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RE: Rattail-Trinity Forest Health and Fire-Resilient Rural Communities Project Draft Environmental Analysis

Sent via email to addresses above- the project webpage portal was inoperative.

Dear Supervisor McArthur, Ranger Lark, and Rattail ID Team,

Please accept these comments for the Rattail Project Draft Environmental Analysis on behalf of the Environmental Protection Information Center, the Klamath Forest Alliance, the Northcoast Environmental Center, and Safe Alternatives for our Forest Environment (S.A.F.E.). Our organizations represent over 35,000 members and supporters, who care deeply about protecting the wild places and rivers of California, particularly the Six Rivers National Forest and the Mad and Van Duzen Rivers. These watersheds are the ancestral homeland for the Nongatl, Wiyot, Lassik and Wailaki Tribes and peoples enrolled in the Scotts Valley Band of Pomo Indians of California, the Grindstone Indian Rancheria of Wintun-Wailaki Indians, and the Round Valley Indian Tribes of the Round Valley Reservation.

The Rattail Project includes 1,500 acres of forest treatment within the Eel River Late Successional Reserve (LSR) and the 303(d) listed Van Duzen and Mad River watersheds. It

proposes 3.41 miles of "temporary" road construction and reconstruction of 1.14 miles of existing non-system roads. That's nearly 5 miles of roads to access 2.3 square miles. The proposed action includes the removal of 6 MMBF through 632 acres of commercial logging (177 acres of skyline cable yarding, 392 acres of ground-based tractor yarding, and 63 acres of helicopter yarding), 760 acres of non-commercial fuels reduction, 13 acres of oak restoration, 34 sites of invasive weed treatments and one legacy sediment site.

While the "Rattail Project provides a platform for the USFS to collaborate with other land managers and cultural practitioners across borders to incrementally achieve forest health and fire resilient-rural communities", the intent of the Wildfire Crisis Strategy is to include all collaborators. The NEPA process is in place to ensure a platform between the agency and the public, such as our organizations who have been participating in land management decisions on the Mad River Ranger District for multiple decades. We are disappointed there is no response to comments and that our reasonable alternatives, outlined in scoping, were not considered.

REASONABLE ALTERNATIVES

Please see NEPA § 1502.14, Alternatives including the proposed action. Our organizations provided multiple reasonable options for a range of alternatives, yet the EA only considers the No Action and the Proposed Action. The EA does not meet NEPA requirements to rigorously explore and objectively evaluate reasonable alternatives. Further, NEPA requires identifying an alternative that maximizes environmental benefit and causes the least damage to the biological and physical environment, such as the recommendations provided.

DEFINING MATURE

The Pacific Northwest Region has various definitions and criteria for determining old-growth forest conditions. For areas managed under the Northwest Forest Plan, the USDA uses an "old growth structure index score for stand age 200 (OGSI-200).[1] While the 1993 Standards originally applied throughout the Pacific Northwest Region, the subsequent adoption of the Northwest Forest Plan and development of the 2022 Standards have displaced the 1993 Standards in the Northwest Forest Plan area.

The development of the OGSI was derived from reports documenting the status and trends of late-successional and old-growth forests in the Northwest Forest Plan area.[2] The OGSI "is a composite index that simply sums the values of old-growth characteristics so that the highest index values occur in the later stages of forest succession.[3]" The OGSI is calculated using:

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[1] See 2023 MOG Inventory at 41 and 2024 MOG Inventory at 48; see also Davis, R.J. et al. 2022. Northwest Forest Plan-the first 25 years (1994-2018): status and trends of late-successional and oldgrowth forests. Gen. Tech. Rep. PNW-GTR-1004. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. p. 6 ("Davis 2022" or "2022 Standards"), available at https://www.fs.usda.gov/research/treesearch/65070.

[2] See Davis, R.J. et al. 2015. Northwest Forest Plan-the first 20 years (1994-2013): status and trends of late-successional and old-growth forests. Gen. Tech. Rep. PNW-GTR-911. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. p. 6 ("Davis 2015"), available at https://www.fs.usda.gov/research/treesearch/50060; and Davis 2022.

[3] Davis 2015, at 16.

one to four measurable old-growth structure elements, including (1) density of large live trees, (2) diversity of live-tree size classes, (3) density of large snags, and (4) percentage cover of down woody material . . . The index ranges from 0 to 100, where higher values indicate increasing old-growth structural characteristics[4].

Researchers selected two analytical thresholds for mapping and plot analysis. The first threshold, OGSI-80, describes "the general point on the forest succession time scale at which young forests in this region **generally begin to 'mature' and start exhibiting stand structure associated with older forests.**"[5] The second threshold, OGSI-200, "generally corresponds to the range of stand ages used to define the 'old-growth' condition in this region." [6] Importantly, the researchers "**intentionally excluded stand age from the equations** used to calculate OGSI . . . because . . .forests develop old-forest structure at different rates depending on site conditions and many other factors."[7] In other words, the classified maps in these reports "are not maps of age per se" but rather: maps of old-growth structure that represent two different points in a continuum of forest succession and stand development: one at which forests begin to have elements of mature forest structure [OGSI-80], and one occurring later when the characteristics of old growth are well established [OGSI-200].[8]

Thus, under the 2022 standards, it is not necessary that a certain area of forest ranks high on each of the four measurable old-growth structure elements. Rather, it is how high the composite score is for that forested area. So, forests could, for example, rank high on the index even if there is not a high density of large snags. OGSI-200 describes when the characteristics of old-growth are "well established." In addition, transitional old-growth characteristics may exist in many mid-mature forests. The Rattail EA and reports use age rather than structure to define maturity, which is not in concert with the best available science or the 2022 standards.

The EA and multiple reports provided are full of contradictions concerning maturity levels and seral stages. The Draft EA, at page 14, states, "*Within the project area, most treatments with a commercial timber component fall within early mature seral classes (83%) as defined by the SRNF LRMP, while the remaining 17% are in stands at the younger end of mid-seral stands".* This is untrue and convoluted, as described throughout our comments. Specifically, the Botany BE/BA for T, E&S at Table 1 provides the seral stage percentages and shows that, 8.1% is river and shrub, 54.7% is in pole and early mature and that 37.1% is within mid-mature, late-mature and old-growth forest condition.

Forest structure and diameter of trees should be used to assess silvicultural prescriptions, given that the: Eel River LSR is deficient in old-growth habitat; overlapping Northern spotted owl (NSO) Activity Centers and nest cores are deficient in Nesting and Roosting habitat; project is within NSO Critical Habitat and Primary Nest Zone of an active reproductive pair of American goshawks.

[4] Id.; see also Davis 2022, at 6.
[5] Davis 2015, at 18 (citations omitted).
[6] Id. (emphasis added, citations omitted).
[7] Id. (emphasis added, citations omitted).
[8] Id. (citations omitted).

EEL RIVER LATE SUCCESSIONAL RESERVE

LSRs are intended to provide a core of relatively undisturbed habitat for plants and animals associated with mature and old growth forests. The management emphasis and goal is to protect and enhance late-successional habitat, with moderate to high canopy closure. Protecting existing and potential late-successional habitat is obtainable without the concentrated road/landing construction and canopy removal.

The Six Rivers LSR Assessment provides criteria for selecting treatment areas in LSR. For meeting Object #1, mechanical treatment could be used in plantations, early and mid-seral stands **that do not possess late successional characteristics.** According to the FS's own mapping, as shown in our scoping comments, the eastern and south east corner of the project area are just one shade away from old-growth forests, described as High Mature/Low Old-Growth. The project area, as shown from the inclusion of nesting and roosting habitat, *does* possess late successional characteristics, yet much of the area has been mischaracterized as early mature/younger mid mature.

The Draft Silvicultural Report itself on page 7, describes early mature as stands dominated by trees 11-21 inches, whereas on page 17, describes early mature stands in the Rattail project as conifers 8-34 inches with Douglas fir up to 61 inches. Similarly, page 7 describes mid mature stands as 18-30 inches, whereas on page 17, early mature - mid mature stands in the Rattail project stands as 8-47 inches with Douglas fire up to 99 inches. Hence, the EA and reports continually mischaracterize the maturity level of these stands.

To be clear, we support thinning the 90 acres of plantations, the 179 acres of pole-early mature stands and the 13 acres of oak restoration in these young stands. Yet what the EA, reports and silvicultural prescriptions describe as early mature or younger mid mature should be acknowledged, as mid to late mature based on the agencies own best available science and given the size, characteristics and fire resilient qualities of the large trees in the project area.

Late-successional and old-growth forests as well as mid-mature forests, with elements of older forest composition and structure, are known to support rare and little-known species including vascular plants, bryophytes, lichens, fungi, and salamanders to small mammals. The Northwest Forest Plan describes the maturation stage in Douglas-fir stands, which typically begins between 80 and 140 yrs. old. Stands as described as early mature are obviously developing as mid-late mature, given their size, characteristics and fire resiliency. This can be evidenced in the project area by the agencies own mapping and further refined mapping by DellaSala et al, as provided in our scoping comments.

