

From: [Katie Bilodeau](#)
To: [FS-appeals-northern-regional-office](#)
Cc: [Jeff Juel](#); [Gary Macfarlane](#)
Subject: [External Email]Re: Clear Creek Integrated Restoration Project Objection
Date: Monday, August 23, 2021 6:29:26 PM

[External Email]

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Objection Reviewing Officer:

Below is a supplemental issue for Friends of the Clearwater, Harry Jageman, Al Espinosa, Bonnie Schoenefeld, and Alliance for the Wild Rockies. It is to be added with the objection from a previous email (thread below, but not attachment). The objection is regarding the July 2021 Final Supplemental Environmental Impact Statement and draft Record of Decision for the Clear Creek Integrated Restoration Project, Nez Perce National Forest (Moose Creek Ranger District), with Forest Supervisor Cheryl Probert as the responsible official.

On pages 10, 13, and 16 of FOC's draft SEIS comments, we raised issues with regeneration logging, both on stream temperature (for fisheries) and cumulative effects. We also mentioned that clearcuts impact the behavior of lynx (page 19), and intensive logging impacts many wildlife species and fisheries. This past summer, FOC staff monitored logging from the Adams Camp project, and found disturbing impacts that the environmental assessment did not predict and happened during project implementation. The monitoring photos and their description are found on the supplemental CD that FOC mailed today, in a folder called "Monitor Adams Camp EA_6-9-21." Adams Camp was cut within the last couple of years, and FOC staff was out in that area in June of 2021, so this particular information is new since the Clear Creek draft SEIS. Adams Camp had a unit, 17A, which was supposed to be a commercial thin/group select (See Adams Camp decision notice p. 69). Our monitoring photos--FOC camera photos 4193, 4194, 4195, and cell photos (last digits) 5978, 4577, 40012, and 8687, are of this commercial thin/group select. As you can see from the photos, most of the trees are gone. The implementation resulted in a regeneration cut that looks more like a clearcut than a commercial thin. Please compare to the other side of the road, unit 20, which was a regeneration cut. Unit 20 is depicted by FOC camera photos 4191, 4192, and cell pics ending in digits 0984 and 4839. If one looks from one side of the road to the other, the regeneration cut has more trees than the cut that should have been a commercial thin.

The information for all the pictures in this folder are in an Excel table labeled "Picture labels and annotations." One column notes the type of cut, according to the Adams Camp decision notice. There are clearcuts (CC), commercial thins (CT), and commercial thin/group select (CTGS). They are labeled on the Excel sheet. We would ask you compare those to the pictures in the folder. Many cuts that should have been commercial thin were instead clearcut or regeneration cuts with most of the trees missing. Has the Forest Service addressed this overcut?

We can only assume that the same company responsible for removing these trees left the huge slash pile just outside of the Adams Camp project along road 9309. If you look at FOC camera pics 4224, 4225, and 4226, you will see this slash pile. There is a red backpack in 4225 and 4226 to give you perspective of its gigantic size.

Implementing the Adams Camp logging project far exceeded the "no significant impact" predictions and ignored the NEPA guardrails that the environmental assessment should have placed there. But, NEPA is supposed to be forward looking, which limits how the public can address this kind of impact. Because the Adams Camp logging was done within the last couple of years, the risk of this happening on another timber sale is possible, especially if the same logging company is the highest bidder. What have you done about the Adams Camp logging theft? How are you going to stop this from happening again? What measures are in place? How is the Forest Service to be held accountable by the public, who owns the land and is the one from whom the logging company has stolen?

It is not clear to us that this was a one-time event. In Johnson Bar, the logging company took more than the settled amount as well. (See "FOC 2020 (Aug) Monitoring Letter.pdf") Looking forward with another logging project, NEPA means honestly assessing whether this might happen again and the impacts should it happen again. This environmental impact statement should take a hard look at the checks in place to stop this from happening again, or the Forest Service should analyze impacts under the assumption that all commercial thinning in the supplemental EIS will be regeneration logging when implemented. Given the Forest Service's follow-through on Adams Camp and Johnson Bar, not doing this would violate NEPA for failing to take a hard look at the true impacts of the projects.

Suggested Remedies:

1. Withdraw the project
2. Choose the no-action alternative
3. Re-analyze all issues, treating precommercial thinning as if it were regeneration logging.
4. Discuss what concrete measures the Forest Service is going to take to ensure that logging companies are not stealing the public's trees and outline how the public may hold the Forest Service accountable for these assurances.

On 8/23/2021 3:08 PM, Jeff Juel wrote:

Objection Reviewing Officer:

Attached is the Friends of the Clearwater et al. Objection to the July 2021 Final Supplemental Environmental Impact Statement and draft Record of Decision for the Clear Creek Integrated Restoration Project. This timber sale is proposed for the Moose Creek Ranger District of the Nez Perce National Forest (a portion of the administratively combined Nez Perce-Clearwater National Forests). The responsible official is Forest Supervisor Cheryl Probert.

Today I am also sending via US Mail some disks which contain references and other documents cited and incorporated into the Objection.

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August 23, 2021

Sent via mail and email: appeals-northern-regional-office@usda.gov

Attention: Objection Reviewing Officer
Clear Creek Integrated Restoration Project Objection
USDA Forest Service, Northern Region
26 Fort Missoula Road
Missoula, MT 59804

Objection Reviewing Officer:

Pursuant to 36 CFR Part 218, Friends of the Clearwater (FOC), Alliance for the Wild Rockies (AWR), Harry Jageman, and Alan and Bonnie Schonefeld file this objection to the July 2021 Final Supplemental Environmental Impact Statement (FSEIS) and draft Record of Decision (ROD) for the Clear Creek Integrated Restoration Project (CCIR Project). The CCIR Project (also called the Clear Creek timber sale in this Objection) is proposed for the Moose Creek Ranger District of the Nez Perce National Forest, a portion of the administratively combined Nez Perce-Clearwater National Forests. The Responsible Official is Forest Supervisor Cheryl Probert.

FOC is the lead objector whose contact person is Jeff Juel, Montana Policy Director. Attachments, references, and other incorporated documents are included on the data disks sent to the Forest Service via US mail postmarked this date.

Sincerely submitted,



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INTRODUCTION

The selected alternative, Alternative C-modified, is described in the ROD:

My decision includes approximately¹:

- 3,562 acres of regeneration harvest, site preparation, and reforestation,
- 288 acres of improvement harvest,
- 3,907 acres of commercial thinning,
- 9 miles of temporary road construction on existing templates,
- And 23 miles of new temporary road construction.

Additionally, this alternative would implement the activities common to all action alternatives, including:

- 1,887 acres of precommercial thinning, 41 acres of grass restoration, and 1,371 acres of prescribed fire,
- 169 miles of system road maintenance--approximately 120 miles are predicted to be reconstruction and 49 miles reconditioning (September 2015 FEIS, Appendix B),
- 13 additional miles of system road decommissioning (September 2015 FEIS, Appendix B),
- A site-specific nonsignificant Forest Plan amendment adopting the Region 1 soil standard of 15% for detrimentally compacted, displaced, or puddled soils (September 2015 FEIS, Appendix C),
- A site-specific, nonsignificant Forest Plan amendment clarifying the Forest's interpretation of Appendix N of the Nez Perce Forest Plan (September 2015 FEIS, Appendix D),
- The Design Criteria described in this ROD.

¹ As noted previously, these acres and mileages are approximate and may change upon layout. Temporary road locations are approximate and road maintenance descriptions are based on current knowledge and will change with layout and during sale implementation. Changes will be within the range of effects predicted in the FEIS and FSEIS.

Following Acting Regional Forester David Schmid's 2015 dismissal of all objections of the original Clear Creek draft ROD, the Forest Service issued a Record of Decision. Subsequently, in 2016 the Nez Perce Tribe filed a Complaint in the U.S. District Court of Idaho, seeking injunctive relief. In response, the Forest Service withdrew that original ROD, providing objectors with requested remedy—a least temporarily.

