OREGON WILD
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28 January 2022

TO: PNW Regional Forester, Objections Reviewing Officer
VIA: objections-pnw-regional-office@usda.gov

Subject: 36 CFR 218 objection of the Stella Project FEIS/ROD

Dear Forest Service:

In accordance with 36 CFR 218, Oregon Wild hereby objects to the Stella Project FEIS/Draft ROD described below. **Note**: This is a supplemental objection. Oregon Wild also signed onto and incorporates by reference the objection to the Stella Project filed by George Sexton of Klamath Siskiyou Wildlands.

DOCUMENT TITLE: Stella Landscape Restoration Project, Final Environmental Impact Statement and DRAFT Record of Decision

PROJECT DESCRIPTION: The draft ROD adopted Modified Alternative 2 involves:

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Table 1. Treatment Summary by National Forest for Modified Alternative 2

Activity	Total Treatment	RRSNF Actions	UNF Actions
Natural and Managed Stand Variable Density Thinning (commercial)	12,390 acres	12,390 acres	0 acres
Plantation Thinning (commercial)	3,860 acres	3,860 acres	0 acres
Pre-commercial Thinning in plantations	4,615 acres	4,303 acres	312 acres
Surface and Ladder Fuel Treatments	4,700 acres	4,700 acres	0 acres
Special Habitat Restoration	6,205 acres	4,581 acres	1,624 acres
Prescribed Fire	10,435 acres	9,975 acres	460 acres
Roadside Shaded Fuel Break	1,750 acres	1,700 acres	50 acres
Culvert Replacement	15 replacements	15 replacements	NA
Stream Restoration	42 miles	42 miles	NA
Woodruff Day Use Outhouse Replacement	3 replacements	3 replacements	NA
ADA Fishing Access River Bridge Campground	1 ADA access	1 ADA access	NA
Rock Quarries to be expanded	11 quarries	11 quarries	NA
Rock Quarries to be reclaimed	7 quarries	7 quarries	NA
Approximate number of road miles to be decommissioned	9 miles	9 miles	NA
Approximate miles of road where maintenance level is changed	64 miles	64 miles	NA
Approximate number of new temporary roads needed for project implementation	6 miles	6 miles	NA
Approximate number of existing temporary road templates for project implementation	75 miles	75 miles	NA

The proposed decision also amends the Rogue River National Forest LRMP to temporarily remove the requirement for thermal cover in Management Area-14, Big Game Winter Range.

PROJECT LOCATION (Forest/District): High Cascade Ranger District, Rogue River-Siskiyou National Forest, **and** Tiller Ranger District, Umpqua National Forest, Jackson and Douglas Counties, Oregon

NAME AND TITLE OF RESPONSIBLE OFFICIAL:
MERV GEORGE, Forest Supervisor, Rogue River-Siskiyou National Forest
And
ALICE CARLTON, Forest Supervisor, Umpqua National Forest

LEAD OBJECTOR: Oregon Wild

REQUEST FOR MEETING TO DISCUSS RESOLUTION: Oregon Wild hereby requests a meeting to discuss potential resolution of the issues raised in this objection.

NARRATIVE DESCRIPTION OF THOSE ASPECTS OF THE PROPOSED DECISION ADDRESSED BY THE OBJECTION:
Specific to this supplemental objection, Oregon Wild objects to commercial logging and road construction and use in ecologically significant unroaded areas larger than 1,000

acres, and we object to the lack of adequate NEPA analysis of the disproportionate ecological effects of logging unroaded areas that provide disproportionate ecosystem services when they remain under the primary influence of natural processes of succession and disturbance.

In two inventoried roadless areas (IRAs), the Stella Project proposes a total of 346 acres of non-commercial treatments (mostly manual cutting of encroaching young conifers less than10-inch diameter and girdling some larger tree in special habitats such as meadow, riparian areas, oak habitat, huckleberry patches). We do not object to these treatments.

Within five semi-primitive unroaded areas (outside of IRAs, but in many cases contiguous with IRAs), the Stella Project proposes activities on a total of 3576 acres, including 714 acres of commercial density management logging, and 3.05 miles of temporary road construction and use, and 2862 acres of non-commercial thinning, prescribed fire, meadow restoration, shaded fuel breaks, huckleberry enhancement, etc. We do not object to the non-commercial activities in the unroaded areas. We do object to commercial logging and road construction and use in the unroaded areas.

We also object to commercial logging in riparian reserves over 80 years old, and we object to logging in suitable spotted owl habitat that reduces spotted owl habitat features so that it barely meets the minimum requirements of the spotted owl.

SUGGESTED REMEDIES THAT WOULD RESOLVE THE OBJECTION:
Oregon Wild respectfully requests that the Forest Service withdraw the recommended project and —

1. Issue a clear decision that avoids commercial logging and road building in roadless and semi-primitive unroaded areas, and avoids commercial logging in riparian reserve stands over 80 years old, meet more than the minimum definition of owl habitat when doing logging referred to as “treat and maintain”; or
2. Prepare a new EIS to address the significant impacts and unresolved conflicts and fully complies with the requirements of NEPA and the CEQ regulations and addresses the specific concerns expressed below.

DESCRIBE HOW THE OBJECTIONS RELATE TO PRIOR COMMENTS:
Oregon Wild submitted Stella scoping comments dated May 31, 2018 and July 3, 2018, and Stella DEIS comments dated December 15, 2020 and January 11, 2021. Those comments raised concerns about the effects of (and inadequate analysis of) logging on the diverse public values provided by roadless and unroaded areas. Many of our relevant comments are discussed in greater detail below.

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SPECIFIC ISSUES RELATED TO THE PROPOSED ACTION:

The Stella FEIS Failed to Take a Hard Look at the Effects of Commercial Logging on Ecologically Significant Semi-primitive Unroaded Areas.