For instance, page 17 of the Draft Silvicultural Report, describes 232 acres of "early mature" stands with conifers ranging from 8-34 inches, directly conflicting with the description noted above, describing mid-mature with trees ranging from 18-30 inches. The prescription proposes *taking up to half of the existing stand*, from 214 ft2/acre down to 100 and 120 ft2/acre and cutting *all* conifers, except pre-doms, within 30 feet of the dripline of >10-inch oak trees. In perspective, that would essentially downgrade N/R habitat to low quality foraging habitat.

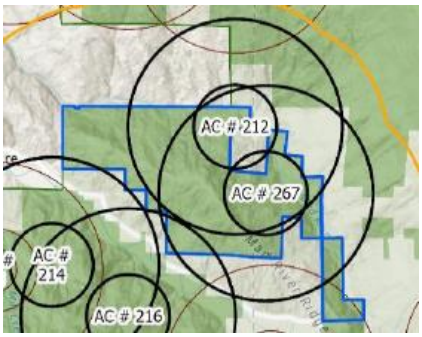
The Society of American Foresters defines trees 24-36 inches as dominant, unlike the Silvicultural Report that defines trees of this size as early mature. The Eel River LSR is already deficient in old-growth forest stands. Countless dominant, large, mature and old-growth fire-resistant trees, over 30 inches, that are exhibiting old-growth characteristics would be removed.

Table 2-2. Crown class per the Society of American Foresters dictionary definitions (SAF, 1998).

Crown Class	Definition
Pre-dominant	A tree whose crown has grown above the general level of the upper canopy. Larger, older trees left from previous stands that have large limbs, live crown ratios generally greater than 50%, and diameters generally greater than 36 inches.
Dominant	A tree whose crown extends above the general level of the main canopy in even-aged stands, or in uneven-age stands, above the crowns of the tree's immediate neighbors and receives full light from above and partial light from the sides. Trees from the current stand, live crown ratios generally greater than 40%, and diameters generally 24 to 36 inches.
Co-dominant	A tree whose crown helps form the general level of the main canopy in even-aged stands, or in uneven-age stands, the main canopy of the tree's immediate neighbors, receiving full light from above and comparatively little from the sides. Trees from the current stand, live crown ratios generally greater than 30%, and diameters generally less than 24 inches.
Intermediate	A tree whose crown extends into the lower portion of the main canopy of even-aged stands, or in uneven-aged stands, into the lower portion of the canopy formed by the tree's immediate neighbors, but shorter in height than the co-dominants, receiving little direct light from above and none from the sides.
Suppressed (overtopped)	A tree whose crown is completely overtopped by the crowns of one or more neighboring trees.

The EA and reports continually downplay the significant loss of large fire-resistant mature and old-growth trees claiming they would only be taken under "very limited circumstances" however, those circumstances are widespread given the logging prescriptions and amount of concentrated road and landing construction proposed. The vast amount of canopy removal, down to as low as 40%, and concentrated road/landing construction are contrary to the goals and Standards and Guidelines of the Northwest Forest Plan and Six Rivers Land Resource Management Plan and recommendations of the Eel River LSR Assessment.

NORTHERN SPOTTED OWL (NSO) RECOVERY AND CRITICAL HABITAT



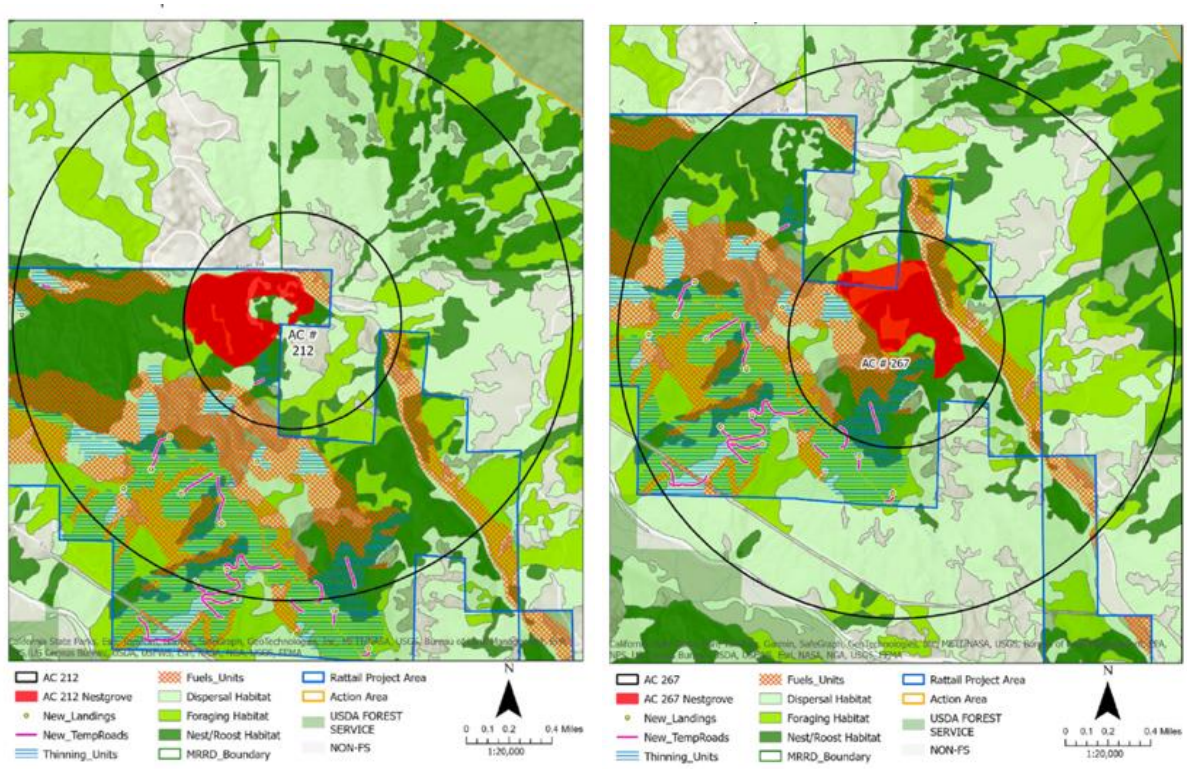
The project area is within Critical Habitat and contains two nest cores with overlapping Activity Centers (ACs), the #212 Nelson Flat and #267 Nelson Flat South home ranges. Both ACs are already deficient in nesting and roosting habitat (N/R). The most recent detection of NSO in AC #212 was a single owl in 2022 and AC #267 had a single owl in 2019. Commercial logging is proposed in 105 acres, with three new landings, of nesting/roosting (N/R) habitat and nearly 400 acres, with thirteen new landings, of foraging habitat.

The Wildlife BA incorrectly uses the — "*USDI Fish and Wildlife Service. 2019. Regulatory and scientific basis for USFWS guidelines for evaluation of take for northern spotted* ***owls on private timberlands*** *in California's Northern Interior Region. Unpublished report. 27 pp* (emphasis added)" — to distinguish N/R levels within the nest core. The Six Rivers LRMP Standard 8-15, requires: Formal consultation, requesting an incidental take permit be issued by the USFWS, is currently required to reduce suitable habitat below 500 acres within 0.7 miles and/or below 1,340 acres within 1.3 miles of nest or activity centers. The project proposes to treat 343 acres of Critical Habitat. The project would remove nearly 10 acres of habitat, with countless mature and old-growth trees, and falsely factors the affect determination, in violation of the LRMP and contrary to the recovery of the species.

Faulty assumptions include statements such as, treatments will not downgrade or remove suitable NSO N/R or foraging habitat because existing late successional elements will not be removed. The project would likely downgrade habitat given the silvicultural prescriptions with the removal

up to 50% of existing basal area and retaining 50-60 trees per acre. Further, existing late successional elements and complex forest structure would absolutely be removed given the extent of canopy removal, the widespread exceptions for removing large trees, primarily through concentrated road and landing construction, through the cutting of trees around all oak trees >10-12 inches in 60 feet (30 feet from dripline) wide circle and also trees within the canopy of oak trees. This would make a 70-80 foot-wide clearing of mature dominant conifers around oak trees.

Recovery Action 10- *Conserve spotted owl sites and high value spotted owl habitat to provide additional demographic support to the spotted owl population.* While we appreciate that the nest groves have been delineated and that high quality N/R habitat will not be commercially logged, Recovery Action 10 provides a two-tier approach. One, conserve high value habitat (in addition to Federal conservation blocks, aka LSRs) and two, it is especially important to protect occupied home ranges.



Its criteria include the consideration of *"how retention of specific areas may affect probability of persistence of the spotted owl population at the province scale. Use this evaluation to establish "thresholds" for recommendations of which areas to conserve or not."* The Wildlife BA does not consider project impacts at a provincial scale and it is not clear that the US Fish and Wildlife has considered this either, as the is no information from the USFWS on the project webpage.

Another criteria is the "*consideration of related barred owl impacts, influence, and management decisions and the likely success of such management actions in those areas."* The BA is void of detailed discussion or science on how the overall canopy removal and disturbance in these long-

occupied sites may further influence the invasion of barred owls into the project area. Barred owls have been sighted in both ACs in 2023. No survey information for 2024 has been provided.