However, Objectors assert that the Draft Supplemental EIS (DSEIS), FSEIS and 2021 ROD do not address or provide remedies requested in the previous (incorporated) objections. Therefore we incorporate into this objection all previous comments and

objections filed by FOC, AWR, and Harry Jagemon. Please note that this means we also incorporate other comments and objections THOSE comments and objections had incorporated. For example, the comment on the Draft Supplemental EIS (DSEIS) submitted by FOC and AWR stated, “we incorporate by reference and have included the previous comments and objections filed by Friends of the Clearwater, Native Ecosystems Council, Alliance for the Wild Rockies, Al Espinosa, Ashley Lipscomb, Harry Jagemon and Alan Schonefeld.” This current objection does not include and re-state all of the text from those incorporated documents, which would clutter up and increase complexity of this document, and would be unnecessary anyway. Again, those arguments still stand because the Forest Service (FS) has not addressed or provided remedies previously requested.

We also incorporate the April 20, 2020 FOC et al. comments on the *Draft Revised Forest Plan Revised Land Management Plan for the Nez Perce-Clearwater National Forests* and *Draft Environmental Impact Statement Land Management Plan Revision for the Nez Perce-Clearwater National Forests*, within this objection. The critique of draft forest plan components don’t necessarily apply here, but the issue and policy discussions, the scientific discussions and references, plus the broader critique of FS management policies and activities are relevant to the issues discussed in this objection.

CLIMATE CHANGE AND CARBON SEQUESTRATION

The DSEIS comments by FOC/AWR discuss climate change in multiple locations, for example pp. 10-11 and 26-27.

We are concerned about how climate change will affect wildlife, fisheries, landslide risk, and how logging will contribute to climate change, which will feedback into an even greater impact on the ecosystem. The Clear Creek analysis ignores the fact that wood product production contributes to an increase in greenhouse gases and is adding to the potential that temperatures will outpace the ecosystem’s ability to adapt.

Existing conditions

Human activities have unequivocally warmed the atmosphere, ocean, and land. There is extremely urgent scientific concern expressed over the imminent effects of climate change on the earth’s ecosystems, and therefore on civilization itself. Two anthropogenic causes of climate change are burning fossil fuels and deforestation. Logging will contribute to global warming. And while logging in places such as the Amazon is contributing to climate change and needs to be protected, the U.S. has incredibly high amounts of logging and deforestation. John Muir Project (2018); Prestemon et al. 2015; Hansen et al. 2013. We can’t ask the global world to save forests without doing our part to protect these resources in our own region.

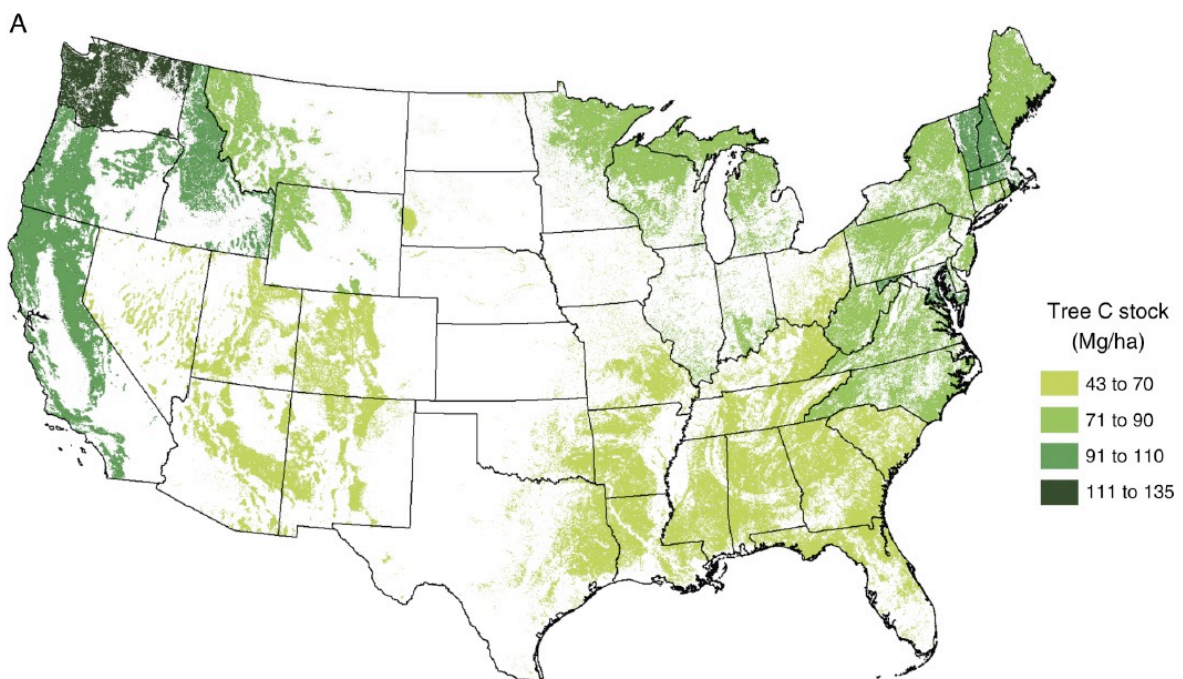
Since the publication of the FSEIS, the Intergovernmental Panel on Climate Change just released a new report. We have included it for your review. If greenhouse gas emissions continue at the current rate, there will be more droughts, food shortages, wildfires, mass die-off of coral reefs,

and we could actually see these impacts in our lifetime. Compare that with the trees you are proposing to log, which wouldn't recover under normal conditions outside of the lifetime of those who wrote this objection and those who are reading it.

“Nations have delayed curbing their fossil-fuel emissions for so long that they can no longer stop global warming from intensifying over the next 30 years, though there is still a short window to prevent the most harrowing future, a [major new United Nations scientific report](#) has concluded.” Plumer and Fountain. *A Hotter Future is Certain, Climate Panel Warns. But How Hot is Up to Us*. New York Times (Aug. 11, 2021). “Even if nations started sharply cutting emissions today, total global warming is likely to rise around 1.5 degrees Celsius within the next two decades, a hotter future that is now essentially locked in.” We have locked us in to a future with extreme heat waves and more frequent die-offs. But, we can prevent an even hotter future from moving away from fossil fuels and “removing vast amounts of carbon from the air.” Plumer and Fountain 2021. Our collective action to prevent an even hotter future depends on decisions now. If the Forest Service isn't going to think about how it is sealing in a hotter future for wildlife, we implore you to think of your children, your nieces and nephews, and future generations whom you could impact by leaving forests intact so they can continue removing carbon from the air. Minimally, under NEPA, this agency needs to fully and honestly grapple with its carbon-emitting actions.

Forests are carbon sinks

Trees sequester carbon continually throughout their lives. While live trees store that carbon they continually remove from the air, dead trees continue to store carbon they removed during their lifetime. This carbon storage exists throughout forested areas in the United States.



Above: McKinley et al. 2011. “Average statewide forest carbon stocks [in Megagrams of Carbon per hectare] in live and dead trees in the conterminous United States.” While the dark green represents the greatest carbon stocks and gain, note how much carbon storage and carbon stocks of forests in the entire United States, when added together, can contribute. All forest lands have the potential to mitigate for global warming in various regions across the United States in both the soils and the vegetation.

While forested lands are carbon sinks, more intact forests¹ can be more efficient carbon sinks. For example, larger trees more efficiently store carbon. All parts of the tree—the trunk, the bark, the branches, the leaves or needles, and the roots, is biomass. And scientists have found that the largest one percent of trees in mature and older forests comprised 50 percent of forest biomass worldwide. Lutz, J.A. et al. 2018. This carbon-storage impresses: the Tongass National Forest, for example, still has approximately 90 percent of its original old growth, and stores approximately 44 percent of the carbon stored in the entire National Forest System. DellaSala et al. 2021. The carbon-storage potential extends beyond the Tongass, however, in the Lower 48 as well: in eastern Oregon, scientists found that large trees that amounted to only three percent of the trees inventoried they stored forty-two percent of the above-ground carbon. Mildrexler et al. 2020. The Pacific Northwest forests can hold live tree biomass equivalent to or larger than tropical forests. Law and Waring 2015. However, large trees do not just store more carbon. Larger trees can sequester more carbon at a greater rate. In one year, a large tree of a species can accumulate carbon equal to its mid-sized counterpart. Stephenson, N.L. et al. 2014. Large-diameter trees store comparatively outsized amounts of above-ground carbon because the growing up, so to speak, is largely done: “Once trees attain large stature, each additional [diameter at breast height] increment results in a significant addition to the tree’s total carbon stores, whereas small-diameter trees must effectively ramp up to size before the relationship between [diameter at breast height] and [above-ground carbon] results in significant gains.” Mildrexler et al. 2020.