NEPA requires federal agencies to rely upon "high quality information," "accurate scientific analysis" 40 C.F.R. § 1500.1(b), and "full and fair discussion of significant environmental impacts," 40 C.F.R. § 1502.1. The scientific information upon which an agency relies must be of "high quality because accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1151 (9th Cir. 1998) (internal quotations omitted); see also Portland Audubon Society v. Espy, 998 F.2d 699, 703 (9th Cir. 1993) (overturning decision which "rests on stale scientific evidence, incomplete discussion of environmental effects... and false assumptions")

"To take the required 'hard look' at a proposed project's effects, an agency may not rely on incorrect assumptions or data in an EIS." Native Ecosystems Council v. USFS. (9th Circuit August 11, 2005) http://www.elawreview.org/summaries/environmental_quality/nepa/native_ecosystems_council_v_u.html *citing* 40 C.F.R. §§ 1500.1(b) and 1502.24.

In two inventoried roadless areas (IRAs), the Stella Project proposes a total of 346 acres of non-commercial treatments (mostly manual cutting of encroaching young conifers less than10-inch diameter and girdling some larger tree in special habitats such as meadow, riparian areas, oak habitat, huckleberry patches). We do not object to these treatments.

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Figure III-23. IRAs and Other Unroaded Areas Within the Stella Project Area

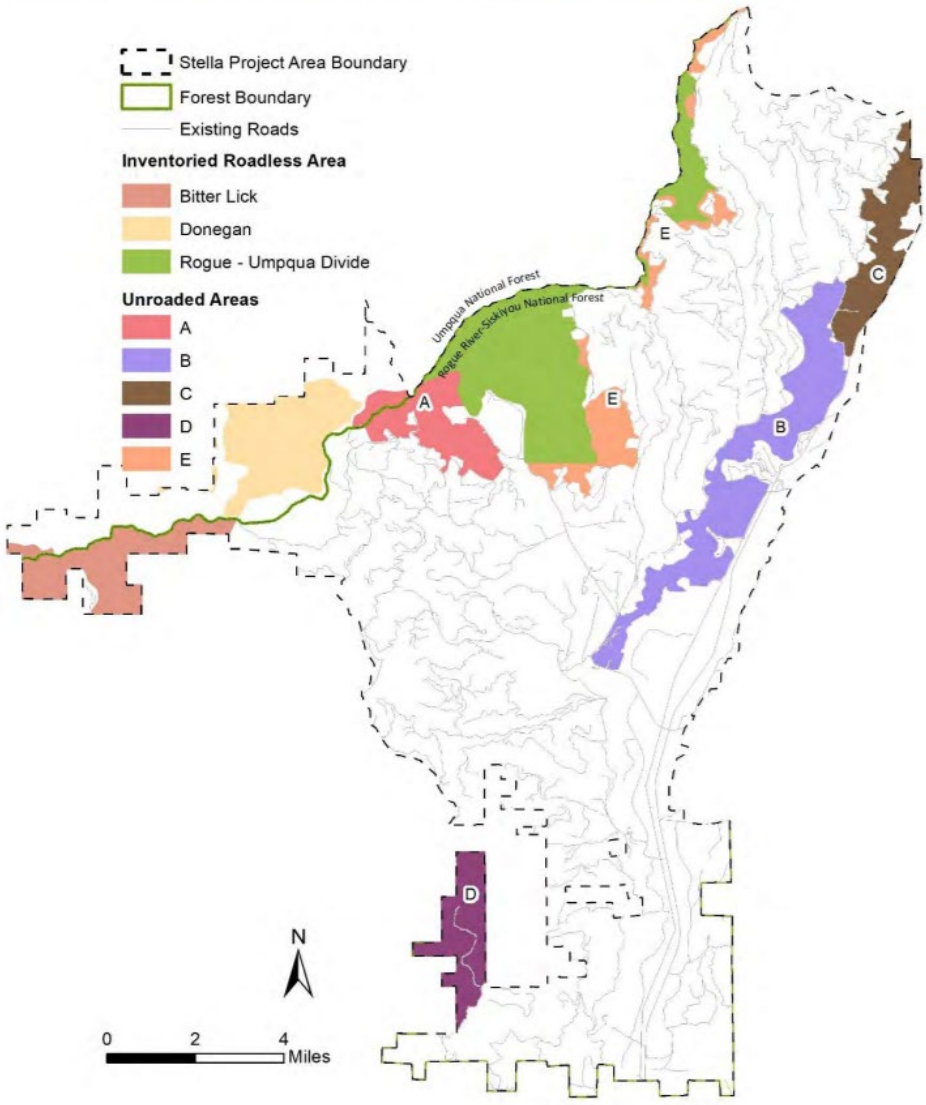

Table III-77. Other Unroaded Areas Within the Stella Project Area

Unroaded Area	Total Acres	Comments
A	1,285	Located near Quartz Mountain and Abbott Butte.
B	2,898	Located generally within the Rogue River Scenic River corridor.
C	1,266	
D	1,085	Located near Halls Point and Whetstone Point.
E	1,211	Seven individual pieces adjacent to inventoried roadless areas or wilderness.

The FEIS analysis of unroaded areas failed to take a hard look at the impacts of logging and included several arbitrary and capricious errors and omissions:

1. The FEIS remains focused on the "outstanding dispersed recreation opportunities" provided by unroaded areas which represent just a subset of the disproportionate

high value ecosystem services provided by unroaded areas. The EIS failed to address all relevant impacts of logging and roads in unroaded areas.