Recovery Action 32: *Because spotted owl recovery requires well distributed, older and more structurally complex multi-layered conifer forests on Federal and non-federal lands across its range, land managers should work with the Service as described below to maintain and restore such habitat while allowing for other threats, such as fire and insects, to be addressed by restoration management actions. These high-quality spotted owl habitat stands are characterized as having large diameter trees, high amounts of canopy cover, and decadence components such as broken-topped live trees, mistletoe, cavities, large snags, and fallen trees.*

The Rattail project, would remove essential habitat components that are well distributed, older and structurally complex in these two home ranges with canopy reduction and concentrated road/landing construction. This Critical Habitat is already providing the physical and biological features that are essential to the conservation of the species and their recovery. The proposed treatments would exacerbate negative competitive interactions with barred owls, which the BA fails to address.

The Wildlife BA and Draft EA fail to take a 'hard look" at treatments and downplays effects to NSO prey species. The temporal scale was bounded by short-term, time of project activities, and long-term was 30 years in the future. Effects to prey species is said to be beneficial, yet the increased consumption of prey from increased barred owl invasion should be considered.

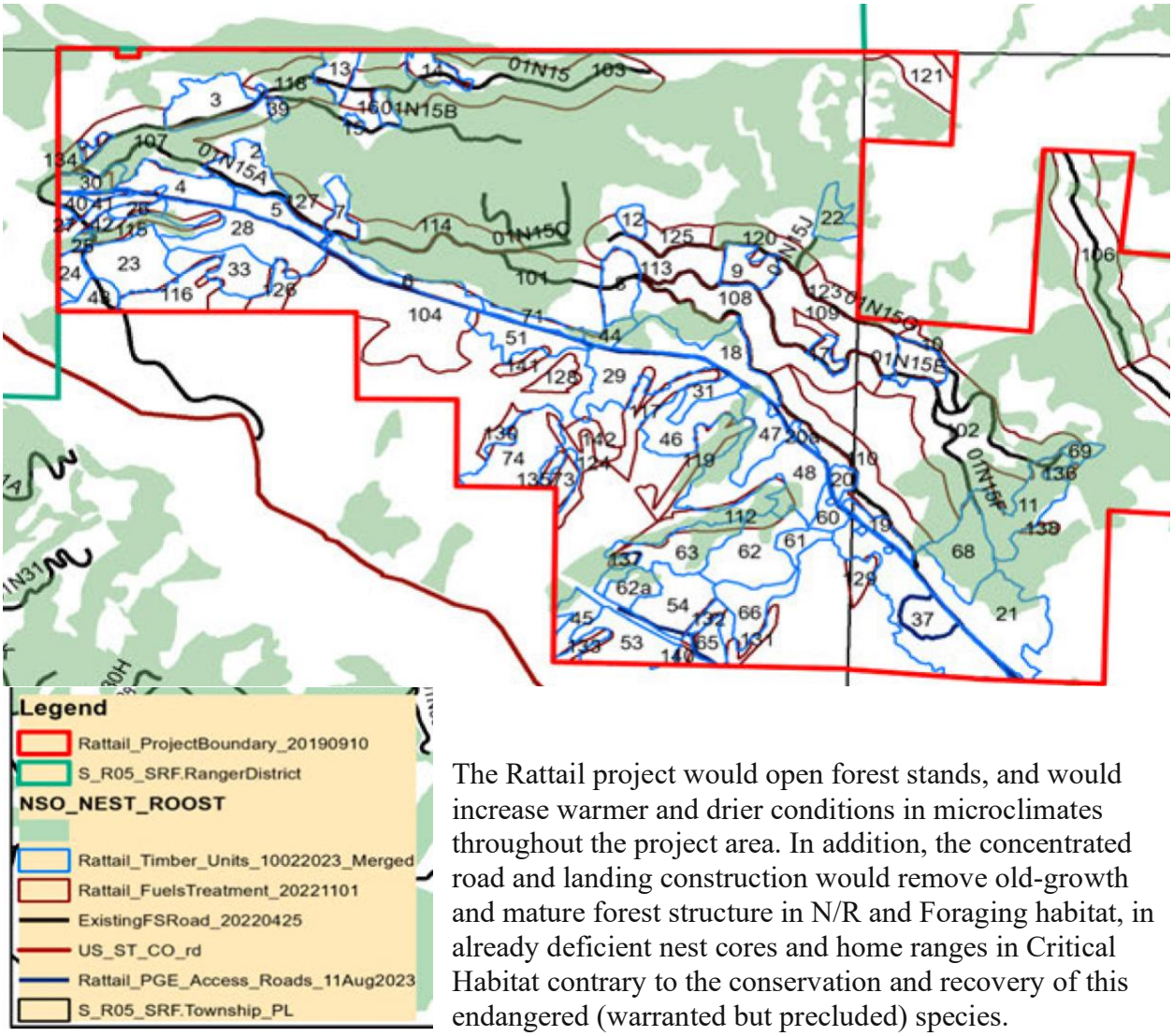
See Dugger et al 2011[9], "Thus, colonization rates for Spotted Owl pairs were higher on territories with old-forest patches that were closer together, indicating owls reoccupied territories at a higher rate when there were *less fragmented amounts of old forest at the home range scale*. In essence, our results suggest that a balance between extinction and colonization of territories by Spotted Owls (i.e., population stability) will likely be possible only when the amount of old forest in the core (,730 m radius from nest center) is maximized and *the amount of fragmentation of this old forest within the home range* (,2230 m radius of nest center) *is minimized*… Consequently, the loss of late successional old-growth forest and *increased fragmentation of these forests will decrease the* amount of suitable habitat for Spotted Owls… Thus, increased habitat protection for Spotted Owls may be necessary to provide for sustainable populations in the presence of Barred Owls, and it is obvious from our results that these two additive stressors on Spotted Owl populations cannot be decoupled in any conservation efforts." (Emphasis added).

The Rattail project aims to eliminate moderate and high severity fire and proposes a simplified landscape with 1 foot flame lengths. Mixed- and high-severity fires strongly shaped historical dry forests and produced important components of historical NSO habitat. Focus on short-term loss of nest sites and territories to these fires is mis-directed. Logging and fuel treatments to reduce these natural fires, if successful, would reduce future habitat of the NSO in dry forests.[10]

[9] Dugger et al. *Transient dynamics of invasive competition: Barred Owls, Spotted Owls, habitat, and the demons of competition present.* Ecological Applications, 21(7), 2011, pp. 2459–2468

[10] Baker, William. *Historical Northern spotted owl habitat and old-growth dry forests maintained by mixed-severity wildfires*. Landscape Ecology. December 13, 2014. DOI 10.1007/s10980-014-0144-6

Nesting and roosting habitat most often quells fire behavior. Understanding fire severity patterns related to suitable nesting forest is important to inform forest management that affects NSO conservation and recovery. After reviewing 472 large wildfires in NSO range Lesmeister et all, 2021[11], found that, averaged over all fires, the interior nesting forest burned at lower severity than edge or non-nesting forest. Northern spotted owl habitat can buffer the negative effects of climate change by enhancing biodiversity and resistance to high-severity fires. Their results indicate that older forest in late-successional reserves (i.e. nesting/roosting habitat) with no active management can serve as a buffer to the effects of climate change and associated increase in wildfire occurrence. Their conclusion —under most wildfire conditions, the microclimate of interior patches of suitable nesting forests likely mitigated fire severity and thus functioned as fire refugia (i.e., burning at lower severity than the surrounding landscape). (Emphasis added)



The Rattail project would open forest stands, and would increase warmer and drier conditions in microclimates throughout the project area. In addition, the concentrated road and landing construction would remove old-growth and mature forest structure in N/R and Foraging habitat, in already deficient nest cores and home ranges in Critical Habitat contrary to the conservation and recovery of this endangered (warranted but precluded) species.

[11] Lesmeister et al. Fire Ecology (2021) 17:32, https://doi.org/10.1186/s42408-021-00118-z https://fireecology.springeropen.com/articles/10.1186/s42408-021-00118-z

FOREST SERVICE SENSITIVE SPECIES (FSS)

The Eel River LSR and Rattail project area contain suitable habitat for multiple Sensitive species including, the Western pond turtle (a candidate species that warrants listing under the ESA as a threatened species), Bald eagle, American goshawk, Fringed myotis, Pallid bat, Townsend's big-eared bat, American marten, Pacific fisher and Foothill yellow-legged frog. All of which may be impacted by the proposed action. The Six Rivers LRMP direction states that, all proposed projects that involve disturbance to wildlife habitat and have the potential to impact listed or sensitive wildlife species will be evaluated to *determine if any are present*. The Mad River Ranger District has not completed surveys, aside from the American goshawk, to determine if any Forest Service Sensitive species are present.

The Draft EA assumes that the Aquatic Conservation Strategy, LSR objectives and Project Design Features (PDF) would minimize or reduce impacts to FSS species. It states that essential habitat components would remain. However, as exemplified throughout these comments, essential habitat components would be removed throughout the entirety of the project area. PDF's and ACS objectives may minimize impacts but do not eliminate them and certainly do not account for individual species needs.