Living trees and above-ground vegetation are not the only carbon storage in forests. Dead trees that remain in a forest also store carbon, McKinley et al. 2011, emitting carbon through decay, on a more favorable time-delay than the immediate release caused by active management (discussed below). Beyond above-ground biomass, soil is the next remarkable carbon sink in forests. Pan et al. 2011. Unlike above-ground vegetation, soils are more insulated from the weather extremes that can impact carbon stored above-ground. Achat et al. 2015.

Finally, even mountain meadows have potential to be a carbon sink. Researchers at the University of Nevada Reno found that wet montane meadows, particularly the plants that grow in wetlands and the dense roots that accompany those plants, removed carbon from the atmosphere at a rate comparable to tropical rain forests. They stored carbon in the ground, which again can be less vulnerable to natural ecosystem disturbances. See Reed et al. 2020; Wharton 2020.

Active forest management is a carbon source

¹ An “intact forest” means current intrusions for activities like restructuring vegetation to place the area in a different successional stage is minimal. “Intact” means where mature trees exist and where soils are relatively undisturbed and where the area is governed by ecosystem processes.

Climate science suggests that active management² is a carbon source. Cutting trees and manipulating vegetation by removing it decreases the carbon sequestered, reduces the carbon stored, and increases carbon emitted. Likewise, grazing facilitates carbon emissions from public lands.

Active management from cutting and removing vegetation

Harvesting trees contribute to higher atmospheric carbon levels in several ways. First, cutting down trees reduces a forest's potential to sequester carbon from the atmosphere. If living trees continually store carbon through the process of sequestration, then it logically follows that killing and removing each tree arrests that tree's sequestration service, resulting in a net reduction how much carbon a forest sequesters. Planting new trees cannot fully replace the lost service because mature forests with larger trees sequester more carbon than newly replanted seedlings: "[I]f the starting point is a mature forest with large carbon stocks, then harvesting this forest and converting it to a young forest will reduce carbon stocks and result in a net increase in atmospheric [carbon dioxide] for some time." McKinley et al. 2011 (internal citations omitted). Removing living vegetation not only arrests an individual organism's sequestration processes, but actively emits carbon by simultaneously reducing carbon stored in biomass while emitting carbon through powering removing and processing biomass. Converting mature forests to any other management goal is going to lose carbon to the atmosphere. Harmon and Marks 2002.

Wood products store a fraction of the carbon that trees in forests store. From seedling until death, one hundred percent of trees store carbon. Even after life, dead trees store carbon; they release small amounts of carbon into the atmosphere on a slow delay as they decay. *See* Harris et al. 2016. By comparison, carbon storage in forest products, such as lumber or paper, is highly inefficient once accounting for the cradle-to-grave activities that emit carbon. Cradle-to-grave activities must be considered when accounting carbon stored versus carbon emitted because such activities exist exclusively for creating the final forest product; soil disturbance, logging and milling residue, and transporting raw and final forest products are all activities that simply would not exist for the alternative of leaving trees undisturbed in a forest. That accounting illustrates that carbon emissions from these activities far outweighs the carbon ultimately stored in any final forest product, and outweighs the carbon emitted from undisturbed trees burned by wildfire and slowly decaying in the forest.

² "Active management," on the other hand, means areas where human activities have attempted to influence the ecosystem and its processes by manipulating vegetation. This includes removing both living and dead vegetation such as trees or shrubs. Active management includes the activities allowed on National Forest System land, including grazing livestock.

Soil disturbance is the first and continual carbon source during logging operations. For example, the road in picture (*below right*) was cut into a roadless area in 2017 for the single purpose of



Road-building equipment. *FOC file photo.*



Entirely new temporary road, cut into previously undisturbed forest, Nez Perce National Forest. *FOC file photo.*

accessing a logging unit. USDA FS 2017 Orogrande. Felled trees are dragged along the ground to where machines can load them. These activities disturb soil, releasing carbon stored by soil into the atmosphere. *See Pan et al. 2011; Achat et al. 2015.* The Forest Service allows what it calls “temporary roads” to be bulldozed to access logging units. Like building any road, building a temporary road includes using machinery to rip into the forest floor (*below left*); in the picture (*below right*), the road plowed into a previously undisturbed forest floor, transforming the area disturbed from a carbon sink to a carbon source.

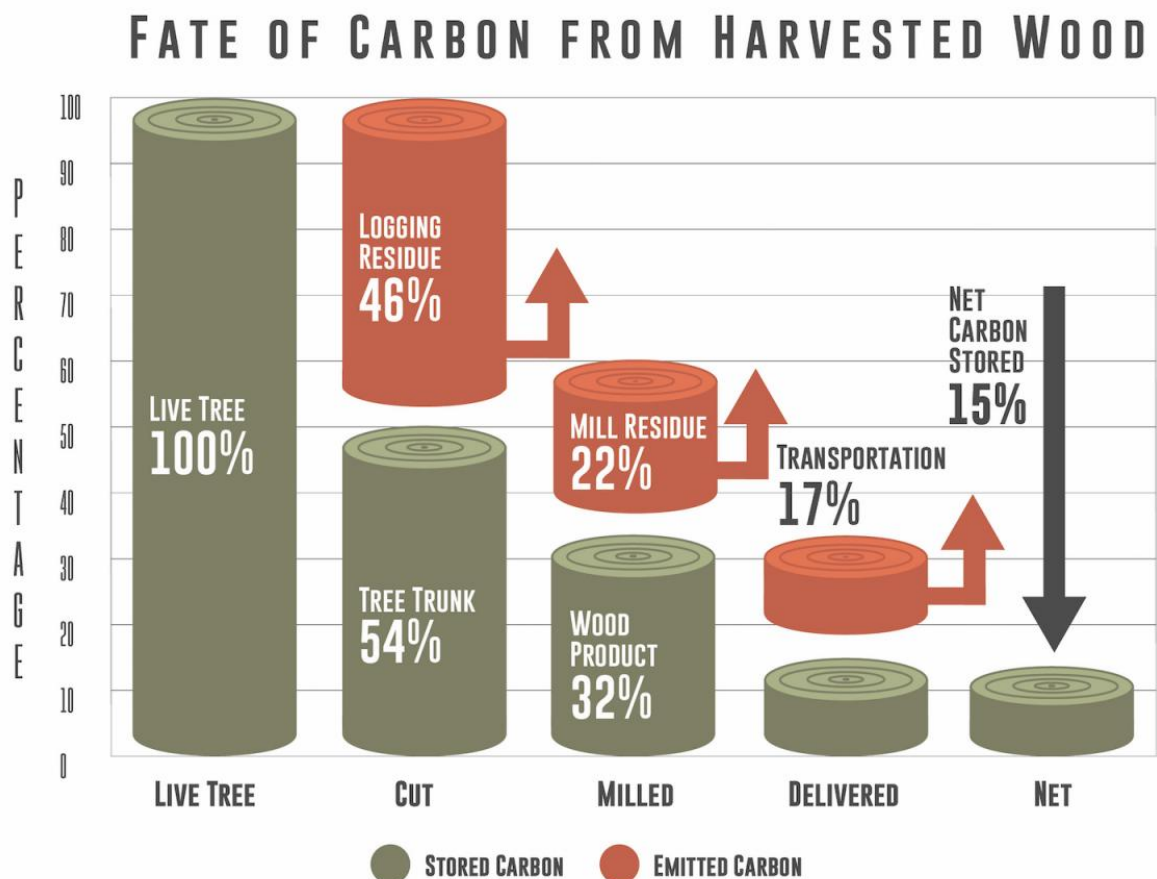
Beyond activities that disturb soils, residue from logging activities becomes an immediate source of carbon emissions. For example, when trees are cut, loggers strip away branches and needles—all biomass that stores carbon—from the trunk so a branchless log can be loaded onto a truck.

The branches and needles stripped away become onsite logging residue. This residue is disposed of by piling onsite and burning after logging is complete. Thus, tree branches that had stored carbon in a standing or downed tree, or added as a layer to the forest floor become an immediate source of carbon emissions from logging activities.



