stocking and acquire desired vegetation characteristics needed to obtain the Aquatic Conservation Strategy objectives; and
- Sustainably manage the network of roads in the project area by identifying a minimum road system.

Public Engagement

Thank you for preparing an Environmental Assessment (EA) for the Upper Canyon project. The District has utilized a particularly robust public engagement process for this project, including a pre-scoping field trip in anticipation that the project area would be inaccessible during the scoping comment period plus driving tour details for those who were unable to attend; extension of the scoping comment deadline to allow for ample review time over the winter holiday period; provision of additional project information on top of the initial sparse scoping notice; and timely updates via email and to the project webpage. Cascadia Wildlands staff were able to join the field visit and appreciated the opportunity to see proposed treatment areas, see the current status of previously treated areas, and discuss project components with staff. We especially appreciate staff's efforts to accommodate individuals with a wide array of interests and different access needs. We are grateful for the transparency in planning and wish to see all districts using this engagement process as a model when planning projects and completing NEPA analyses. To continue to enable well-informed public review, please include detailed georeferenced maps with the draft EA.

Recommendations

Our organizations remain steadfastly opposed to the logging of mature forest stands and regeneration harvesting that increases fire hazard, removes wildlife habitat, and exacerbates climate change, but we are generally supportive of small-diameter thinning projects in managed plantations such as the proposed project. This is the type of work on which we encourage the agency to focus. Even so, we ask that the agency evaluate and balance the many trade-offs associated with logging of any kind, including thinning. Please consider the following recommendations for young stand thinning prescriptions.

1. **Balance Trade-offs of Logging**

Focus the analysis on "trade-offs" related to logging. All logging, including thinning stands of any age, include some adverse impacts and trade-offs. Some impacts of logging are unavoidable, so there is no such thing as a logging operation that is 100% beneficial. Depending on how thinning is done, it can have adverse impacts such as soil disturbance; habitat disturbance; damage to the shrub layer; carbon removal; spreading weeds; reduced populations of prey for carnivorous species; reduced recruitment of snags; road-related impacts on soil, water, site productivity, and habitat; moving fuels from the canopy to the ground, hotter-drier-windier microclimate that is favorable to greater flame lengths and rate of fire spread, etc. Some of these negative effects are fundamentally unavoidable, therefore all thinning has negative effects that must be compensated by beneficial effects such as reducing competition between trees so that some can grow larger faster, increased resistance drought stress and insects, possible increasing species and structural diversity, possible fire hazard reduction, etc.

It is generally accepted that when thinning very young stands, the benefits outweigh the adverse impacts and net benefits are likely. It is also widely understood that thinning older stands tends to have greater impacts on soil, water, weeds, carbon, dead wood recruitment so the impacts very often outweigh the benefits, resulting in net negative outcome on the

balance sheet. Thus, as we move from young forest to older forests, the net benefits turn into net negative impacts.[1] These are some of the trade-offs that must be disclosed and weighed in the NEPA document.

2. Implementation

When conducting commercial thinning projects, take the opportunity to implement other critical aspects of watershed restoration especially pre-commercial thinning, restoring fish passage, reducing the impacts of the road system, and treating invasive weeds. Focus on treating the youngest stands that are most "plastic" and amenable to restoration. Use projects as an opportunity to learn by conducting monitoring and research on the effects of thinning. Generally retain all the largest trees and some of the smaller trees in all age-size classes. This can be accomplished in part by retaining untreated "skips" embedded within the stand. Retain and protect under-represented conifer and non-conifer trees. Protect shrubs as much as possible, especially deciduous and tall shrubs, and those that produce insects, berries and mast.

Strive for a variable density outcome. Be creative in establishing diversity and complexity both within and between stands. Use skips and gaps within units to help achieve diversity. Gaps should be small, while skips should be a little larger, but even small clumps and patches of trees are desirable. Gaps should not be clearcut but rather should retain some residual structure in the form of live or dead trees. Landings do not make good gaps because they are clearcut, highly compacted and disturbed, more likely subject to repeated disturbance, and directly associated with roads.