2. The FS inventory of unroaded area included several arbitrary criteria such as
    a. 500 feet wide at its narrowest point (which arbitrarily excludes polygons that happen to have narrow parts),
    b. wide (tree height) exclusionary buffers along most roads (which arbitrarily excludes areas with *de facto* unroaded character that happen to be near roads AND creating bottlenecks that trigger the 500 foot width criteria above),
    c. vegetation must be mature forest, meadows, rock outcrops, and largely un-entered and un-managed (which arbitrarily excludes natural young stands, or younger conifer stands where the evidence of logging is not noticeable to the casual observer), (Oregon Wild's Jan 2021 supplemental comments on the Stella DEIS said "Seral stage should not be a criteria at all. The full range of natural processes should be recognized and conserved within unroaded areas. While it is true that most unroaded/unmanaged areas are late seral, they can also be recently disturbed yet remain ecological valuable regardless of seral stage, as long as they remain largely unmanaged/unlogged/ unroaded." The Response-to-Comment failed to address this. The fact that most unroaded areas are late successional is due to the fact that we have a relatively long time between stand replacing disturbances in this region, so, under natural conditions, most of the landscape if late successional, but that does not mean that other seral stages are not important. In fact, complex early seral ecosystems with diverse vegetation and abundant dead wood that follow disturbance are among the most biodiverse. See Swanson, M.E., 2012. Early Seral Forest in the Pacific Northwest: A Literature Review and Synthesis of Current Science. http://ncfp.files.wordpress.com/2012/06/swanson_20120111.pdf; and
    d. the inventory criteria for unroaded areas seems more exclusionary than the inventory criteria for potential wilderness areas (PWA) which can include Level 1 roads, and "areas where logging and prior road construction are not substantially noticeable, or if wilderness character can be maintained or restored through appropriate management actions." This difference is not explained or justified. If PWA can include old roads and logging, why must unroaded areas exclude large buffers adjacent to roads and areas where unroaded character narrows to 499 feet? This is arbitrary and capricious.
    e. It is unclear if areas represent in Figure III-23 and Table III-77 represent the criteria for unroaded areas or PWAs.

3. The FEIS analysis of effects for the no action alternative fails to describe the beneficial operation of natural processes in unroaded areas. This provides the public and the decision-maker with a misleading picture of the relative merits of logging versus not logging going forward. Oregon Wild's Jan 2021 supplemental comments on the Stella DEIS said "The DEIS discussion of the effects of the no action alternative does not disclose all the ecological values associated with

leaving unroaded areas unmanaged, e.g., biodiversity conservation and restoration, back-country recreation, scenic values, resilience to fire and climate change, carbon storage, watershed function, clean water, stable water flow, snag habitat, etc." The FEIS simply says the no action alternative "… there would be no change to the current conditions within the identified unroaded areas. Current uses would be continued." This is not a hard look, and fails to provide the public and the decision-maker with a clear basis for understanding the benefits of ecosystems under the influence of natural processes, comparing alternatives, making informed comment, and making a decision. Oregon Wild's Jan 2021 supplemental comments on the Stella DEIS also included a 7-paragraph section titled, "Allow Natural Processes to Flourish in Unroaded Areas" which provided a compelling rationale for conserving unroaded/unmanaged areas, because they are rare on the landscape and provide great ecosystem services, especially natural levels of snags and dead wood, which are found virtually nowhere else on the landscape.

4. The FEIS failed to consider an alternative that would treat unroaded areas non-commercially like the inventoried roadless areas. If non-commercial thinning is an effective approach in IRAs, then the FS should at least consider applying it within unroaded areas that provide similar ecosystem services and are held in similar esteem by the public. Non-commercial thinning is ecologically preferable to commercial logging because it has fewer trade-offs. It does not require roads to bring in heavy equipment and take out logs, and it leaves much more of the biomass in the forest where it can play diverse ecological functions, including dead wood habitat, and provide structural diversity and complexity. Oregon Wild's Jan 2021 supplemental comments on the Stella DEIS notes the unique role that unroaded areas play in providing underrepresented dead wood habitat. ("One of the important but under-appreciated values of unroaded areas is the long-term creation and maintenance of dead wood habitat due to the fact that unmanaged areas are where natural processes are allowed to flourish. Unroaded areas are one of the few places where trees are allowed to fulfill their entire "lifecycle" (including their life-giving role as snags, dead wood, and soil builders) in the forest. Korol et al (2002) found that large snag habitat is below historic range of variability across the Interior Columbia Basin and they estimated that even if the agencies apply enlightened forest management on federal lands in the Interior Columbia Basin for the next 100 years, we will still reach only 75% of the historic large snag abundance, and most of the increase in large snags will occur in roadless and wilderness areas. Jerome J. Korol, Miles A. Hemstrom, Wendel J. Hann, and Rebecca A. Gravenmier. 2002. Snags and Down Wood in the Interior Columbia Basin Ecosystem Management Project. PNW-GTR-181. http://www.fs.fed.us/psw/publications/documents/gtr-181/049_Korol.pdf. Since wilderness and unmanaged areas are the only place that a healthy population of snags is likely to be recruited and maintained over the long term, they represent invaluable and irreplaceable mitigation for all the places where snags are in short supply due to logging, hazard tree removal, and other management efforts designed to control and capture mortality. "). The FEIS did not incorporate this important factor into the analysis.