Logging residue to be burned, Nez Perce National Forest. *FOC file photo.*

Onsite logging residue is not the only biomass disposed of on the path from tree to lumber. Sawmills process logs further by cutting the usable parts of the log to lumber dimensions, which generates more biomass residue that would have otherwise been stored carbon in the forest. The below graphic, based on data from Gower 2003 and Smith et al. 2006, illuminates the carbon emitted from biomass as living trees that store 100 percent carbon are whittled into final wood products that store a fraction of that amount.



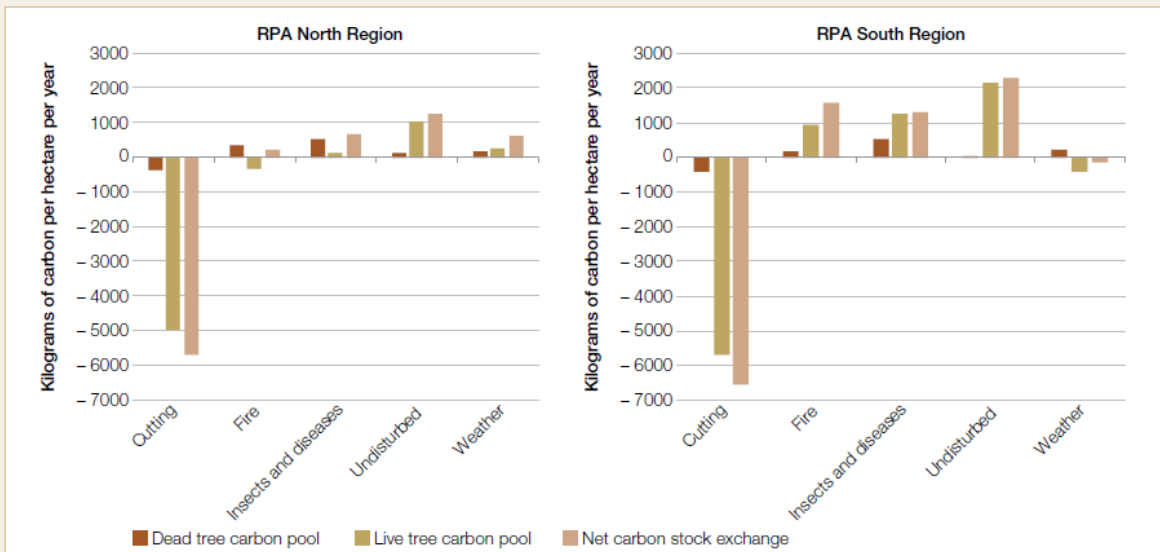
Above: *Josephine County Democrats*, “Forest Defense is Climate Defense,” at <https://josephinedemocrats.org/forest-defense-is-climate-defense/> (last visited Apr. 5, 2021)

Harris et al. 2016 estimated roughly similar carbon losses from tree parts stripped away in logging and milling activities: “The highest fractional contribution of C loss in all states was from harvest, and 64% of these losses were from logging residues [both above (19%) and below-ground (23%)] and mill residues (22%).” Accounting for carbon emissions from logging and milling residue, Harris et al. found that the most carbon lost in the public’s forests is from logging. And the true emissions associated with logging are sometimes underestimated or not accurately considered. See Hudiburg et al. 2019. Harris et al. 2016 used mill surveys, so the above percentages do not appear to account for the fossil fuels burned to cut and harvest the wood before transporting logs to mills. Other scientists, however, have concluded even lesser amounts of long-term carbon storage in the final forest product. “The actual carbon stored long-term in harvested wood products represents less than 10 percent of that originally stored in standing trees or biomass.” Moomaw and Smith 2017.

Despite underestimating the true amount of carbon-storage lost from forests on account of logging, the most stored carbon lost from forests is still from logging. For example, below is a USDA Forest Service 2016 update to a 2010 report on carbon accumulation in the Eastern United States. The negative numbers in the chart represent carbon removed from forests’ carbon-storage.

Logging also doesn't increase carbon storage in the US by reducing future fire emissions. Research has found high carbon losses associated with "fuel treatment" and only modest differences associated with the high-severity fire and low severity fire that fuel treatment is meant to encourage. Campbell et al. 2012. And where some disturbances like insects, disease, and fire kill trees and lower carbon sequestration, timber harvest is a disturbance with a greater impact. See Harris et al. 2016. The agency fails to recognize this. Logging to purportedly "reduce fuel" (a strategy largely debunked by science) can emit more carbon than what logging purports to save by altering fire behavior. Harris et al. 2016.

Figure 8-4. Carbon accumulation rates (kilogram per hectare per year) resulting from disturbances in the Eastern United States, based on the most recent remeasured Forest Inventory and Analysis data (about a 6-year time step).



Above: USDA Forest Service 2016. *Future of America's Forests and Rangelands. Update to the Forest Service 2010 Resources Planning Act Assessment.* "Figure 8-4. Carbon accumulation rates (kilogram per hectare per year) resulting from disturbances in the Eastern United States, based on the most recent remeasured Forest Inventory and Analysis data (about a 6-year time step)."

In addition to carbon-storage eliminated from removing biomass, logging activities themselves burn fossil fuels. Machines like feller-bunchers cut trees, swingers load trees, and trucks haul logs to mills. These machines burn fossil fuels to operate, and must be transported to remote logging sites, which also consume fossil fuels.



Feller-buncher, Nez Perce National Forest. *FOC file photo*



Swing machine, Nez Perce National Forest. *FOC file photo*

Transporting logs from remote parts of national forests to mills are another carbon source from logging operations. Logging trucks can haul anywhere from approximately 3,000-6,000 board feet³ of timber per load. Oester and Bowers 2009 Appendix A. The aggregate fossil fuels burned solely from transporting trees logged can be considerable. For example, in 2020, the Nez Perce-Clearwater National Forest sold over eighty-four million board feet of timber. USDA Forest Service Region 1 2020 [Annual Cut and sold report]. Accordingly, it will take between 14,000 and 28,000 truckloads to haul away timber on the Nez Perce-Clearwater National Forests sold only in 2020.



Logging truck, Photo credit *US Forest Service*

In addition to logging, disturbing other ecosystems with activities like grazing can also emit carbon. For example, the same researchers who found mountain meadows as a potential carbon sink found that disturbing those meadows can be a carbon source. Human activity, like grazing livestock on public lands, has transformed some wet meadows to drier soils with sparser grasses and shrubs, which transforms these same areas to potential sources of carbon emission. *See Reed et al. 2020; Wharton 2020.*

³ One board foot of timber is a volume equivalent to one-foot long by one-foot wide by one inch deep. Oester and Bowers 2009.

Warming temperature's impact on forests, and forests' natural ability to respond

Global warming will impact forests because the climate will dictate abiotic surroundings, which will affect what organisms can grow and thrive. The increasing temperature and changing precipitation can dramatically affect our national forests. *See* Malmheimer et al. 2008. Scientists are already measuring changes in an altered timing of snowmelt and run off in streamflow. Mote et al. 2014. This might mean a species more appropriate to the new temperatures or precipitation patterns replaces a species that can no longer thrive there. Kirilenko and Sedjo 2007. Clearing trees from areas does not slow this.

But, forests can mitigate the impacts of global warming. Forest canopies provide a climate refugia by promoting cooler microclimates for organisms, buffering warming environments under closed canopies. Scientific studies have found evidence that intact forests—even old growth—are less likely to burn at high severity than managed forests. Zald and Dunn 2018; Bradley et al. 2016; Lesmeister et al. 2019. Intact forests also contain fire refugia—areas where fires miss—where animals find refuge during fire and from where seeds spread for vegetative regrowth after fire. Meddens et al. 2018. Older forests, including old growth, which is the product of hundreds of years of ecosystem work, are among those cooler microclimates. *See* Davis et al. 2019; Frey et al. 2016.

In general, roadless areas and older forests are more resilient to climate change than logged areas, and they provide a sanctuary for climate-sensitive species (DellaSala); Watson, et al. 2013. Mapping vulnerability and conservation adaptation strategies under climate change. *Nature Climate Change* 3:989-994.

The sequestration potential is national, but the Pacific Northwest has special significance. Pacific Northwest forests hold live tree biomass equivalent or larger than tropical forests. Law and Waring 2015. “Alterations in forest management can contribute to increasing the land sink and decreasing emissions by keeping carbon in high biomass forests, extending harvest cycles, reforestation, and afforestation.” Law et al. 2018. This analysis is missing an honest carbon accounting of the carbon outputs of this project.