The scale of patches in variable density thinning regimes is important. Ideally variability should be implemented at numerous scales ranging from small to large, including: the scale of tree fall events; pockets of variably contagious disturbance from insects, disease, and mixed-severity fire; soil-property heterogeneity; topographic discontinuities; the imprint of natural historical events; etc.

3. Wildlife Habitat

Young stands do not exist in isolation, so be sure to consider the effects of thinning on adjacent mature and old-growth habitat which may provide habitat for spotted owls, red tree vole, and other imperiled species. Spotted owls may use young stands for dispersal, foraging,

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[1] See Klaus J. Puettmann, Adrian Ares, and Erich Dodson. 2011. Over- and understory vegetation responses to thinning treatments: Can we accelerate late successional stand structures? Symposium: Density Management In The 21st Century: West Side Story. http://oregonstate.edu/conferences/event/densitymanagement2011/agenda.pdf ("growth of large trees was less responsive to thinning and low mortality rates for larger trees resulted in little recruitment of large snags or coarse woody debris (down wood). In general, thinning increased abundance and diversity of early-seral understory species, with little effect on late-seral species. On sites where shrub cover was already high harvesting initially reduced the cover, but shrubs recovered over time. Exotic species slightly increased in response to treatment …"); and Erich K. Dodson, Adrian Ares, and Klaus J. Puettmann. 2011. Thinning effects on tree mortality and snag recruitment. Symposium: Density Management In The 21st Century: West Side Story. http://oregonstate.edu/conferences/event/densitymanagement2011/agenda.pdf ("…thinning did little to accelerate the development of large snags and coarse downed wood that provide critical wildlife habitat…").

and security from predators. It may be helpful to create a "risk map" that identifies areas that are more or less suitable for thinning based on criteria such as: existing habitat characteristics, proximity to occupied habitat or activity centers, proximity to suitable habitat, and proximity to recently thinned areas, non-habitat, and roads. The agency should also consider adjusting both the location and timing of thinning to minimize the cumulative effects of widespread thinning on the sensitive and listed species.

Recognize and mitigate adverse effects of thinning on spotted owl prey such as flying squirrels, red tree voles, and chipmunks. Avoid impacts to raptor nests and enhance habitat for diverse prey species. Train marking crews and cutting crews to look up and avoid cutting trees with nests of any sort and retain trees with defects such as forks, broken tops, etc.

4. Snags and Dead Wood

Retain abundant snags and course wood both distributed and in clumps so that thinning mimics natural disturbance. Retention of dead wood should generally be proportional to the intensity of the thinning, e.g., heavy thinning should leave behind more snags not less. Retain wildlife trees such as hollows, forked tops, broken tops, leaning trees, etc.
Commercial thinning has an adverse effect on snags and dead wood. Thinning might produce the first large trees, but those trees would be vigorous and less likely to experience mortality, so developing large snags is not direct and immediate result of growing large trees. Thinning also dramatically reduces the pool from which future mortality can be recruited, so thinning actually slows development of some attributes of older forest habitat including snags and down wood. NEPA analyses often assert that, "As a result of thinning, growth of retained live trees would be accelerated, so larger trees would be available sooner for recruitment as snags and coarse woody debris than without thinning." This is misleading. Accelerating development of a few larger *live trees* (that *might* become snags if a few of them happen to die) *comes at the cost* of a significant reduction in the number of medium and large snags over time. From an ecological perspective, the net result of commercial logging is undeniably adverse to snag habitat. The agency cannot present logging as a benefit to snag habitat when it is really a cost that needs to be mitigated.

Please disclose in the EA (i) whether the project will retain an adequate pool of green trees from which to recruit snags and (ii) whether the project will retain the ecological processes that cause mortality, including density dependent mortality and other mechanisms. Commercial logging will significantly harm both of these snag recruitment factors, so mitigation measures are needed. Green tree retention, including generous unthinned "skips" where density dependent mortality will play out, is necessary to support this process. This is especially critical in previously logged uplands that are already short of snags and in riparian areas where recruitment of large wood is important to stream structure.