There is a PDF for the Bald eagle, but zero information is provided. PDF BAEA-1 states, "*For bald eagle, all activities (not related to nest monitoring) would be restricted,* ***unless site-specific analysis indicates otherwise****, from January 1 through August 31 within nest site protection zones and primary disturbance zones. The LOP may be lifted after June 1 if the area is not occupied or has failed.* ***Road and river vehicle disturbance is exempt from this LOP****."* Please explain what *"unless site-specific analysis indicates otherwise"* means exactly. This is not included in the LRMP standard. Please explain extent "road and river vehicle disturbance" is exempt. Is this on system roads only? Please also provide the Unit numbers that incorporate this PDF.

American Goshawk

Goshawks, like many other rare, long-lived species, show great fidelity to certain spatial elements (special places) within landscapes. There are highly secretive and fiercely territorial. We appreciate that the Six Rivers took the time to survey for the goshawk and are happy to hear of the new Hinckley nest site with reproductive success. It is good that Standard 8-28 has provided PDFs for this nest, however, it is not apparent that Standards 8-26 and 8-27 have been incorporated, for both goshawk zones. Standard 8-29 apply to occupied and existing known sites.

The LRMP requires establishing a 0.5 mile radius circle (504 acres) as a Primary Nest Zone (PMZ) around the last know nest or the geometric center of a cluster of all known sites. Within this circle maintain 60% (302.4 acres) in **dense mature canopy cover** (>60% crown closure, >24" dbh). The PMZ for the Hinckley nest this includes Units 2, 3, 5, 6, 7, 13, 28, 39, 101, 103, 104, 107, 114, 118 and 127 with new "temporary" roads and landings. Units 13, 14, 15, 16, 103, 118, with "temporary" roads and multiple new landings, are within 0.25 miles of the nest site (commercial units highlighted). Standard 8-26 defines sub optimum PNZ habitat. The optimum

habitat[12] is >70% canopy cover. LRMP 8-27 describes foraging habitat zone requirements which, maintains 900 acres in a mosaic of mid-mature to late-successional forest condition.

The agency does not appear to be meeting the LRMP Standards for PNZ and Foraging Habitat Zones. What are the prescriptions in these commercial logging units? Will all of them maintain over 60% canopy closure? The Wildlife BE cannot assert that*, "no predominant trees or overstory trees will be removed"* or that, *"current canopy closure will be maintained."* It cannot assure that*, "the proposed action may impact individuals through disturbance but is not likely to lead to a loss of species viability or create a significant trend toward federal listing"* because there is not sufficient data to assess the distribution of this species or to validate the assumption that this species is adequately provided for by the large reserved areas on the Forest aka LSRs and Riparian Reserves.

Western Pond Turtle and Foothill Yellow-Legged Frog

The BE promises assurances to protect species that are not true, such as, "only hand treatment will occur in Riparian Reserves." As seen from logging prescriptions, temporary road crossings, mechanical piling and expansion of existing landings in RRs, are all proposed in the project.

SURVEY AND MANAGE WILDLIFE SPECIES

The EA states at page 37, "*Given that S&M species are associated with late-successional forests which provide habitat components, microclimatic conditions, and other life-supporting attributes for the persistence of these species at a given site, only those activities associated with treatments coincident with mid-mature stands could potentially affect S&M species. Exceptions may arise in early mature stands where the structure varies and remnant, older trees persist. <u>All proposed thin from below treatments (10 inches or more) are in the early-mature or early seral stages</u> with previous harvest or pole-harvest seral stages. Early-mature and younger stands are not considered potential habitat for S&M species. The project area is within LSR but much drier than other LSR units and does not contain the mesic or high canopy cover habitat old-growth species select. In summary, early-mature and younger stands included in the project area are not considered potential habitat for S&M Species, therefore, activities planned for these settings would not be further analyzed. There would be no effect to S&M species from any alternative analyzed in this EA."*

To eliminate any analysis because commercial logging is claimed to be in "*early-mature and younger stands included in the project area are not considered potential habitat for S&M Species*" is inaccurate, arbitrary and capricious. As noted, the maturity level is mischaracterized and in fact the project treatments are proposed in mid-seral stands and in Nesting/Roosting habitat with predominant and dominant trees from 30 to 61 to even 99 inches[13] throughout the project area. The analysis does not provide the "hard look" that NEPA requires and does not reflect the agencies own mapping or description forest stands.

[12] Six Rivers LRMP, Final Environmental Impact Statement Appendix B-50
[13] Draft Silviculture Report, page 17.

SURVEY AND MANAGE BOTANICAL SPECIES

Table 1. - Seral Stage Composition in Shaded Fuel Break

Seral Stage	% of Acreage in Project Activity Areas
River	02.4%
Shrub	05.7%
Pole	20.8%
Early mature	33.9%
Mid-mature	27.3%
Late-mature	06.7%
Old-growth	03.1%

The BE/BA for T, E&S Plant Species was incomplete given that surveys were only done within 150 feet of the road system. Surveys for FSS Fungi species we only completed on 3% of the project area and the information has not been provided, though referenced. The proposed concentrated ground disturbance across 630 acres and burning on 760 acres requires more thorough surveys to comply with LRMP Standards and Guidelines.

The EA completely fails to adequately assess or admit significant impacts to S&M fungi species.

It is difficult to discern if the same maturity level is consistent throughout the EA and reports. Importantly, forest maturity level was mischaracterized (re: 232 acres of "early mature" are likely mid mature with trees up to 34", scattered pre dominants, 59% SDI and 240% basal area) in the Silvicultural Report, while Table 1, above, was provided in the Botany BE/BA. The misrepresentation of mid mature trees, consistently referred to as early mature, is deceptive.

RIPARIAN RESERVES

Please review our scoping comments provided for the Rattail project which specifically calls out relevant quotes and recommendations from the Van Duzen Watershed Analysis, the Six Rivers LSRA and scientific riparian studies. In concern of logging the LSRA at page 6-37 explicitly states, "…***no heavy equipment in the Riparian Reserves*** *Options for fuels treatment in Riparian Reserves (RRs) include hand piling and burning and lop and scatter; the type of treatment will be determined on site-specific conditions*." (Emphasis added).

The Rattail project arbitrarily cuts RR buffers in half and makes a distinction of "inner" and "outer" RRs. The project documents claim, "*The outermost Riparian Reserve boundary is also designated as an Equipment Exclusion Zone, meaning no equipment may enter the Riparian Reserve except on existing roads"* however that is untrue as shown in the list of PDFs.

In fact, the project would allow temporary roads and landings as close as 80 feet in fish bearing streams as well as heavy equipment, see Draft EA Table A-5. In "outer" RRs the project would: commercially log 74 acres; allow newly constructed "temporary" road crossings on ephemeral streams; construct new landings and expand existing landings; allow machine piling, mastication and chipping in both fish bearing and non-fish bearing streams. Further, springs fens and bogs would only be provided 25 feet around winter-wetted perimeter, inconsistent with the ACS.

The Rattail hydrological impacts were done at the 6th field watershed level, diluting project impacts overall. In addition, the claims purporting to meet the Aquatic Conservation Strategy Objectives are broad and unsupported. Proposed actions do not help maintain or restore connectivity or maintain and restore the physical integrity of the aquatic system, given the ground disturbance, machine piling and crossings. The proposed actions in RRs may harm habitat for riparian dependent species. All of which do not meet ACS Objectives.

FIRE AND FUELS

The entirety of the project rests on the claim that treatments will make these forest stands more fire resilient. The EA and Fire and Fuels Report provide very limited information. The IFTDSS map produced in the EA uses the most extreme hot and dry conditions at 97% and shows that the proposed treatments would reduce flame lengths below 1 foot across the entire project area.

These are snapshots of one moment in time with little to no explanation of data, tools or equations that were used. How was the information calculated? Please provide a summary report so the public can see all the features and outputs used to make this assumption. Better, since IFTDSS makes it easy to compare different project alternatives, please run different models based on the reasonable alternatives provided in these comments.

The apparent limited temporal and stagnant scope of the Rattail Fire and Fuels information in the EA does not consider the effectiveness of treatments into the future. The EA fails to provide the "hard look" that NEPA requires and fails to consider a reasonable range of alternatives.

It is highly suspect that the FS can reach the flame length post-treatment objectives as mapping displays, considering private lands with heavy fuels and flammable infrastructure surround national forest lands. A reasonable alternative would consider an all-lands all-hands approach and involve surrounding landowners.

Studies have shown that there is a very low probability that project areas will encounter wildfire before fuels recover to hazardous conditions.[14] Fuel-reduction treatments such as mechanical thinning can effectively reduce fire severity in the short term, but these treatments, by themselves, may not effectively mitigate long-term dynamics of fire behavior under severe weather conditions. The fires that thinning is designed to halt are wildfires that are driven by drought, high temperatures, low humidity and, most importantly, wind. Thinning—even when done properly—cannot halt extreme winds or embers, which blow through and over any amount of clearing.