McKinley et al. 2011 recognizes, “Generally, harvesting forests with high biomass and planting a new forest will reduce overall carbon stocks more than if the forest were retained, *even counting the carbon storage in harvested wood products.*” Avoiding deforestation, afforestation, and reducing harvest are the first three strategies that McKinley et al. 2011 list. *See also* Harmon et al. 1990.

The Forest Service does not recognize logging as a disturbance that causes carbon losses in the soil and that eliminates what would otherwise be ongoing carbon sequestration by intact forests. The agency must account for all carbon emissions—the whole picture. Hudiburg et al. 2019. Here, there is no analysis as to how much emissions this project will emit, and how much carbon sequestration will be reduced as a result of the logging. It avoids any discussion of CO₂ budgets and how the forest plan and this project will increase emissions.

Likewise, the Forest Service does not recognize that forest preservation, i.e., reducing timber harvest or eliminating it in select areas, is an action the agency has the power to implement and that this action can mitigate climate change. *See* Harmon 2001. Preservation of Pacific Northwest forests is a legitimate alternative to mitigate global warming. Law et al. 2018. “Forest preservation offers a cost-effective strategy to avoid and mitigate CO₂ emissions by increasing the magnitude of terrestrial carbon sink in trees and soil, preserve biodiversity, and sustain additional ecosystem services.” Buotte et al. 2019. Last year, researchers prioritized forest lands for preservation based on “carbon priority ranking with measures of biodiversity.” The “high carbon priority forests in the western US exhibit features of older, intact forest with high structural diveristy[], including carbon density and tree species richness.” Buotte et al. 2019. Here is the map from that article:

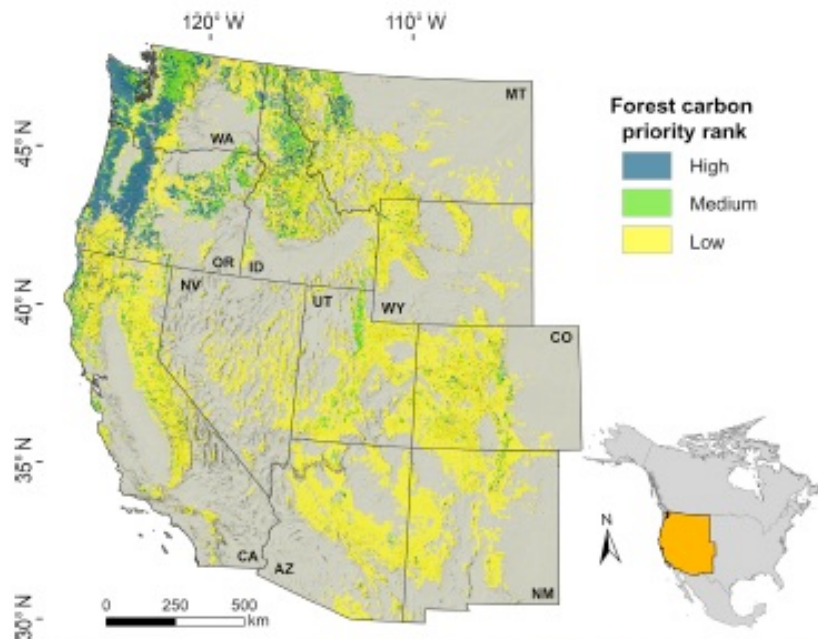


Figure 1, Buotte et al. 2019. While this figure ranks carbon priority, we point out that all of these forests are carbon sinks. Also, this map does not include Alaskan forests.

Eastern forests of the US are not the only net sinks. Western US forests are, too. As you can see, the Nez Perce-Clearwater National Forests have a medium ranking with pockets of high rankings. This forest is worth preserving—it has an incredible ability to sequester carbon. Profita (Jan. 1, 2020) *Pacific Northwest forests fit trifecta for curbing climate change—if we stop logging them*, Oregon Public Broadcasting. Yet, the paradigm under which the Forest Service developed this project is that the Forest Service needs to log and replace trees to achieve some arbitrarily static composition of trees that the Forest Service is choosing with little evidence that this landscape-level replanting will work. *See* Johnson 2016.

The FS (in USDA Forest Service, 2017b) discusses some effects of climate change on forests, including the following statement “In many areas, it will no longer be possible to maintain vegetation within the historical range of variability. Land management approaches based on current or historical conditions will need to be adjusted.” There is no scientific support for the assumption that “treatments” will result in sustainable vegetation conditions under increasing

temperatures. Browne et. al. 2019 discussed that adaptational lag to temperature in valley oak (*Quercus lobata*) can be mitigated by genome-informed assisted gene flow. Even using seed source from local species may not hold for management practices because trees can lag in adapting to temperature. This has not been accounted for.

The EIS fails to consider that the effects of climate change on the project area, including that the target “historical” or desired vegetation conditions will likely not be achievable or sustainable. The EIS fails to provide any credible analysis as to how realistic and achievable its objectives are in the context of a rapidly changing climate, along an unpredictable but definitely changing trajectory.

The EIS fails to analyze and disclose how climate change is already, and is expected to be even more in the future, influence forest ecology. This has vast ramifications as to whether or not the forest in the project area will respond as the FS assumes.

The EIS fails to acknowledge the likelihood that “...high seedling and sapling mortality rates due to water stress, competing vegetation, and repeat fires that burn young stands,” which will likely lead to a dramatic increase in non-forest land acres. (Johnson, et al., 2016.)

In the recent revised Forest Plan Draft EIS for the Custer-Gallatin National Forest, the FS states, “Climate change is expected to continue and have profound effects on the Earth’s ecosystems in the coming decades (IPCC 2007).” As alarming as that might sound, the most recent report from the Intergovernmental Panel on Climate Change makes that 2007 report seem optimistic. *See* IPCC 2021.

Any efforts that aimed at trying to replicate how the Forest Service thinks things looked pre-European influence ignores the larger pattern of climate, ignores climate change, and ignores natural succession. *See* Millar and Wolfenden 1999 for a discussion on why patterns within the context of climate change are important.

We incorporate the following article from the *Missoulian* (“Fire study shows landscapes such as Bitterroot's Sapphire Range too hot, dry to restore trees”) written by Rob Chaney (March 11, 2019):

Burned landscapes like this drainage in the Sapphire Mountains hasn't been able to grow new trees since the Valley Complex fire of 2000, due to lack of soil moisture, humidity and seed trees, as well as excess heat during the growing season. University of Montana students Erika Berglund and Lacey Hankin helped gather samples for a study showing tree stands are getting replaced by grass and shrubs after fire across the western United States due to climate change.

Fire-scarred forests like the Sapphire Range of the Bitterroot Valley may become grasslands because the growing seasons have become too hot and dry, according to new research from the University of Montana.

“The drier aspects aren’t coming back, especially on north-facing slopes,” said Kim Davis, a UM landscape ecologist and lead investigator on the study. “It’s not soil sterilization. Other vegetation like grasses are re-sprouting. It’s too warm. There’s not enough moisture for the trees.”

Davis worked with landscape ecologist Solomon Dobrowski, fire paleoecologist Philip Higuera, biologist Anna Sala and geoscientist Marco Maneta at UM along with colleagues at the U.S. Forest Service and University of Colorado-Boulder to produce the study, which was released Monday in the Proceedings of the National Academy of Sciences journal.

“What’s striking is if you asked scientists two decades ago how climate warming would play out, this is what they expected we’d see,” Higuera said. “And now we’re starting to see those predictions on the impact to ecosystems play out.”

The study concentrated on regrowth of Ponderosa pine and Douglas fir seedlings in Montana, Idaho, Colorado, New Mexico, Arizona and northern California. Field workers collected trees from 90 sites, including 40 in the northern Rocky Mountains, scattered within 33 wildfires that had occurred within the past 20 years.

“We did over 4,000 miles of road-tripping across the West, as well as lots of miles hiking and backpacking,” Davis said. The survey crews brought back everything from dead seedlings to 4-inch-diameter tree rings; nearly 3,000 samples in total. Then they analyzed how long each tree had been growing and what conditions had been when it sprouted. Before the 1990s, the test sites had enough soil moisture, humidity and other factors to recruit new seedlings after forest fires, Dobrowski said.