Artificial snag creation is often proposed as mitigation for the loss of snags during logging, but snags fall down and dead wood decays, so a one-time snag creation effort provides very short-term benefits. Since logging has long-term adverse effects on snag recruitment, it is necessary to adopt mitigation with long-term effects, such as retaining generous untreated "skips" embedded within treatments areas where natural mortality processes can flourish.

Recognize that dead wood values are sacrificed in thinned areas due to the effect of "captured mortality," while other late successional values, such as rapid development of large trees and understory diversity may be delayed in unthinned areas, so an important step in the restoration process is to identify the most optimal mix of treated (thinned) and untreated (unthinned) areas. We think this should be a conscious and well-documented part of the NEPA analysis, not just an accidental byproduct of what's economically thinnable. Tools like DecAID might be used to identify goals for large and small snags that need to be met over time and at the geographic scale of home-ranges of focal species. This can help identify the scale and distribution of untreated "skips."

If using techniques such as whole-tree yarding or yarding with tops attached to control fuels, the agency should top a portion of the trees and leave the greens in the forest in order to retain nutrients on site.[2]

Thinning creates activity fuels that can be treated (or not treated) in a variety of ways. Strive to treat fuels in ways that provide public benefits such as wildlife habitat (e.g., complex woody structure) and charcoal production (e.g., enhanced soil carbon storage), and reduce detrimental soil impacts from machine piling and hot burn piles.[3] Please ensure slash is treated in a timely manner.

Buffer streams from the effects of heavy equipment and loss of bank trees and trees that shade streams. Mitigate for the loss of large woody debris input by retaining extra snags and wood (and green trees for recruitment) in riparian areas. Recognize that thinning "captures mortality" and results in a long-term reduction in recruitment of functional down wood, and that effect is not mitigated by future growth.

5. Roads and Weeds

Thank you for working toward a sustainable road system and utilizing existing roads. For this project, about 3 miles of road would be decommissioned, 0.75 miles would be closed, and 85 miles would be maintained for hauling.

Building new roads causes degradation that typically erases any alleged benefit of treatments. Roads have a variety of long-lasting adverse impacts on soil, water, and wildlife. Inaccessible

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[2] Achat, Deleuze, et al 2015. Quantifying consequences of removing harvesting residues on forest soils and tree growth – A meta-analysis. Forest Ecology and Management Volume 348, 15 July 2015, Pages 124–141. http://www.sciencedirect.com/science/article/pii/S0378112715001814 ("Our study showed that, compared with conventional stem-only harvest, removing the stem plus the harvesting residues generally increases nutrient outputs thereby leading to reduced amounts of total and available nutrients in soils and soil acidification, particularly when foliage is harvested along with the branches. … Soil fertility losses were shown to have consequences for the subsequent forest ecosystem: tree growth was reduced by 3-7% in the short or medium term (up to 33 years after harvest) in the most intensive harvests (e.g. when branches are exported with foliage). Combining all the results showed that, overall, whole-tree harvesting has negative impacts on soil properties and trees that may have an impact on the functioning of forest ecosystems.")

[3] Deborah S. Page-Dumroese et al. 2017. Methods to Reduce Forest Residue Volume after Timber Harvesting and Produce Black Carbon. Scientifica. Volume 2017 (2017), Article ID 2745764, https://doi.org/10.1155/2017/2745764; https://www.hindawi.com/journals/scientifica/2017/2745764/.

areas can be treated non-commercially or become part of the landscape mosaic that is untreated and serve important ecological values such as dense forest cover, carbon storage, and natural rates of snag recruitment.

Avoid log hauling during the wet season. If considered, the agency must disclose the full range of impacts associated and include safeguards to limit sedimentation as much as possible. For instance, require that operators delay haul for 24 hours or more following a rain event delivering x amount of precipitation or resulting in standing water along the route.

Avoid placement of landings or roads that would require cutting large-diameter trees.