5. The FEIS analysis of the effects of commercial logging and road construction fail to address the significant trade-offs of commercial logging, including reduced carbon storage, long-term reduced recruitment of snags and down wood habitat, heavy equipment damage to soil, water, and spreading weeds, complex effects on fire hazard (canopy removal moves hazardous fuel from the canopy to the ground, makes the microclimate hotter-dryer-windier, and stimulates the growth of surface and ladder fuels), etc. The analysis also downplays the scenic and recreational impacts and contradicts the analysis in the National Forest Roadless FEIS. https://web.archive.org/web/20160315152803/http://www.fs.usda.gov/roaddocument/roadless/2001roadlessrule/finalruledocuments. An international group of scientists has identified a diverse array of important values provided by roadless areas, including:

   ROADLESS AREAS - biodiversity conservation
   - Preservation of native biodiversity
   - Barrier against invasive species
   - Preservation of genetic resources
   - Maintenance of ecosystem connectivity and integrity
   - Ensure habitat for viability of populations
   - Provide migration corridors and stopovers

   ROADLESS AREAS - ecosystem services
   - Water regulation and supply
   - Erosion control
   - Air quality
   - Climate regulation
   - Disease control (e.g. Lyme disease)
   - Pollination of crops
   - High resilience to pest outbreak
   - Recreation
   - Education and scientific value

   ROADLESS AREAS - climate change
   - High resilience and buffering capacity
   - Protection against catastrophic events (e.g. fires, landslides, floods)
   - Carbon sequestration and decrease of greenhouse gases effects
   - Support species adaptation

   http://www.roadless.online/roadless-areas/ And conserving roadless areas is an efficient and economical way to meet many of these goals. http://www.roadless.online/wp-content/download/docs/Press%20Release%20Protecting%20Roadless%20Areas%20COP11%20CBD.pdf. Impacts to these values should be carefully evaluated before logging, road building, or using heavy equipment in roadless areas;
6. The FEIS fails to disclose effects to Potential Wilderness Areas. The Forest Service discusses the inventory criteria for these areas (which differ slightly from the criteria for unroaded areas for some reason), but then the Forest Service

avoids any analysis of effects by saying this is a forest planning function. The FS often says that inventorying wilderness lands is a *forest planning* requirement, not a *project planning* requirement. This may be partially true but this only applies to the FS obligation to make *wilderness recommendations* during forest planning, it does not absolve the FS of their NEPA duties with respect to description of the affected environment and the disclosure of effects to unique environmental values. The agency has a clear responsibility to accurately described the character of the landscape as part of the *"affected environment"* section of the NEPA analysis. This includes the existence of unroaded areas >1,000 acres and the significant ecological values provided by such unroaded. areas. The agency also has a responsibility to accurately disclose the potentially significant environmental *effects* of building roads and logging in those unroaded areas. Note: even though the FS does not have to make a wilderness recommendation during project planning, they do have to disclose the effects of logging on the wilderness character of the land. The wilderness character of the land is a discernable fact that is relevant to the NEPA analysis and the effects of logging on those wilderness values are an important consideration for the decision-maker. Response-to-Comment U-11 completely fails to respond to this comment.

7. Oregon Wild's Jan 2021 supplemental comments on the Stella DEIS said "The NEPA analysis must not blur the distinction between the effect of logging on roaded areas and unroaded areas. The effects of logging unroaded areas are qualitatively different and more significant than logging areas previously affected by roads and logging. The NEPA analysis must clearly disclose the fact that water quality, habitat, scenic values, soil quality, and carbon storage are all better in unroaded areas than roaded areas, and logging will have disproportionately adverse effects on those values." The Response-to-Comment U-1 says "ecosystem function is not a product of specifically designated boundaries." And Response-to-Comment U-7/U-8 says "Effects to these areas are also describe in the discussion of other resources and are not necessarily repeated in the discussion of effects to other unroaded areas." However, this fails to recognize that unroaded areas have unique characteristics that allow them to provide disproportionate ecosystem services. This is not fully acknowledged in the FEIS, and the analysis of late successional habitat, biodiversity, water quality, watershed function, carbon storage, (and other values) for instance does not reflect the unique character of unroaded areas, and the adverse effects of logging on those values.
8. Response-to-Comment U-10 says "effects are not quantitatively different from those in roaded areas. To qualitatively determine differences would be nearly impossible in this analysis because every individual identifies with different values." This response completely misses the point that unroaded areas are *physically* different than roaded areas, and the ecosystem services represented in these areas can be objectively discussed in the NEPA analysis without devolving into people's diverse personal values (important as those may be). Oregon Wild's Jan 2021 supplemental comments on the Stella DEIS provided this graphic describing the uniqueness of unroaded areas:

Box 1 | Evidence of the exceptional values intact forest ecosystems have when compared with degraded ecosystems

Climate change mitigation

More above- and belowground carbon stored. Intact forests store more carbon than logged, degraded or planted forests in ecologically comparable locations. Industrial logging and conversion of forest to cropland causes heavy erosion and contributes to the loss of belowground carbon[21,22,144] (see Fig. 2 and Supplementary Table 1).

More faunal complexity, which helps carbon storage and sequestration. Defaunation can significantly erode the long-term carbon storage potential of forests by depriving key, high-carbon tree species of seed-dispersal agents, and through other ecological disruptions such as reduced vegetation diversity and composition or increased herbivory by non-hunted species (see Box 2)[29,31].

Major carbon sequestration. Intact forests continue to function as major net carbon sinks, actively sequestering carbon into soils and living biomass[12,34,37].

Regulating local and regional weather regimes

Effects on weather. Local and regional weather patterns are partly a function of the amount of intact forest cover and its condition[40,42,167].

Generation of rain and reduced risk of drought. When intact forests are cleared or degraded, there is a reduction in cloud cover and rainfall. Degradation and loss of intact forest can increase the number of dry and hot days, decrease daily rainfall intensity and wet day rainfall, and increase drought duration during El Niño years[41,168,169].

Ensuring hydrological services are maintained

Effects on water runoff availability. Intact forests have a positive effect on the redistribution of runoff, stabilize water table levels and retain soil moisture by altering soil permeability. These processes interact with physiography to regulate the flow distribution of energy and materials across the land surface and help stabilize slopes, prevent water and wind erosion, and regulate the transport of nutrients and sediments[48,50].

Buffer human settlements against negative effects of extreme climatic events. Non-degraded forests diminish the impact of heavy rain events by decreasing runoff and reducing the negative consequences of climate extremes[50,170].