“There used to be enough variability in seasonal conditions that seedlings could make it across these fixed thresholds,” Dobrowski said. “After the mid-‘90s, those windows have been closing more often. We’re worried we’ll lose these low-elevation forests to shrubs or grasslands. That’s what the evidence points to.”

After a fire, all kinds of grasses, shrubs and trees have a blank slate to recover. But trees, especially low-elevation species, need more soil moisture and humidity than their smaller plant cousins. Before the mid-90s, those good growing seasons rolled around every three to five years. The study shows such conditions have evaporated on virtually all sites since 2000.

“The six sites we looked at in the Bitterroots haven’t been above the summer humidity threshold since 1997,” Higuera said. “Soil moisture hasn’t crossed the threshold since 2009.”

The study overturns some common assumptions of post-fire recovery. Many historic analyses of mountain forests show the hillsides used to hold far fewer trees a century ago, and have become overstocked due to the efforts humans put at controlling fire in the

woods. Higuera explained that some higher elevation forests are returning to their more sparse historical look due to increased fires.

“But at the lower fringes, those burn areas may transition to non-forest types,” Higuera said, “especially where climate conditions at the end of this century are different than what we had in the early 20th Century.”

The study also found that soil sterilization wasn’t a factor in tree regrowth, even in the most severely burned areas. For example, the 2000 Sula Complex of fires stripped forest cover in the southern end of the Bitterroot Valley. While the lodgepole pine stands near Lost Trail Pass have recovered, the lower- elevation Ponderosa pine and Douglas firs haven’t.

Another factor driving regeneration is the availability of surviving seed trees that can repopulate a burn zone. If one remains within 100 meters of the burned landscape, the area can at least start the process of reseeding. Unfortunately, the trend toward high-severity fires has reduced the once-common mosaic patterns that left some undamaged groves mixed into the burned areas.

Higuera said he hoped land managers could use small or prescribed fires to make landscapes more resilient, as well as restructure tree-planting efforts to boost the chances of heavily burned places.

We’ve provided the scientific publication as well: *see* Davis et al. 2019. The Resources Planning Act of 1974 (RPA) and National Forest Management Act of 1976 (NFMA) mandate long-range planning which impose numerous limitations on timber extraction practices and the amount of timber sold annually. These long-range plans are based on assumptions, which are based on data, expert opinion, public participation and other factors which mostly view from a historical perspective. So it’s time to peer into the future to examine closely (NEPA: “take a hard look at”) those assumptions. The EIS fails to assess and disclose all risks associated with vegetative-manipulation as proposed.

There is scientific certainty that climate change has reset the deck for future ecological conditions. For example, Sallabanks, et al., 2001:

(L)ong-term evolutionary potentials can be met only by accounting for potential future changes in conditions. ...Impending changes in regional climates ...have the capacity for causing great shifts in composition of ecological communities.

NEPA requires a “hard look” at the best available science relating to future concentrations of greenhouse gases and gathering climate risk as we move forward into an increasingly uncertain and uncharted climate future. This has not been done. The Clear Creek logging project does not include a legitimate climate-risk analysis, much less one based on the best available science.

No amount of logging, thinning and prescribes burning will cure the cumulative effects (irretrievable loss) already baked into the foreseeably impending climate chaos. “Treatments”

must be acknowledged for what they are: adverse cumulative environmental effects. Logging can neither mitigate, nor prevent, the effects of wildfire or logging. Both cause disturbance to forests that cannot be restored or retrieved—the assumed resilience no longer exists. It is way too late in the game to pretend to ignore the elephant in the room.

The FS ignores best available science indicating prescribed fire, thinning and logging are actually cumulative with the dominant forces of increased heat, drought, and wildfire.

NEPA requires analysis of an alternative that reflects our common understanding of climate risk. A considerable amount of data and scientific research repeatedly confirms that we may be looking in the wrong direction (back into history, e.g., “historic conditions”) for answers to better understand our forest future.

The FS fails to analyze an alternative projecting climate science into the forest’s future. It fails to adequately consider that the effects of climate risk represent a significant and eminent loss of forest resilience already, and growing risk into the “foreseeable future.”

Davis et al., 2019 state: “At dry sites across our study region, seasonal to annual climate conditions over the past 20 years have crossed these thresholds, such that conditions have become increasingly unsuitable for regeneration. High fire severity and low seed availability further reduced the probability of postfire regeneration. Together, our results demonstrate that climate change combined with high severity fire is leading to increasingly fewer opportunities for seedlings to establish after wildfires and may lead to ecosystem transitions in low-elevation ponderosa pine and Douglas-fir forests across the western United States.”

Forests are already experiencing emissions-driven deforestation, on both the post-fire and post-logging acreage.

The EIS does not disclose restocking monitoring data and analysis.

The Forest Service has not considered changing risks with landslides, as more precipitation will come in the form of rain and can destabilize slopes that might have been stable in colder weather.

The EIS ignores the impact that wood production plays in contributing to greenhouse gases and eliminating the mitigation mechanisms (carbon sequestration) that trees would have otherwise conducted. The Forest Service’s general position that it has a miniscule impact is not acceptable under CEQ guidelines (CEQ Guidance, 2016).

The Forest Service has utterly failed to even try to analyze the carbon emitted and carbon sequestration rates reduced because of this project as well as the rate by which carbon sequestration will be reduced. There has been no attempt to cumulatively examine the effects, which is significant as the Northern Region has been approving many supersized clearcuts across the national forests of Montana and Northern Idaho. *See Bilodeau and Juel 2021*. This region has allowed over 93,000 acres of supersized clearcuts just in the last seven years. That clearing of land—how much carbon sequestration has that eliminated? How much fossil fuel was burned in the clearing of that acreage?

It is odd that this project purports to reduce fuels, which, if even possible, is a secondary driver of fires, while global warming is the primary driver of fires, and this project will contribute to global warming in the manners described above. The Forest Service could actually combat the primary driver of fires by not logging.

Climate change results from the incremental addition of GHG emissions from millions of individual sources, which collectively have a large impact on a global scale. CEQ recognizes that the totality of climate change impacts is not attributable to any single action, but are exacerbated by a series of actions including actions taken pursuant to decisions of the Federal Government. Therefore, a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA. Moreover, these comparisons are also not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations because this approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make a relatively small addition to global atmospheric GHG concentrations that collectively have a large impact.

(CEQ Guidance, 2016 pp. 10-11)

Despite CEQ Guidance, 2016 which requires “federal agencies [to] consider the extent to which a proposed action and its reasonable alternatives would contribute to climate change, through GHG emissions” and account for the ways global warming will, with the proposed action, change the action’s environmental effects, there is no such analysis for the Clear Creek Project. This agency is going to reduce carbon sequestration, contribute to carbon emissions, proposes to do the same in projects forest-wide as well as nearby, like the Red Moose Project, the Johnson Bar Project, the Tinker Bugs Project, and the Lolo Insects and Disease Project, and the SEIS does not recognize such impacts at all. As a result, the agency has violated NEPA by failing to take a hard look at its timber program (minimally forest-wide over 21st century).

We incorporate Oregon Wild, 2020, which identifies many of the fallacies found in Forest Service timber sale NEPA analyses of climate change.

Climate effects of Livestock Grazing

See the section in this objection on the cumulative effects of livestock grazing, which discusses greenhouse gas emissions from livestock grazing.

Remedies:

- 1) Select the no-action alternative
- 2) Withdraw the project
- 3) Conduct an analysis that accounts for greenhouse gas emissions and the reduced ability to sequester carbon on a cumulative effects scale for the NPCNF and this region.

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FISHER

We have raised our concerns about fisher and its disappearing habitat since the first round of this project. We objected to the analysis of impacts on fisher in our first objection in 2015 on pages (among others), 52, 56, 63-65, 68-73, 95-96 and 115. We summarized many of these same concerns on pages 20-22 of our 2018 draft SEIS comments.

Fisher background information

Fishers are special. “(T)he fisher is unique to North America and is valued by native and nonnative people as an important member of the complex natural communities that comprise the continent's northern forests. Fishers are an important component of the diversity of organisms found in North America, and the mere knowledge of the fisher's existence in natural forest communities is valued by many Americans.” Ruggiero et al. 1994b.