Take proactive steps to avoid the spread of weeds. Use canopy cover to suppress weeds. Avoid soil disturbance and road construction. Scarifying landings and temporary roads and planting with native seeds is a good idea but please take steps to ensure that it is effective.

6. Climate Change and Carbon

Please include a full climate change and carbon analysis in the draft EA. Merely discussing carbon impacts and concluding they will be minor fails to take a hard look and climate change and carbon impacts of logging projects.

The Montana District Court determined the United States Forest Service (USFS) failed to take a hard look at climate change impacts in an EA in *Ctr. for Biological Diversity v. United States Forest Serv.*, 2023 U.S. Dist. LEXIS 144726. There, the proposed Black Ram Project would have authorized thousands of acres of logging included clearcutting on 1,783 acres and harvesting in old-growth stands of trees up to 230 years old. The agency determined the project would "affect only a tiny percentage of the forest carbon stocks of the Kootenai National Forest, and an infinitesimal amount of the total forest carbon stocks of the United States," so no further effects analysis of the Project's impact on climate change was required. *Id.* At 31. This was not "the high quality and accurate scientific analysis that NEPA's implementing regulations demand of environmental information produced by agencies." *Id.* (citing 350 Mont., 50 F.4th at 1270). The court explained the agency's failure to comport with NEPA as follows:

> In light of the above, the USFS's consideration of the Project's climate impacts fails NEPA in two ways. First, by relying almost entirely on the cookie-cutter and boilerplate Project Climate Report to analyze the carbon impact of the project, the USFS did not utilize high quality and accurate information which NEPA requires. See 40 C.F.R § 1500.1. Second, even though the USFS posited that the short-term loss of carbon from logging would be outweighed by the net increase in carbon sequestration resulting from a healthier forest, this assertion is not backed up by a scientific explanation. Rather, the USFS generally concludes that carbon as a result of the Project's activities make up "only a tiny percentage of forest carbon stocks of the Kootenai National Forest, and an infinitesimal amount of total forest carbon stocks of the United States." FS-020743. Under this logic, the USFS could always skirt "hard look" analysis when doing a carbon impacts review by breaking up a project into small pieces and comparing them to huge carbon stocks such as those contained within the

> over two million acres of land in the Kootenai National Forest.
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> …
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> NEPA requires more than a statement of platitudes, it requires appraisal to the public of the actual impacts of an individual project. . . [T]he USFS has the responsibility to give the public an accurate picture of what impacts a project may have, no matter how "infinitesimal" they believe they may be.

Id. at 32-33, 36.

We suggest that the District adopt a purpose and need to maintain and increase carbon storage in forest ecosystems. In its scoping materials, the agency indicates one of the needs for this project is to generate revenue from timber sales. The agency should reconsider timber targets and other short-sighted economic goals in light of the fact that the public *needs* carbon storage to reduce global climate change much more than they *need* revenue or wood products. The NEPA analysis also needs to account for the fact that managing forests for water quality, water quantity, quality of life, and carbon storage for a stable climate also contribute greatly to community stability.

Please develop an alternative that maximizes carbon storage, forest resilience, ecological diversity, and habitat connectivity. Recognize that there is a carbon cost associated with thinning. As stands develop from young to mature to old, they recruit large amounts of material from the live tree pool to the dead wood pool and this pool continues to accumulate large amounts of carbon for centuries. Logging, even thinning, can dramatically affect the accumulation of carbon in the dead wood pool by capturing mortality, diverting it from the forest, and accelerating the transfer of carbon to the atmosphere. Carbon stays out of the atmosphere much longer if it remains in the forest as live and/or dead trees, instead of being converted to wood products and industrial and consumer waste.

Conclusion

Each substantive issue discussed in these comments should be (i) incorporated into the purpose and need for the project, (ii) used to develop NEPA alternatives that balance tradeoffs in different ways, (iii) carefully analyzed and documented as part of the EA, and (iv) considered for mitigation. Thank you for taking our input into consideration.

Sincerely,

Grace Brahler
Cascadia Wildlands
grace@cascwild.org

Doug Heiken
Oregon Wild
dh@oregonwild.org