In his 2017 testimony before the U.S. House of Representatives Natural Resources Committee, Subcommittee on Oversight and Investigations, Chief Scientist of the Geos Institute Dominick DellaSala discussed "Exploring Solutions to Reduce Risks of Catastrophic Wildfire and Improve Resilience of National Forests":

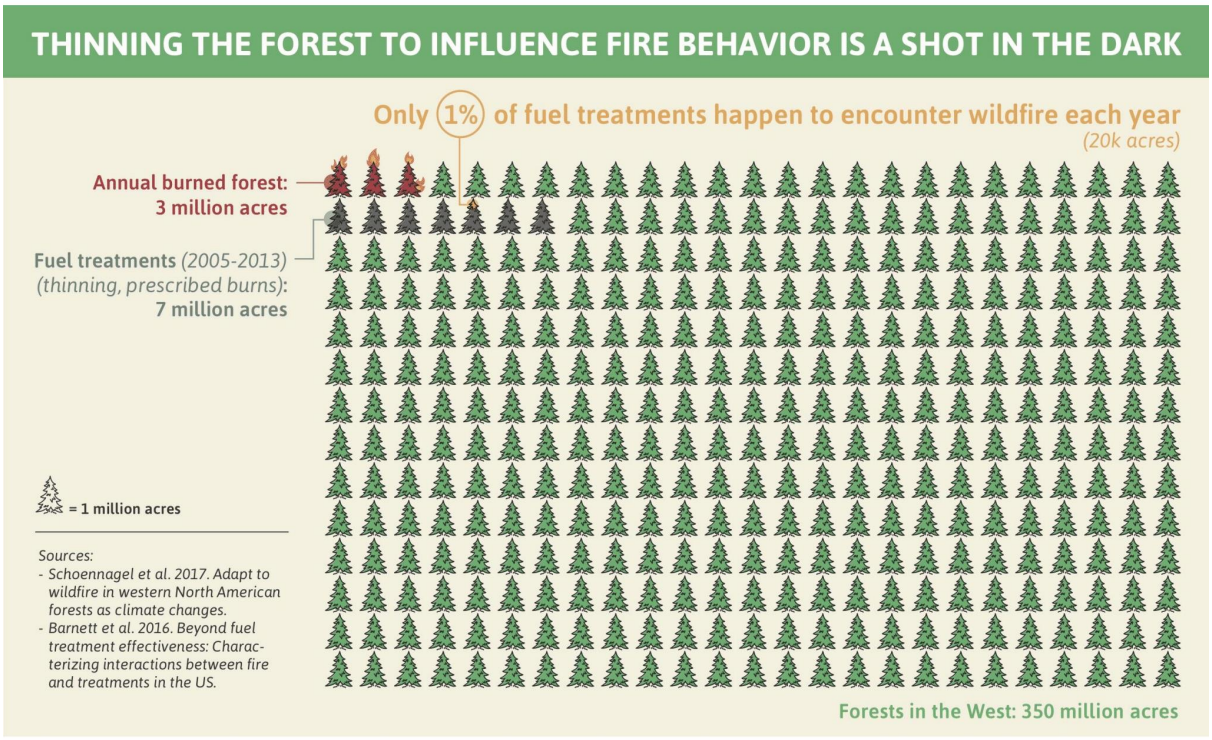
> Thinning small diameter trees from below while maintaining appropriate canopy cover can in certain circumstances change fire behavior. However, there are some significant drawbacks to relying on landscape-scale thinning to address increased fire activity in a warming period. These are: (1) there is a very low probability (2-8%) that a thinned site will encounter a fire during the narrow period of 10-15 years of reduced "fuels;" (2) excessive thinning can increase wind speeds in a stand that consequently increases rates of fire spread; (3) opening up a stand to greater light penetration results in rapid understory growth that in turn contributes to future fire spread; (4) thinning needs to be

[14] MM Boer, OF Price, RA Bradstock, Wildfires: Weigh policy effectiveness. *Science* **350**, 920 (2015). https://www.science.org/doi/10.1126/science.350.6263.920-a

followed by prescribed fire; and (5) thinning can damage wildlife habitat because it often removes medium and large diameter trees. When extreme fire-weather (high temperatures, low fuel moisture, low humidity, high winds) encounters a thinned stand there can be little to no reduced fire intensity (Schoennagel et al. 2017). In a warming climate, thinning will become increasingly less effective.

The study that I cited by Bradley et al. 2016 was the most comprehensive analysis ever done to address the management vs. protection question around fires and it went through rigorous peer review. To reiterate, we examined 1500 fires using 4 decades of government fire records and conducted a massive computer (GIS) analysis of 23 million acres of burned areas to test the assumption that fires burn more intense in "unmanaged" areas (e.g., wilderness, national parks, roadless areas) compared to "actively managed" areas. What we found was the opposite – fires burned unnaturally intense in areas of intense management.

Thinning of small trees in certain forest types, maintaining canopy closure and in combination with prescribed fire can reduce fire intensity but treatment efficacy is limited in extreme fire weather, and by the small chance that a thinned site will encounter a fire during a very narrow window when fuels are lowest.



In an open 2018 letter to congressional leaders, concerning wildfires in the west over 200 scientists concluded that:

Thinning Is Ineffective in Extreme Fire Weather – Thinning is most often proposed to reduce fire risk and lower fire intensity. When fire weather is not extreme, thinning-from-

> below of small diameter trees followed by prescribed fire, and in some cases prescribed fire alone, can reduce fire severity in certain forest types for a limited period of time. However, as the climate changes, most of our fires will occur during extreme fire-weather (high winds and temperatures, low humidity, low vegetation moisture). These fires, like the ones burning in the West this summer, will affect large landscapes, regardless of thinning, and, in some cases, burn hundreds or thousands of acres in just a few days. Thinning large trees, including overstory trees in a stand, can increase the rate of fire spread by opening up the forest to increased wind velocity, damage soils, introduce invasive species that increase flammable understory vegetation, and impact wildlife habitat. Thinning also requires an extensive and expensive roads network that degrades water quality by altering hydrological functions, including chronic sediment loads.

A 2014 report by Jay Lininger for the University of Montana (attached) on Fire History and Need for Fuel Management in Mixed Douglas-Fir Forests of the Klamath-Siskiyou Region, Northwest California and Southwest Oregon, USA states:

> Unmanaged forests tend toward wildfire resilience-
> A key feature of most unlogged mixed-conifer forests in the K-S region is the prevalence of very large (>20 inches in diameter), older trees that have survived numerous fires (Arno 2000, Frost and Sweeny 2000, Willis and Stuart 1994). The structural diversity of unlogged mature forests in the form of high closed canopies and large down trees tend to inhibit hot fires (Agee and others 2000, DellaSala and Frost 2001). Shade provided by a closed forest canopy shields the ground surface from direct solar radiation, reduces ground temperature and increases the relative moisture of ground fuel (Countryman 1955). Large down trees slow the horizontal movement of wind and thus, fire spread, and they store huge amounts of water that can take heat energy out of fire (Amaranthus and others 1989). As noted above, unmanaged older forests are not immune from high severity, stand-replacing fires. Indeed, some measure of high severity fire disturbance is an important influence on the biological diversity of K-S forests.

The Northern Spotted Owl Recovery Plan also illuminates and reiterates these facts at page III 37 (references omitted, emphasis added):

> **[T]he mixed evergreen forests of the Klamath Province may exhibit stand development pathways that result in different fire susceptibilities. For example, lower fire severities were observed in stands with longer fire-free periods as well as in untreated stands with closed canopies or with larger, more mature forest conditions, when compared to treated stands**…Finally, extreme fire weather events can overwhelm a stand's resistance to fire, resulting in high severity burns regardless of the topography, fuel condition or prior management. Thus, treatments to reduce fire severity need to be strategically located and designed with specific objectives and a clear understanding of how the local landscape responds to the many variables that influence fire severity.
>
> Fuel treatments have other limitations that need to be considered in their application.

> **Treatments require maintenance if they are to remain effective.** In addition, **treatments that are not maintained may actually result in fire behavior that is more deleterious than expected without treatment.** Finally, given the stochastic nature of fires, without extremely large-scale treatments that may be neither economically nor socially feasible, there is a low probability of fires intercepting fuel breaks. However, modeling indicates that strategic placement can improve treatment leverage (i.e., increase the ratio of acres experiencing reduced fire severity to acres treated). Fuel treatments need to be strategically located with clear objectives. They should not be used for the purpose of "fireproofing" the forest. Rather, they should be designed to increase the acceptability of wildfire through reducing fire behavior and severity in local areas, rather than simply to reduce fire occurrence, size, or amount of burned area per se.

Forests with large fire resilient trees and dense forest canopies are not only serving as vital habitat for hundreds of rare, threatened, endangered and lesser-known species and but these forest stands are also less prone to high severity fire affects, are more capable of surviving fire and serve as a buffer to the negative effects of climate change by enhancing biodiversity and resistance to high-severity fires. Therefore, we urge planners to prioritize fuels treatments where it is most needed, within plantations, early seral stands (aka small diameter stands) on pre-existing roads and forgo commercial logging and concentrated landing construction in these mid seral stands within the Eel River LSR, NSO Critical Habitat and the north facing American goshawk Primary Nest Zones.