Conserving biodiversity

Consistently higher numbers of forest-dependent species. More forest-dependent species are found in intact ecosystems than degraded ones. In some regions, the loss of large tracts of forest has meant wide-ranging forest-dependent species have either retreated to the last remaining intact forest systems or gone extinct[14,68,171].

More effectively sustain important large-scale ecological processes. Key functions supported by intact forests include natural disturbance regimes that sustain habitat resources, constitute selective forces to which species are adapted, or otherwise influence community composition[17,172,173].

Intact forests have higher functional diversity. Degrading activities such as selective logging lead to trait shifts in communities that can affect ecosystem functioning, in addition to taxonomic diversity[5,33,173] (see also Box 2).

Higher intra-species genetic diversity. The larger populations of forest-dependent species that inhabit intact forests provide greater options for local adaptation and phenotypic plasticity, which will facilitate species' potential for evolutionary and plastic responses to the rapidly changing environmental conditions[69,126,128].

Higher ability for species to undertake dispersal or retreat to refugia. The connectivity provided by large, contiguous areas spanning environmental gradients, such as latitude, altitude, rainfall or temperature, maximize the potential for key processes such as gene flow and genetic adaptation to play out, while also allowing species to track shifting climates[131,152].

Refuge for forest species from increased fire frequencies in degraded landscapes under changing climates. Intact forests act as fire refuges in landscapes where non-intact forests burn too frequently to support persistence of plant and animal communities dependent on long time intervals between burning[100,124].

Increased likelihood of providing key pollination and dispersal processes. Direct logging and secondary effects of degradation such as loss of vertebrate seed dispersers or pollinators leads to reduced ecosystem functions, such as seed dispersal and pollination services, for example, reduced fruit set due to reduced pollinations in fragmented forests[31,174].

Indigenous cultures

Increased basis for the material and spiritual aspects of traditional indigenous cultures to function. Long-established cultural norms intricately linked to the ecology of intact areas and vulnerable to damaging change[80,91,92].

Human health benefits

Reduced health impacts of wildfires. Fires attributed to forest degradation activities such as burning for land clearing result in premature deaths due to generation of haze. Lower burning rates in intact forests mean that health effects of wildfires are lower than in degraded landscapes with larger, more frequent fires[99].

Reduced infectious disease risks. The emergence of novel diseases from forests and the increase of endemic disease impacts in forested landscapes are thought to be related to encroachment and degradation arising from increasing human presence in these habitats[96,97,175].

Watson et al 2018. The exceptional value of intact forest ecosystems. Nature Ecology & Evolution (2018) https://www.nature.com/articles/s41559-018-0490-x. See also the list of physical characteristics of unroaded areas above from http://www.roadless.online/roadless-areas/. Also, in 1994, several scientific societies submitted a report to Congress and the President recommending conservation of roadless areas larger than 1,000 acres. This report is describe by the Interior Columbia Ecosystem Management Project as a "Major Stud[y] of Eastside Ecosystems and Management."

> Because roads crisscross so many forested areas on the Eastside, existing roadless regions have enormous ecological value. … Although roads were intended as innocuous corridors to ease the movement of humans and commodities across the landscape, they harm the water, soils, plants, and animals in those landscapes. [p 6]
>
> …

4. Do not construct new roads or log within existing (1) roadless regions larger than 1000 acres or (2) roadless regions smaller than 1000 acres that are biologically significant.

Roadless regions constitute the least-human-disturbed forest and stream systems, the last reservoirs of ecological diversity, and the primary benchmarks for restoring ecological health and integrity. Roads fragment habitat; alter the hydrological properties of watersheds; discharge excessive sediment to streams; increase human access and thus disturbance to forest animals; and influence the dispersal of plants and animals, especially exotic species, across the landscape. Because many forested areas in eastern Oregon and Washington are heavily dissected by roads, the ecological value of existing roadless regions is especially high. [pp 8, 202]

…

Our analysis defined a roadless region as any region where all points within an LS/OG stand were at least 100 meters from a road or trail.

…

What remains of ponderosa pine and Douglas fir LS/OG is the least protected today. In the four national forests within the Blue Mountains, 48% of the land base above 6000 feet lies in wilderness areas, whereas only 10% of the land below 6000 feet, where ponderosa pine occurs, receives such protection … [p 110]

… Fifth, roads, whose impact on aquatic and terrestrial resources is well documented, are widely distributed in eastside forests. Road densities in western Colville, Winema, and Ochoco National Forests average 2.5, 3.5, and 3.7 miles per square mile, respectively. Densities reach 8.8 and 11.9 miles per square mile in some watersheds. In the national forests of Oregon's Blue Mountains (Table 5.2), less than 10% of roadless regions on slopes steeper than 60% are now protected, less than 15% on slopes of 30-60%. Moreover, roadless regions, like LS/OG patches, are extensively fragmented. In northern Ochoco National Forest, nearly one-third (38,882 acres) of 128,140 acres of roadless region consists of patches smaller than 1000 acres. (RARE II surveys underestimated total roadless area in this region [45,700 acres] because they considered only areas larger than 5000 acres.) [p 110]

…

CONCLUSIONS

Watersheds outside wilderness and roadless regions in eastern Oregon and Washington are highly degraded. Without an intensive restoration effort on federal and private lands, many native aquatic stocks and species risk extinction. [p 160]

…

Because the distribution of many native fishes in Oregon's national forests has receded into steep headwater areas, USPS has a vital role in protecting the few remaining watershed refugia and preventing further damage to

> already degraded habitats downstream. Critical to securing eastside [aquatic diversity areas] ADAs as aquatic refugia are the remaining roadless regions, sources of large wood from LS/OG forests, and the integrity of riparian corridors on national forestlands. [p 168]
> …
> 7. High road densities harm many forms of wildlife.
> The ecological integrity of existing LS/OG patches and other roadless regions can only be maintained if these sites are not disturbed by the construction of roads. Roadless regions serve as critical refuges for terrestrial wildlife sensitive to human disturbance. Road densities in LS/OG patches that already have roads should be reduced to less than 1 mi/mi^2. Achieving this goal is vital to rehabilitation of eastside fisheries and terrestrial resources. [p 197]

Henjum, M.G., J.R. Karr, D.L. Bottom, D.A. Perry, J.C. Bednarz, S.G. Wright, S.A. Beckwitt and E. Beckwitt. 1994. Interim Protection for Late-Successional Forests, Fisheries, and Watersheds: National Forests East of the Cascade Crest, Oregon and Washington. A Report to the Congress and President of the United States. Eastside Forests Scientific Society Panel.