Research heavily associates fishers with older forests throughout the year. (Aubry et al. 2013, Olsen et al. 2014, Raley et al. 2012, Sauder 2014, Sauder and Rachlow 2014, Weir and Corbould 2010). Fine spatial scales of habitat that fishers need is well-studied. Fishers need dense overhead cover, abundant coarse woody debris, and large trees. (Aubry et al. 2013, Sauder and Rachlow 2014). The Forest Service recognizes that “[f]ishers are associated with areas of high cover and structural complexity in large tracts of mature and old-growth forests.” USDA Forest Service 2019. Nez Perce-Clearwater National Forest forest-plan revision DEIS Ch. 1 p. 15; DEIS 3.2.3.2-83. Female fishers use cavities in large-diameter live trees and snags because tree cavities regulate temperatures and protect kits from predators; “[H]eartwood decay and cavity development is more important to fishers for denning than is the tree species.” Raley et al. 2012. Research has found that females more often use dens in live trees with decay. Live trees have more regulated thermal properties and stable microclimates, so the temperature fluctuates less and kits are protected from weather extremes. Fishers rest primarily in deformed or deteriorating live trees. Raley et al. 2012.

Forest patterns are divided into forest composition and forest configuration, and fishers need both. Forest composition is a patch area or proportion of landscape specific to a habitat type. Habitat loss is mostly a change in forest composition. Forest configuration, on the other hand, is spatial and accounts for how patches are arranged across the landscape, like average patch shape, distances between patches of the same type, and the cluster of patches across the landscape. Sauder and Rachlow 2014.

Forest configuration figures just as much into the type of habitat that fishers need, specifically the proximity of mature forest patches. Sauder and Rachlow 2014 found that fishers in the Clearwater used landscapes with large patches of mature forest arranged in connected patterns. The proximity among mature forest patches was a stronger predictor of fisher use than the mere abundance of mature forest. Sauder and Rachlow 2014.

Most studies have found that fishers are reluctant to stray from forest cover and that they prefer more mesic forests (Olson et al. 2014, Sauder 2014, Sauder and Rachlow 2014, Weir and Corbould 2010). Both Sauder and Rachlow (2014) and Weir and Corbould (2010) predicted the influence of openings on fisher habitat occupancy based on their data. For example, Weir and Corbould predicted that a 5% increase in forest openings would decrease the likelihood of fisher occupancy by 50%. Sauder and Rachlow (2014) suggested that an “increase of open area from 5% to 10% reduces the probability of occupation by fishers by 39%. Sauder and Rachlow (2014) reported that the median amount of open area within fisher home ranges was 5.4%. This was consistent with “results from California where fisher home ranges, on average, contained <5.0% open areas” (Raley et al. 2012). “[R]elatively small changes in the amount of open area in a

landscape can have large effects on the probability of occupation by fishers.” Sauder and Rachlow 2014. Indeed, Weir and Corbould (2010) states that the abundance of open areas within a landscape was the most important variable in predicting landscape occupancy by fishers. *See also* Sauder and Rachlow 2014.

Sauder and Rachlow (2014) report the average home range size is approximately 12,200 acres and for a female fisher and approximately 24,300 acres for a male fisher. Home ranges generally do not overlap greatly for the individual sexes (21.3% for females and 15.3% for males), but male home ranges can overlap female home ranges. Preferred habitat would likely occur in upland areas and stands composed of cedar and grand fir forests (Schwartz et al. 2013).

Also Jones, (undated) recognizes the following:

Roads are directly correlated with trapper access, and consequently, fisher vulnerability. Even in areas where fishers cannot be legally trapped, trapping pressure for other furbearers (i.e., marten) may contribute significantly to fisher mortality. Roads bisecting or adjacent to preferred habitats (i.e., drainage bottoms) have the greatest potential of increasing a trapper’s probability of encountering fishers.”

And Witmer et al., 1998 state, “The range and population levels of the fisher have declined substantially in the past century, primarily the result of trapping pressure and habitat alteration through logging (Powell and Zielinski 1994).”

Heinemeyer and Jones, 1994 stated,

Fishers are susceptible to trapping, and are frequently caught in sets for other furbearers. Additionally, populations are vulnerable to trapping, as even light pressure may cause local extinction. Western fisher populations may have lower natality and higher natural mortality rates as compared to eastern populations. Consequently, western populations may be more susceptible to over-trapping. It has been suggested that incidental captures may limit population growth in some areas.

Sauder (2014) suggests that five National Forests (Clearwater, **Nez Perce**, Coeur d’Alene, Kaniksu, and Kootenai) hold the key to recovery of the species in the Northern Region. As with most of the Sensitive wildlife, fishers receive little habitat protection emphasis in current forest plans. The Nez Perce Forest Plans list fisher as an old-growth-dependent species. The old-growth standards for this forest is five percent old-growth per drainage and ten percent old-growth drainage wide. As discussed in the old-growth section, there is likely significant uncertainty on the real abundance of old growth and whether these areas are connected.

Ruggiero et al., 1994b discuss fisher habitat disruption by human presence:

...The fisher's reaction to humans in all of these interactions is usually one of avoidance. Even though mustelids appear to be curious by nature and in some instances fishers may associate with humans (W. Zielinski, pers. obs.), they seldom linger when they become aware of the immediate presence of a human. In this regard, fishers generally are more

common where the density of humans is low and human disturbance is reduced. Although perhaps not as associated with "wilderness" as the wolverine (V. Banci, Chapter 5), the fisher is usually characterized as a species that avoids humans (Douglas and Strickland 1987; Powell 1993).

Existing condition for fisher

The fisher is a sensitive species in Region 1 and the threats to this species have increased, if anything. The lack of recent information that exists for this species is a real concern.

The Forest Service has no current baseline information for the fisher. No reliable analysis can move forward without information on the current population trends and how the implementation of the Nez Perce Forest Plan has impacted these species. Not knowing current population trends is problematic because of the cumulative impacts of habitat loss and trapping over the years, and especially because fisher populations should have been measured under the Nez Perce Forest Plan monitoring requirements. The Nez Perce Forest Plan chose the fisher as a management indicator species and a standard of this plan was to “[m]onitor population levels of all Management Indicator Species on the Forest...Population levels will be monitored and evaluated as described in the Forest Plan Monitoring Requirements (Chapter V of the Forest Plan).” Nez Perce Forest Plan p. II-18. The Nez Perce Forest Plan required this monitoring every 3-5 years. Nez Perce Forest Plan p. V-7. Where is this monitoring? The Forest Service last published a monitoring report on the Nez Perce National Forest in 2004, and last reviewed fisher data in the monitoring report before that in 2002. In the 2002 monitoring report, the Forest Service summarized fisher information that was not based on any sampling the Forest Service did or verified. Even as recently as the forest-plan revision (where a draft EIS released December 2019), the Forest Service admitted in its Species of Conservation Concern Assessment that it has no recent data for the fisher. USDA Forest Service 2019, Nez Perce-Clearwater NF Assessment on SCC (“NPCNF Assessment on SCC.pdf”), at p. 18-32.

FOC is concerned with the population trends of fisher because of the lack of information and the heightened frequency of logging projects over the past decade. Population trends are not only impacted by this project, but by regional cumulative effects over the time it takes for old-growth habitat (which fisher depend upon) to re-develop.

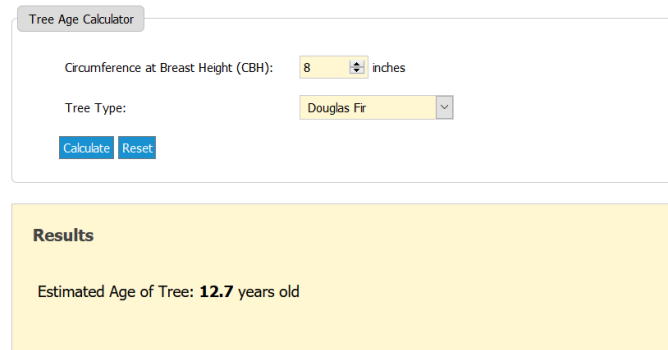
The methodology has changed between the FEIS, the draft supplemental EIS, and the final supplemental EIS without adequate explanation. As numbers are substantially different in the final SEIS, this is new information. Below is the table briefly summarizing how this analysis has evolved.