CONCENTRATED ROAD/LANDING CONSTRUCTION —FALSE ASSURANCES AND DOWNPLAY OF EFFECTS

> "There is an extensive road network on federal lands in the Van Duzen watershed." "A reduction of road densities within the LSR to less than two miles/sq. mi., and within key deer range to less than 3 mi/sq. mi. would maintain moderate quality habitat for fisher and other species dependent on mature late successional forest conditions and the black tailed deer respectively. Seasonal closures may also be necessary in the immediate vicinity of occupied T & E or Sensitive species (peregrine falcon, spotted owl or northern goshawk) nest sites, to minimize disturbance and potential displacement." Van Duzen WA, V-34

Throughout the EA and project reports multiple false assurances are made to the public that downplays the concentrated effects to Critical Habitat and the Eel River LSR.

EA page 58, "*There would be no impact from logging to old growth stands since these stands were removed from consideration to log under the Proposed Action; old growth stands would have no commercial activities, and trees greater than 10 inches DBH would not be cut; in younger stands, some larger trees greater than 30" would likely be cut*." It is undeniable that Multiple, possibly hundreds of old-growth and mature trees would be cut. The agency looks to be using the word "stands" to diminish effects to logging old-growth and mature (dominant) trees throughout the project area. This includes constructing and utilizing nearly 5 miles of roads to access 2.3 square miles of forest, the 60' clearing around oaks >10 inches on 232 acres and >12 inches on 119 acres and the significant loss of canopy cover overall. Trees over 26-30 inches

are likely fire resistant, providing habitat in deficient home ranges and displaying old-growth characteristics.

EA page 52, "*No temp roads would be constructed within late successional stands, but only in stands less than 100 years old. Roads would be located on upper 1/3 slopes, primarily on ridges or near ridges, and would not cross riparian areas. Roads would be located to minimize the cutting of larger trees, generally greater than 30 inches DBH. No temp road would bisect any stand completely…."* Nearly the entire area proposed for commercial logging contains mature and old-growth trees old trees. It would be near impossible to locate roads and 21 new landings to avoid taking predominant and dominant conifer and hardwood trees. While temp roads may not bisect logging units completely, they would absolutely bisect mature forest stands, some in N/R habitat, and entire hillsides. Roads accessed by 18-wheeler logging trucks are a major disturbance with negative effects to soil, wildlife and forest ecology. This is especially true for the Rattail project because of the highly concentrated nature. Further, there are multiple "temp" road crossings in Riparian Reserves as well as the expansion of existing landings and machine piling in Riparian Reserves.

The agency downplays effects to habitat connectivity by stating that the area is already fragmented mostly by soils geology and other natural processes and that new roads and landings would add only a minor percentage of disturbance contrary to the direction of the LSRA and the Van Duzen Watershed Analysis.

The Wildlife BA states that temp roads would, "lie lightly on the ground." Really? "Temporary" roads are not temporary, instead they accommodate 18-wheeler trucks and cause nearly irreversible harm to soil, wildlife connectivity and habitat, and harm to water quality, forest productivity and ecology. This can be witnessed by the proposed use of pre-existing non-system roads that were constructed over 50 years ago. In fact, roads, landings and skid trails would likely have to be ripped and subsoiled to meet soil standards. The Six Rivers LRMP states that alternative methods, such as arial logging should be considered.

The concentrated road/landing construction would remove key habitat elements and likely hundreds, of old growth and mature hardwoods and conifer trees over 30 inches. The Eel River LSR is already deficient in old-growth habitat and so are both home ranges in the project area. Any further reduction is in violation of the NW Forest Plan, Six Rivers LRMP and contrary to the direction of the LSRA, Van Duzen WA and the NSO Recovery Plan.

Roads, when considered for the No Action Alternative, are expected to continue to bleed sediment, yet when considered for cumulative effects, road maintenance is expected to move towards Forest Plan desired conditions. The agency appears biased and uses whatever argument is most convenient and does not adequately consider the No Action Alternative.

SOIL AND HYDROLOGY

Draft EA page 61, "The proposed silvicultural and fuel treatments under the Proposed Action are not expected to adversely affect soil resources because of the numerous PDFs that would be implemented. Where unacceptable negative effects cannot be avoided, reclamation (i.e., sub-

soiling or scarification of temporary roads and landings) is planned to minimize or negate detrimental levels of soil disturbance and to meet LRMP soil quality Standards and Guidelines."

Soil Standards may in fact not be met and seen further from the Draft EA page 62, "*In cases where the 15% limit is not achievable due to cumulative impacts or operational feasibility, additional mitigation (such as ripping or subsoiling) would be required…."*

"Soil hydrologic function would be impacted on main skid trails, landings, and temporary roads. Skid trails should not require mitigation (subsoiling or ripping) because of their limited extent…Damaged soil hydrologic function, via compaction, can lead to increased runoff, which can affect the quantity and timing of stream flows during precipitation events. Significant indirect effects associated with the Proposed Action are not anticipated given that the LRMP standard and guidelines are met and project design features are implemented as intended."

The concentrated road and landing construction in combination with machine piling (which has not been calculated or addressed), and skid trails throughout ground-based logging systems would likely push the project beyond soil standards. Logging with heavy ground-based equipment would have an intense amount of skid trails, not "limited" as the EA assures. The effects analysis for soil and hydrology relies on Project Design Features as if they are a silver bullet. Ripping and subsoiling will not magically negate soil damage and is an additive impact.

The problems with subsoiling are spotty treatment coverage from maneuvering around obstacles and difficulty in maintaining effective ground cover. Thick brush, stumps, boulders, and standing trees can inhibit equipment from reaching all compaction in the treatment area. Avoiding live trees and their root systems can reduce the total treatment area, leaving those trees to survive under isolated poor tilth conditions. The greatest long-term drawback of subsoiling is the inability to return organic material to the treated surface. Subsoiling can expose the soil by creating bare areas when organic material accumulates under the drawn implement. Loss of organic material on the surface of exposed soil can also have a detrimental effect, especially on those soils already low in nutrient and moisture-holding capacity. Adequate surface organic material creates a buffer from temperature and moisture fluctuations increasing plant vigor and growth. Multiple entries on the same acreage raise the overall cost of treating an acre of land. Ripping and subsoiling alone provide only temporary and marginal improvements.[15] Ripping also requires prompt revegetation to be effective.

What type of equipment is proposed for ripping and subsoiling? What are the economic costs of road and landing construction and reconstruction? What are the costs associated with ripping and subsoiling, skid trails roads and landings? The public deserves a detailed soil and hydro analysis. Better yet, reduce the concentrated impacts to soil and hydrology in this already heavily impacted watershed by significantly diminishing the project footprint.

[15] Luce, C.H. 1997, Effectiveness of Road Ripping in Restoring Infiltration Capacity of Forest Roads, Restoration Ecology 5(3): 265-270. https://www.fs.usda.gov/rm/pubs_journals/1997/rmrs_1997_luce_c001.pdf

FISHERIES AND WATER QUALITY

Effects of the proposed project on Federally-listed fish and designated critical habitat were considered but not analyzed because, as the Fisheries Report states, "The proposed actions would either have no connectivity to streams or the application of appropriate PDF's, the riparian reserve prescriptions from the Thinning and Fuels Programmatic, and Best Management Practices would protect water quality and aquatic habitat function." We are not sure why or how the Thinning and Fuels Programmatic would even factor into this assumption, as the Rattail project is an entirely different animal with much more impact than non-commercial fuels treatments. The proposed impacts and activities planned in Riparian Reserves *do* connect to streams. PDF's and BMP's are additive effects, not always implemented, not always effective and do not mitigate all impacts to water quality. Impacts to fisheries must be adequately analyzed.

GEOLOGY

The Van Duzen River Watershed Analysis, is replete with concerns and documentation of impacts from logging, road construction and the unstable nature of the mélange terrain. Relevant excepts are included in our Rattail scoping comments. The Draft EA and specialist reports to not appear to provide any information on the geology of the watersheds, or where unstable areas are located and does not incorporate the recommendations of the Van Duzen River Watershed Analysis, failing the "hard look" that NEPA requires.

OAK RESTORATION

While the EA calls for 13 acres of oak restoration, the entirety of silvicultural prescriptions in natural stands, for 530 acres, calls for the removal of all conifers, except pre-doms, within 30 feet of the dripline of oaks over 10 inches in what the agency is defining as "pole -early mature and early mature" and "releasing" oaks over 12 inches in "early mature-mid-mature" stands.

We support the 13 acres of oak restoration where conifers are small diameter and pre-dominant trees will be retained, however, there is no scientific justification given for the 530 acres to log all conifer trees in a 30-foot radius around all >10" oak trees. This would take multiple large diameter trees, including many Douglas fir trees >30" across the landscape. The Final EA and reports must provide calculations of the overall amount of clearing this would entail and average how many oak trees of this size are in the commercial logging units.