The Stella FEIS failed to take a hard look at the effects of logging in mature stands in riparian reserves and compliance with the ACS standards & guidelines.

Riparian reserves are a separate land allocation with different goals, and a clear standard that prohibits logging, yet the Forest Service still draws logging units that straddle the boundary of the riparian reserves and include both reserved lands and unreserved upland forests and logs them both with the same prescription. This is improper, especially when logging mature forests is clearly not needed to meet Aquatic Conservation Strategy objectives.

Oregon Wild's Jan 2021 supplemental comments on the Stella DEIS raised a concern that logging in riparian reserves is intended to increase nebulous goal like "vegetation diversity and complexity," and the EIS failed explain why the biophysical indicators for the ACS objectives do not include any mention of vegetation diversity or complexity. There are at least two problems with the FS Response-to-Comment PN-8, FEIS page A-15.

First, the FS says that the biophysical indicators described in the Jazz Timber Sale NEPA analysis (cited in Oregon Wild comments) were unique to young stands in the Mt Hood NF. This is not supported by any evidence. In fact, the ACS objectives and biophysical indicators are consistent throughout the Pacific Northwest and are not unique to the Mt Hood NF. The Table cited by Oregon Wild lists 16 biophysical indicators. The FS failed to identify a single one that is unique to the Mt Hood NF, and it failed to explain why

"vegetation diversity and complexity" is important here and as missing from that otherwise comprehensive list.

Second, the FS quotes from the ACS objectives to supports its assertion that logging is justified to restore vegetation diversity and complexity. The ACS says "Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted." The ACS does include those two words, but the FS is not justified in equating "vegetation" diversity with diversity of "watershed and landscape conditions." Watershed and landscape conditions includes road density, slope stability, floodplain connectivity, absence of culverts that block connectivity of tributaries, recruitment and movement of functional wood and spawning sediment, etc. Vegetation diversity is small part of this, since vegetation supports shade and temperature control, as well as nutrient inputs and recruitment of functional wood. However, logging to restore vegetation diversity also come with significant trade-offs since it removed shade, and removes trees that would provide nutrient inputs and functional wood. Our comments raised concerns that these trade-offs are not properly evaluated in the NEPA analysis.

Third, vegetation diversity and complexity are best provided through the operation of natural processes. Intervention is not "needed" to meet ACS objectives so the NWFP prohibition on logging in riparian reserves takes precedence. Diverse vegetation tends to grow in the rich soils of riparian areas, especially after disturbance. Even if the area was previously clearcut and replanted, riparian areas tend to have diverse vegetation that bounces back and coexists with the conifer plantings. Complexity is best provided by natural processes as well. Natural processes such as small contagious tree fall events introduce complexity, such as canopy gaps and dead wood accumulation. These natural processes need material to act upon. Logging removes key elements of those processes. Thinning interferes with natural development of complexity by removing trees that would otherwise serve as dead wood and dominoes in the contagious tree fall events.

The NWFP standards & guidelines include: "TM-1. Prohibit timber harvest, including fuelwood cutting, in Riparian Reserves… " None of the exceptions apply to logging stands older than 80 years, because logging is not *needed* to meet ACS objectives. Oregon Wild's Jan 2021 supplemental comments on the Stella DEIS explained why logging in riparian reserves older than 80 years is not allowed:

> The agency must carefully explain why they think it's OK to thin stands over 80 years old in riparian reserves but not in LSRs when the goals are similar. Two of the main authors of the Northwest Forest Plan recently stated that "Riparian Reserves which have similar structural goals as the LSRs … A maximum thinning age of 80 years was used here." Johnson & Franklin 2009. Restoration of Federal Forests in the Pacific Northwest: Strategies and Management Implications. http://fes.forestry.oregonstate.edu/sites/fes.forestry.oregonstate.edu/files/PDFs/RestorationOfFederalForestsInThePacificNorthwest.pdf (p 49).

The Northwest Forest Plan says that logging in riparian reserves of any age is not appropriate (with the possible exception of density management in young stands). Logging riparian stands over 80 years needs careful scrutiny and clear and compelling justification. Such stands were presumed to remain unharvested as mitigation for Bryophytes and other species that prefer dense forest cover and abundant dead wood.

> **Mitigation for Bryophytes**
> Bryophytes should receive considerable protection under riparian prescriptions, especially those with full SAT riparian buffers. … Riparian stands older than 80 years should not be thinned or harvested.

FEMAT page IV-109.

"Findings: Thinning is most beneficial in dense young stands <80 years and less clear in older stands." Chatel 2016. Riparian Management and ESA. Presentation at USFS Ecology Group meeting in Joseph, Oregon. 2016. http://ecoshare.info/whats-new/annual-reports/presentations-at-2016-annual-meeting-in-joseph-or/; http://ecoshare.info/uploads/annualMeeting2016/Riparian-Management-and-ESA-Chatel.pptx *referencing* Science Review Team, NW Oregon Riparian Reserve Tree Thinning Elevation.