RESPONSE TO COMMENTS

§ 1502.17 Summary of scoping information. *The draft environmental impact statement or appendix shall include a summary of information, including alternatives and analyses, submitted by commenters during the scoping process for consideration by the lead and cooperating agencies in their development of the environmental impact statement*. Our organizations provided substantive, place-based and science-based scoping comments, yet no response or summary of our comments have been complied or acknowledged. Our early concerns in scoping remain and have not been adequately addressed in the Draft EA.

CLIMATE ANALYSIS

When considering the climate impacts for the No Action Alternative, the Draft EA indicates, *"in the absence of thinning from below, the forest would thin naturally, resulting in dead trees that would decay in the long- term, emitting some carbon to the atmosphere, which may or may not be offset by forest growth.* ***A large component of the forest within the project area is over 80 years old,*** *with generally low rates of new stand establishment. If the forest continues on this aging trajectory, more stands would reach a slower growth stage in the coming years and decades, potentially causing carbon accumulation to decline in the future" (Emphasis added).*

The finding that carbon accumulation may decline in the future is unsupported, the likelihood carbon would be slowed by less vigorous growth rates due to aging or released from tree mortality and delay is low if not uncertain. This is also contrary to the claim that 83% of the project area is in early mature stands. Again, it appears that the agency uses opposing information to sway and suit whatever argument it is trying to make.

In the cumulative effects analysis for the No Action alternative the EA states, "*Thinning treatments would occur on approximately 630 acres and would produce approximately 1560 tons of CO2 over the predicted timeline*." However, not just the 630 acres of commercial thinning will produce emissions. The road work, fuels treatments, pile burning et cause emissions. Please clarify and calculate all emissions associated with all project treatments this in the Final EA.

The Draft EA continues, "*Should wildfire occur in the same footprint with no treatment, it could produce 13,860 metric tons of CO2 (national average), or 9 times more CO2 per acre. Foreseeable actions are other Wildfire Crisis Strategy landscape biogenic projects in the vicinity*". Please identify an analysis of the social costs of GHG emissions for the Final EA to convert emissions into concrete terms — such as the annual CO_2 emissions of cars or households. Please clarify if the equipment production in Table 3-8 considers road/landing construction, reconstruction, existing landing improvements, road maintenance, ripping and subsoiling, hauling and how emissions from listed foreseeable actions were addressed for cumulative emissions and affects to carbon.

"*This scope and degree of change would be minor, affecting a maximum of 0.13% of the 1,152,190 acres of forested land in the SRNF."* When assessing the Proposed Action the finding that the scope and degree of change would be minor is "watered down" at the forest scale. Please relate the scope and degree of change to the project footprint identical to the analysis scale.

The planning area has not burned since early 1900 so the probability of a wildfire occurring is uncertain and is dubious as rational to warrant commercial harvest of mature trees in a recently impacted LSR. Also, since plot data and FVS was applied, please refine this analysis using project data and modelling to display growth rate and mortality projections to demonstrate you have taken a hard look. Further, the Draft EA fails to support its cumulative effects analysis findings and should provide data used to reach this conclusion.

Further, please provide the data used to calculate that wildfire would produce 9 times more CO2. Please see Barowitz et al 2022[16] (emphasis added):

> While wildfire occurrence and area burned have increased over the last three decades, per area, fire emissions for extreme fire events are relatively constant. **In contrast, harvest of mature trees releases a higher density of carbon emissions (e.g., per unit area) relative to wildfire (150–800%) because harvest causes a higher rate of tree mortality than wildfire.** Our results show that increasing harvest of mature trees to save them from fire increases emissions rather than preventing them.
>
> Although high intensity fire combusts less than 5% of mature, live tree biomass (Knorr et al., 2016), discussions of fire policy and forest management have framed tree biomass combustion as an undesirable outcome requiring mitigation through extractive forest management (i.e., harvest of mature trees for timber sales; Mater, 2017; Zinke, 2018; Newhouse, 2021; Senate Bill 762, 2021). Increasing, i.e., extractive forest management (Table 1), to "lock" carbon into man-made structures, to increase forest productivity (CORRIM, 2020), or reduce fire risk ignores the volume of forest fire emissions relative to the direct emissions of such strategies (Hudiburg et al., 2019; Stenzel et al., 2019). Previous studies have shown that timber harvest directly kills more trees than forest fire in the western United States (Berner et al., 2017), but it remains unclear how much fire and harvest are contributing to regional total carbon emissions in the western United States, especially in the context of how these emissions compare with anthropogenic FFE (Hudiburg et al., 2019; Stenzel et al., 2019).

Please also see the statement of Dr. Beverly Law in addressing the US House of Representatives Subcommittee on national parks, forests and public lands[17]:

> *Broad-scale thinning of forests conflicts with carbon climate goals.* The amount of carbon removed by thinning is much larger than that saved, and more area is harvested than would actually burn (Mitchell et al. 2009, Rhodes et al. 2009, Law & Harmon 2011, Campbell et al. 2012). The multi-decadal biomass carbon deficit following moderate to heavy thinning is supported by most analyses of mid to long-term thinning impacts on forest structure and carbon storage (Zhou et al. 2013). *There is no evidence that thinning forests increases biomass stored.*
>
> *Fire emissions are small relative to harvest emissions.* Harvest-related emissions in the Oregon, Washington and California average about 5 times fire emissions (Hudiburg et al.

[16] Barowitxz et al. Forest Carbon Emission Sources Are Not Equal: Putting Fire, Harvest, and Fossil Fuel Emissions in Context. Front. For. Glob. Change, 08 May 2022 Sec. Forests and the Atmosphere Volume 5 - 2022 | https://doi.org/10.3389/ffgc.2022.867112

[17] Statement of Dr. Beverly Law, before the US House of Representatives Subcommittee on national parks, forests and public lands. *Wildfire in a Warming World: Opportunities to Improve Community Collaboration, Climate Resilience, and Workforce Capacity*. April 29, 2021.

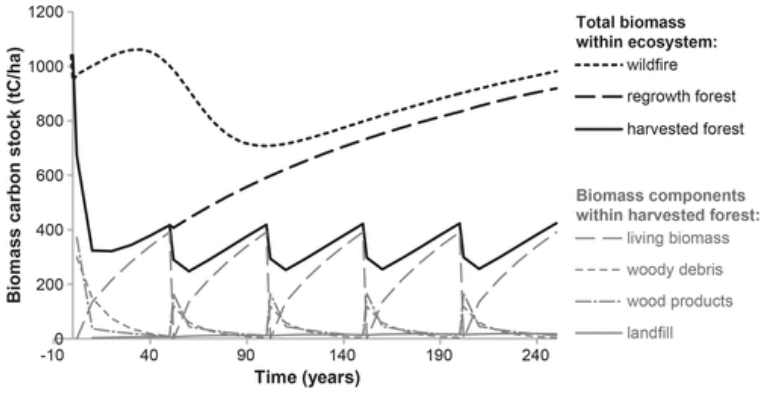
2019). In California, fire emissions are just a few percent of California's fossil fuel emissions.

The Draft EA at page 58, states, "*Thinning and fuels reduction treatments generally result in a negligible amount of carbon loss from the mineral soils in the US, particularly when operations are designed in a way that minimizes soil disturbance* (Nave et al., 2010; McKinley et al., 2011)."

With the significant canopy removal and ground-based logging with intensely concentrated road/landing construction, the Rattail project is not designed to minimize soil disturbance. In fact, Nave et al, 2010 recognizes that, "Forest floor C reductions may have large impacts on forest productivity because forest floor organic matter plays important roles in nutrient cycling and water retention." McKinley et al., 2011 states, "Forest loss moves carbon from forests to the atmosphere, particularly where the loss includes not only trees but also the decomposition of soil carbon. Focusing on adaptation to the effects of climate change to protect existing forests and as a complement to implementing forest carbon storage strategies would be prudent." The loss of carbon storage from logging and soil disturbance is downplayed and not adequately considered.

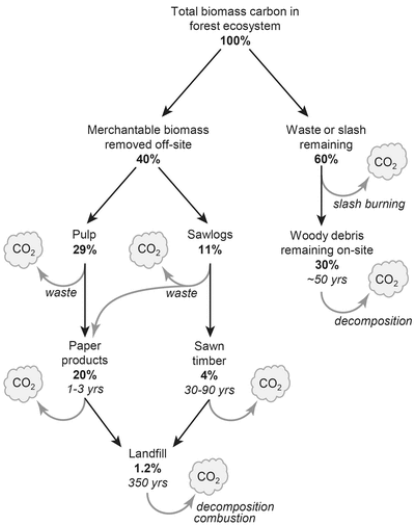
THE TRUTH ABOUT WOOD PRODUCTS

Large amounts of emissions are caused by cutting, logging, hauling and milling. Much of the carbon-storing biomass from trees is contained within the tops and branches, which are often burned or left to deteriorate. Then, a significant portion of the tree is lost during milling. The carbon emissions of hauling lumber to outlets and then manufacturing is another addition in the total emissions. The actual lifespan of the product that is made from the wood is relatively short and often ends up in a landfill. The myth —concerning wood products storing carbon in the long-term— that is perpetuated by the agency and timber industry needs to stop and consider the reality of the carbon lost and emissions cast into the atmosphere to make wood products.