In January 2013, the Science Review Team Wood Recruitment Subgroup reported their "Key Points" regarding the effects of commercial thinning on wood recruitment in riparian reserves:

> Key Points
> 1. Thinning is most beneficial in dense young stands. Existing literature and stand development theory suggest that the greatest potential ecological benefits of thinning to accelerate the development of older forest structure (e.g. large trees, large dead trees, spatial structural and compositional heterogeneity, etc.) comes in dense uniform plantations less than 80 years and especially less than 50 years old. The benefits of thinning for older forest ecological objectives are less clear in stands over 80 years of age. Hence, our report focused primarily on plantations less than 50 years of age.

Thomas Spies, Michael Pollock, Gordon Reeves, and Tim Beechie 2013. Effects of Riparian Thinning on Wood Recruitment: A Scientific Synthesis - Science Review Team Wood Recruitment Subgroup. Jan 28, 2013, p 36. http://www.mediate.com/DSConsulting/docs/FINAL%20wood%20recruitment%20document.pdf. This is a clear indication that logging in older stands in riparian reserves is not scientifically supported. The EIS failed to address these issues.

The FEIS failed to take a hard look at the adverse effects of "treat and maintain" logging in suitable spotted owl habitat.

Oregon Wild's Jan 2021 supplemental comments on the Stella DEIS said:

"Treat and Maintain" Spotted Owl Habitat

When the agency intends to "treat and maintain" spotted owl habitat, the prescriptions must address both canopy cover AND structural conditions important to spotted owls and their prey. And the agency should strive to maintain "existing or better conditions," not just maintain some arbitrary minimum condition. For instance:

- Sites occupied by spotted owls tend to have higher densities of trees both large AND small compared to sites that are not occupied by spotted owls. Everett, Richard; Schellhaas, D.; Spurbeck, D.; [and others]. 1997. Structure of northern spotted owl nest stands and their historical conditions on the eastern slope of the Pacific Northwest Cascades, USA.. Forest Ecology and Management. 94: 1-14. http://www.fs.fed.us/pnw/pubs/journals/pnw_1997_everett001.pdf.
- Flying squirrel populations are limited by predation and to help avoid predation during their diagonal glide paths, flying squirrels need lots of mid-level visual occlusion provided by mid-canopy vegetation layers and abundant tree boles. Wilson, T. 2010. Limiting Factors For Northern Flying Squirrels (*Glaucomys Sabrinus*) In The Pacific Northwest: A Spatio-Temporal Analysis. PhD Dissertation. Union Institute & University, Cincinnati, Ohio.
- Snags and dead wood are also important to spotted owls, and should be provided throughout the lifetime of the stand not just deferred to the distant future. Appendix A of the 2010 Draft Recovery Plan for the Northern Spotted Owl (page 92) describes owl habitat as including "large snags; large accumulations of fallen trees and other woody debris on the ground." This is widely supported: "[H]abitat elements that support prey [include] (mistletoe, snags, down wood, forage lichens, truffles abundance)" 2008 NSO FRP p 114. North et al. (1999) noted in a study of foraging habitat selection by northern spotted owls, "In our study area, stands with high use by owls typically included many 'legacies' (large trees and snags) that survived a fire or windstorm that destroyed much of the previous stand. They found that "stands with 142 m^3/ha of intact snags and a high diversity of tree heights had medium or high foraging use by spotted owls. In these old-growth stands, biological legacies (e.g., large trees and snags) produced by past disturbance provide important forest structures associated with spotted owl foraging." North, Franklin, Carey, Forsman, Hamer. 1999. Forest Stand Structure of the Northern Spotted Owl's Foraging Habitat. For. Sci. 45(4):520-527.

When logging will remove large trees, reduce recruitment of large trees/snags/down-wood, crush and kill understory trees and shrubs, the NEPA analysis must fully disclose the adverse effects on spotted owls and their prey when habitat quality is reduced from optimal to barely suitable.

The NEPA analysis must show how removing large amounts of woody structure will in fact "maintain" the woody structure needed to develop high quality spotted owl habitat. Mature forests, if not logged, will recruit more wood more quickly. Since snags and down wood are currently lacking in the project area, not logging will actually develop desired late successional characteristics more quickly than logging

will. Therefore, logging will not "maintain" but will in fact degrade and retard development of spotted owl suitable habitat.

The concept of logging mature forests to "treat and maintain" NRF habitat, does not have much meaning in moist forests, because there is no "excess biomass" that needs to be removed in mature moist forests, and any commercial removal of biomass will just reduce the future recruitment of much needed dead wood habitat elements that are important to the owl and in short-supply across the landscape as a result of past and ongoing logging. The agency needs to explain how commercial logging will maintain owl habitat, when dead wood is in short supply and logging will make it worse instead of better.

The FEIS failed to address these significant issues. Logging suitable habitat will do more harm to spotted owls than disclosed in the FEIS. We are particularly concerned that removal of large trees (≥20"dbh) from will significantly reduce recruitment of large snags that are an important component of spotted owl habitat and help support diverse spotted owl prey species. This issue was raised in Oregon Wild's Jan 2021 supplemental comments on the Stella DEIS and its improper use of the DecAID Advisor:

> This project will cut thousands of large trees that would provide valuable snag and dead wood habitat if retained.

Table III-72. Estimate of Large Trees per Acre to be Cut – Proposed Action

Component	Total acres treated by component	Estimated Trees per Acre to be Cut or Fire Killed		
		20-24" DBH	25-29" DBH	> 30" DBH
Thinning of previously thinned stands		0-8	0-1	0-0.1
Natural stand thinning		0-12	0-2	0-0.1
Commercial plantation thinning		0-14	0-1	0-0.1
Prescribed burning		0-2	0-1	0-0.1
Landings		0-2	0-1	0-1

> We are very concerned that thinning mature stands will cause a long-term shortage of dead wood that spotted owls and other wildlife need to thrive and recover. We cannot find where the DEIS projects the number of large snags recruited over time in logged areas compared to the no action alternative. This is critical to the public and the decision-maker understanding the effects of logging, e.g., this graph from another project showing that thinning delays attainment of snag habitat objectives by 6 decades or more.