"Changes in total biomass carbon stock of the ecosystem over time under three scenarios (shown as black lines) from an initial stock of a native forest: (1) wildfire that occurred at time 0 years and then the forest regenerated and dead biomass decomposed over time, (2) regrowth forest after logging once and regeneration, and (3) harvested forest under a regime of repeated logging rotations consisting of clearcutting and slash burning on a 50 year cycle. The carbon stock within the harvested forest is separated into biomass components (shown as grey lines): (1) living biomass, (2) dead and downed woody debris, (3) wood products, and (4) landfill. These biomass components constitute part of the harvested forest system but are not all located at the same site; living biomass and dead and downed woody debris occur at the forest site, but wood products and landfill occur in different locations."[18]

[18] https://esajournals.onlinelibrary.wiley.com/doi/10.1890/ES14-00051.1



"Transfer of biomass carbon during harvesting and processing of wood products. Numbers in bold represent the proportion of the total biomass carbon in the forest that remains in each component. Numbers in italics are the average lifetime of the carbon pool (see data sources in Appendix E: Table E1)."[19]

Harvesting trees for wood products results in net emissions and is not an energy-neutral process.[20] Transferring C from forest biomass to wood product carbon pools is inefficient and leads to an overall loss of C storage. C is lost when forests are harvested, "even when storage in wood products and landfill are included."[21] Additionally, C stocks are younger and have less longevity in logged forests compared to older forests."[22]

IMPORTANCE OF BIG TREES AND THE CLIMATE BIODIVERSTY CRISIS

The forest stands in the Rattail project, due to the large trees and dense canopy, provide cooler spring and summer temperatures, and rich biodiversity, including a wide range of wildlife, plant, and fungal species. These characteristics make this area an important refugium for temperature-sensitive organisms, helping them adapt to the challenges of climate change. The ability of forests to pull carbon from the atmosphere and accumulate it in living trees and soil for decades to centuries will continue to play a major role in reducing the severity of climate consequences.[23]

Storing more carbon in these ecosystems will help mitigate climate effects, although land managers often prioritize generating revenue from commercial sales over carbon storage.[24] Studies have found continuously increasing growth rates in trees, with the largest trees growing the fastest. Although trees may age (i.e., suffer cumulative exogenous injuries through time), they do not senesce (suffer an inevitable, endogenous physiological decline). A single big tree can add the same amount of carbon to the forest within a year as is contained in an entire mid-sized tree. Large trees play a disproportionately important role of in determining rates of carbon exchange between forests and the atmosphere.[25]

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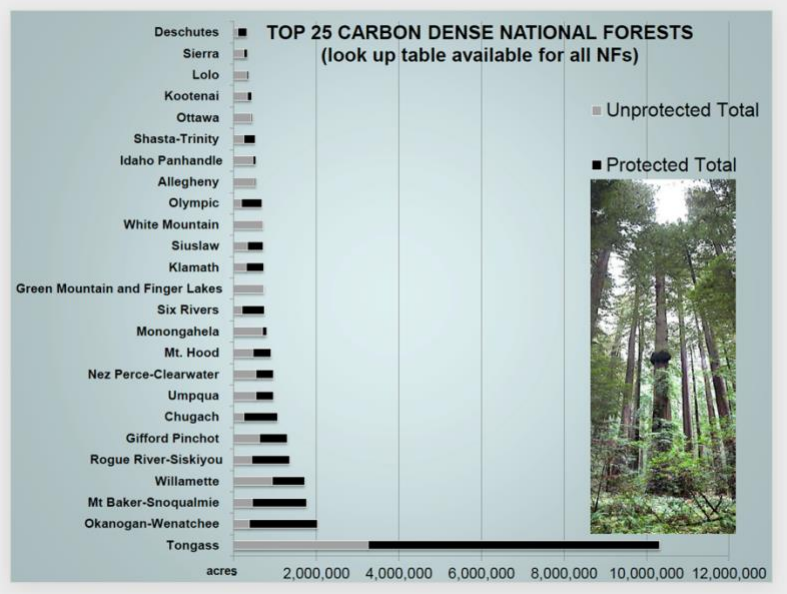
[19] Ibid.
[20] https://carbon2018.globalchange.gov/chapter/9/
[21] https://esajournals.onlinelibrary.wiley.com/doi/10.1890/ES14-00051.1
[22] Ibid.
[23] Statement of Dr. Beverly Law, before the US House of Representatives Subcommittee on national parks, forests and public lands. *Wildfire in a Warming World: Opportunities to Improve Community Collaboration, Climate Resilience, and Workforce Capacity*. April 29, 2021.
[24] Law, B.E et al. 2018. Land use strategies to mitigate climate change in carbon dense temperate forests. PNAS http://www.pnas.org/cgi/doi/10.1073/pnas.1720064115
[25] Stephenson, *et al.* Rate of tree carbon accumulation increases continuously with tree size. *Nature* (2014) 05

The Six Rivers National Forest ranks 12th in top carbon dense national forests! Big trees and native natural stands provide a vital biological and ecological role. These stands supply invaluable ecosystem services such as; sequestering the greatest amount of carbon that help to regulate the Earth's temperature, providing hydrologic functions that create and regulate clean water, imparting resilience to wildfire and safeguarding species in helping plants and animals adapt and survive the climate and biodiversity crisis. Intact forest ecosystems provide the natural capital, including clean air and water, upon which all life and all human economies ultimately depend.



Large trees dominate aboveground carbon storage. Protecting large trees for climate mitigation, biodiversity, and forest resilience is a plant and wildlife protection measure with a crucial carbon co-benefit. Claims that carbon stores will be "stabilized" by increasing harvest of large-diameter trees that store and accumulate the most carbon (Johnston et al., 2021) are inconsistent with basic science on thinning (Zhou et al., 2013) and the carbon cycle (Campbell et al., 2012; Law et al., 2018). These claims ignore the large amounts of CO_2 rapidly released to the atmosphere following harvest (Hudiburg et al., 2019), and that large trees cannot be replaced in short timeframes. It can take centuries to reaccumulate forest carbon stocks reduced by harvest of large trees (Birdsey et al., 2006). Synergy: Small trees are more relevant to drought and fire vulnerability and store less carbon, whereas large trees are more resilient to fire and drought and are the highest priority for keeping carbon in the forest. With heatwave frequency and severity projected to increase, the capacity of forests to buffer against temperature extremes and provide refugia is increasingly recognized as important to sustaining biodiversity in a warming world (Davis et al., 2019; de Frenne et al., 2019). Large trees provide crucial biophysical benefits on climate, including a large cooling effect on maximum temperatures regulating climate extremes and protecting biodiversity. Inland PNW forests can make a significant contribution to climate mitigation goals by protecting and enhancing carbon stores in large trees that accumulate and store the most carbon and are much more resistant to fire and drought than small trees, even when the current status of ecosystems has changed from historical baselines. Climate science makes clear that we do not have time to wait for regrowth after logging to accomplish these important ecosystem services (IPCC, 2022).[26]

[26] Mildrexler et al. *Protect large trees for climate mitigation, biodiversity, and forest resilience.* Conservation Biology. **Volume5, Issue7,** July 2023. https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/csp2.12944

We urge the Mad River Ranger District to forgo the highly concentrated road/landing construction and intensive canopy removal that would remove likely hundreds of mature and old-growth trees, despite the claims this would be the exception. The forest stands in Rattail contain a significant amount of predominant and dominant trees throughout the project area that would be removed by the proposed action. Please consider an alternative that would significantly diminish the project footprint to retain large trees in the Eel River LSR, NSO Critical Habitat and overlapping Activity Centers and American goshawk Primary Nest Zone.

MONITORING REQUIREMENTS

NEPA §1505.3 (c) requires monitoring and compliance plans when the analysis of effects of a proposed action is based on mitigations. It is clear throughout the EA and specialist reports that the effects of the proposed treatments rely on project tailored mitigations. Please provide a thorough monitoring and compliance plan.

REASONABLE ALTERNATIVES (CONTINUED)

A reasonable alternative for the Eel River LSR and NSO Critical Habitat would assess:

Fuel Treatment only prescription throughout project footprint with existing system and non-system roads/landings.

A diminished footprint with existing system and non-system roads/landings.

No commercial logging or road/landing construction in nest cores or N/R habitat, including but not limited to Units 11, 22, 44, 68, 69 and portions of 21, 62, 62a and, 63.

No new “temporary” road/landing construction and retain canopy cover >60% in American goshawk Primary Nest Zone.

Increased canopy cover to 60% throughout LSR and/or increased basal area throughout project area.

Provide a 26” dimeter limit, as used to denote N/R habitat, throughout project or at minimum in suitable NSO N/R Habitat and goshawk PNZ.

An all-hands all lands approach that incorporates the surrounding private lands.

Thank you for your time and consideration.

Sincerely,

Kimberly Baker
Executive Director
Klamath Forest Alliance

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References can be viewed at this link:
https://www.dropbox.com/scl/fo/eev1isexuwt78vwckm88c/AD0E63HtwcTyZU5fLIjK0Hw?rlkey=pb8058wwqv87hj1n4zezcsnpd&st=rvjpta46&dl=0