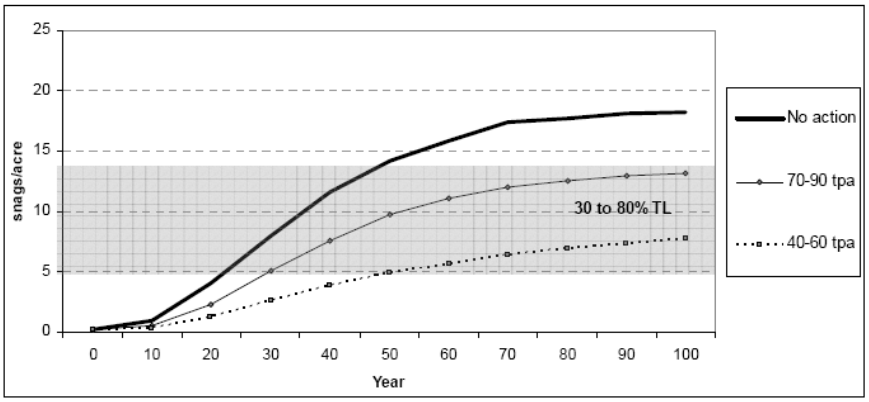

Figure 15. Short and long-term changes to ≥20" dbh snags.

The DEIS treats 30% tolerance level as a DecAID "recommendation" when it most certainly is not (DEIS p II-41). There is no plan amendment adopting DecAID as a new forest plan standard. We do know that the old "potential population" standard is outdated and discredited and should not be used. But it's more credible to say that DecAID 80% tolerance should be used in spotted owl critical habitat.

DecAID authors remind users that "DecAID does not recommend levels of dead wood. The user should define the goal based on the information in DecAID." http://www.fs.fed.us/r6/nr/wildlife/decaid-guide/CurranJunettaThin.shtml "DecAID provides information on snag and down wood in three tolerance levels, 30%, 50% and 80%. The 30% tolerance level is typically used when considering landscapes that have exhibited extensive harvest activity. The 50% tolerance level is typically used when considering matrix allocations and 80% is typically used when considering late-successional reserves." Young, Tiffany. 2010. Canyon Thin Project. Wildlife Specialist Report / Biological Evaluation. Willamette National Forest, Sweet Home Ranger District. 5 Dec 2010. See also, Willamette National Forest 2016. Lang Dam EA page 78, http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/93958_FSPLT3_3908091.pdf.

The Forest Service cannot provide any assurance that its plans and projects will assure viable populations of native wildlife that depend on dead trees. The Forest Service does not know how many snags are necessary to support viable populations of cavity associated species. The Forest Service has provided no credible link between DecAID tolerance levels, potential population levels, and/or viable populations. The Forest Service has also failed to reliably quantify existing and projected habitat for snag associated species.

The Stella FEIS says: "The DecAID advice for southwest Oregon mixed conifer-hardwood habitat mid-seral conditions was considered for snag retention to meet 30% tolerance levels of an unharvested landscape composition. This include leaving six snags greater than 10 inches in diameter at breast height (DBH) per acre, of which one is greater than 20 inches DBH." One large snag per acre is grossly sub-optimal goal for

"treat and maintain" of spotted owl habitat. The failed to consider the long-term effects of captured mortality on the habitat needs of small mammals and spotted owls.

> Several small mammals, such as the northern flying squirrel form the prey base for the Endangered Species Act (ESA) listed spotted owl and are among the species associated with abundant large dead standing and down wood. This presumably, is why spotted owls prefer to forage in stands with abundant standing and fallen dead wood (Table 2, North et al. 1999). The fruiting bodies of hypogeous fungi are a food source of northern flying squirrels and are also associated with down logs, suggesting that there are complex, indirect paths through which dead wood supports spotted owls (Amaranthus et al. 1994, Carey 2000).

Thomas Spies, Michael Pollock, Gordon Reeves, and Tim Beechie 2013. Effects of Riparian Thinning on Wood Recruitment: A Scientific Synthesis - Science Review Team Wood Recruitment Subgroup. Jan 28, 2013, p 36.
http://www.mediate.com/DSConsulting/docs/FINAL%20wood%20recruitment%20document.pdf

North et al. (1999) noted in a study of foraging habitat selection by northern spotted owls, "In our study area, stands with high use by owls typically included many 'legacies' (large trees and snags) that survived a fire or windstorm that destroyed much of the previous stand. They found that "stands with 142 m^3/ha of intact snags and a high diversity of tree heights had medium or high foraging use by spotted owls. In these old-growth stands, biological legacies (e.g., large trees and snags) produced by past disturbance provide important forest structures associated with spotted owl foraging." North, Franklin, Carey, Forsman, Hamer. 1999. Forest Stand Structure of the Northern Spotted Owl's Foraging Habitat. For. Sci. 45(4):520-527.

> Small logs provide escape cover or shelter for small species. … Tallmon and Mills (1994) have shown that red-backed voles, a primary prey species for the spotted owl, are highly associated with large down material in more advanced decay stages. Truffles, a dietary staple of the northern flying squirrel, have also been loosely associated with down material.

Gregg, M. 2013. Wildlife Report for Management Indicator Species, Species of Concern from the Northwest Forest Plan, and Landbirds - Pole Creek Fire Timber Salvage.
http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/94141_FSPLT3_1451590.pdf.

The FEIS fails to take a hard look at the effects of logging on deadwood recruitment, spotted owls, and their prey. The Stella FEIS failed to consider these short-comings of the FEIS and its misuse of DecAID raised in public comments.

Sincerely,

Doug Heiken