Clear Creek environment assessments	Available habitat (acres)	Impacted by alt chosen draft alt chosen (acres)	Percent of habitat impacted
final EIS Alt C	10,037 summer + 13,570 winter = 23,607	Alt C: 580 summer + 2,285 winter = 2,865	12.1 percent (not counting what has been fragmented)
Draft SEIS	9,847 summer + 13,380 winter = 23,227	Alt C: 3515 (no summer + winter)	15.1 percent
Final SEIS	38,692	Alt C 7,227	18.7 percent

The final SEIS found approximately 15,000 more acres of potential habitat than what had previously been analyzed. The Forest Service failed to discuss and support why it found 15,000 more acres. The 2015 FEIS, in its “3.12.4 Methodology” (p. 3-190 to 3-191), bases suitability on tree species, size, canopy cover, and age class. The 2015 FEIS and the draft SEIS methodology (p. 127) have identical parameters for tree species, tree diameter (over 13 inches dbh), tree canopy cover, and age class (over 100 years). The final SEIS reduced the tree diameter requirement for what is “suitable” habitat to anything over 8 inches dbh. While it does note *Mature > 18”*, underneath, it appears from what is disclosed, based on a normal reading, that the agency is newly considering tree diameters over 8 inches instead of over 13 inches to now be suitable. There is no explanation about this change, and we do not see it supported or validated.

How old are trees of each of the species listed in the methodology tables when they reach 8 inches diameter at breast height (dbh) in the Nez Perce National Forest? Recognizing that trees grow at different speeds in different places, and this is a uniform number, an online tree calculator

(<https://goodcalculators.com/tree-age-calculator/>) calculates a douglas fir at 8 inches dbh as 12.7 years old. Even if Douglas fir grows slower here than the average calculation, this is still pretty young. Under this methodology, it certainly appears like a regeneration cut would qualify for fisher habitat a decade or so out, which goes against the science that states that fisher use



Tree Age Calculator

Circumference at Breast Height (CBH): 8 inches

Tree Type: Douglas Fir

Calculate Reset

Results

Estimated Age of Tree: 12.7 years old

large and old trees. This new model suggests that a clearcut with reserves could be fisher habitat in roughly 15 years (one >18” dbh tree with the rest of the stand 8” dbh). This undermines the 2015 wildlife report for Clear Creek that put the time scale for fisher habitat to redevelop (and cumulative effects) at 100 years. USDA Forest Service 2015 Clear Creek Wildlife Report p. 28

Also missing is the age class—while the draft SEIS noted an age class of 100 years for the modeled habitat, the final SEIS noted no age class. We could not find adequate support or discussion about this newly re-modeled habitat, including why, if fisher depend upon large old trees, that medium-sized trees and habitat that don’t fit into an over-100-year age class are now acceptable. When the forest plan committed to viable species, to keep fisher viable, it developed the proxy old growth habitat to assume the population would be viable—that was one of the purposes for Appendix N of the forest plan. The Forest Service is now substituting that proxy habitat by modifying it. That you have a new model that you haven’t validated that proclaims an increasingly more fisher habitat than ever with admittedly no records of fisher being in the area might suggest this model is a bit off or fisher are in more trouble than the agency knows or is letting on.

The Forest Service seems to take a new approach to modeling fisher habitat for each project analysis. The Forest Service also fails to discuss how it validated each new modeling approach.

And, without current population estimations, the multiple modeled fisher habitat, which constantly fluctuates, makes it impossible for the agency or the public to truly understand the population trends of fisher.

Below is the following ways the Forest Service has calculated fisher habitat:

Project wildlife report	*Primary tree species or potential habitat	Tree diameter (inches dbh)	Tree canopy cover (%)	Age Class (years)	Suitable habitat (acres)
**Lolo Insects and Disease, Wildlife report (July 2018) p. 6	WRC, GF, DF, LPP, SAF, S	≥5	> 10	—	72,781
***Johnson Bar Fire Salvage SEIS (2017) p. 167	Updated models of prob. of occurrence	>15	>40	100	1,225
Clear Creek FEIS(2015) p. 3-191 summer winter	WRC, GF, DF, LPP, SAF, S	>13 Sapling/Young	>40 >40	>100	10,037 13,570
Clear Creek Draft SEIS (2018) p. 127 summer winter	WRC, GF, DF, LPP, SAF, S	>13 Sapling/Young	>40 >40	>100 -	9,847 13,380
Clear Creek Final SEIS (2021) p. 149	WRC, GF, DF, LPP, SAF, S	Suitable >8" Mature > 18"	>40%	-	38,692

*PP- ponderosa pine; DF- Douglas-fir; WL-Western larch; WWP-Western white pine; LPP- Lodgepole pine; GF- grand fir; WRC- Western redcedar; S- Englemann spruce; SAF- Subalpine fir

**While the Lolo logging project is on the Clearwater National Forest, it is about five air miles from Clear Creek and the Forest Service has noted the same species.

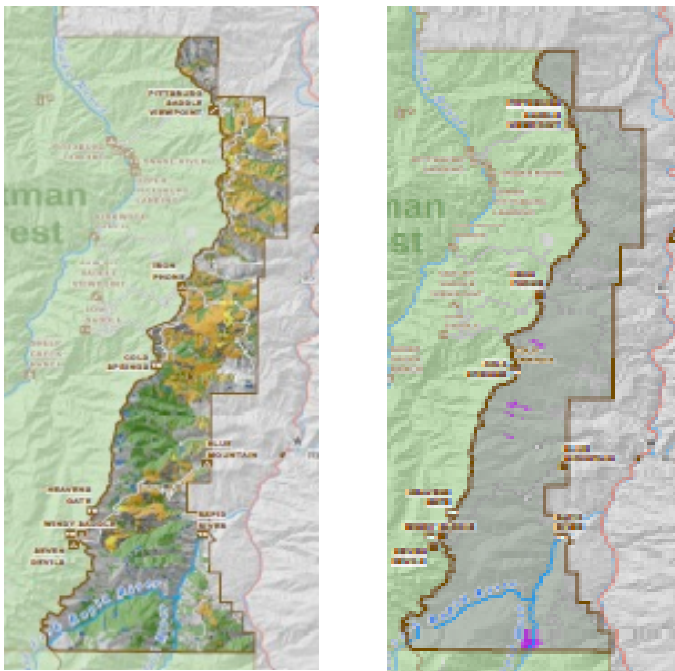
***Johnson Bar is just east of the Clear Creek Project Area.

We'd highlight the incredible increase in fisher "habitat" when parameters are lowered or omitted, such as lowering the diameter of trees from 13" to 8" or 5", or eliminating any parameter for tree age. This would allow the Forest Service to dilute effects of logging mature trees by including more young trees and calling it all habitat. Alternatively, it skews habitat to appear abundant. Such abundant habitat seems suspicious when documented evidence of fisher the same abundant habitat is missing.

These new minimum parameters conflict with other documents, too. The Nez Perce Forest Plan Appendix N, for old growth, call for at least 15 trees per acre that are over 21 inches diameter at breast height. Yet now, in this wildlife report, one over-18 inch dbh tree and others that are over 8 inches dbh appear sufficient. This wildlife finding also contradicts the 2019 species of conservation concern assessment, which notes that fisher are "[a]ssociated with mid-elevation larger diameter, old & complex structure forests." Eight inches is hardly a large-diameter tree.

Other fisher analyses on this forest adopt other different metrics. The Forest Service biologist who analyzed the End of the World Project in 2020 used different metrics that simply not fit into the chart above. End of the World is just south of Highway 14, about 15 air miles southwest of Clear Creek and also on the Nez Perce National Forest. That biologist used a 2014 model from Sauder to determine, from acres of “mature habitat” and the open acres, the percent of “probable habitat” for fisher. USDA Forest Service 2020, End of the World Wildlife Report, p.38.

Forest Service modeling for forest-wide fisher habitat is inconsistent, too. In December 2019, in putting out a draft revised forest plan, the Forest Service presented the public with two models for fisher habitat: a SIMPPLLE model (Fisher_Habitat.pdf) and a Sauder 2015 model (Fisher_Sauder2015.pdf). Even though the Forest Service presented those two models for fisher habitat, they did not overlap with each other. The SIMPPLLE habitat model modeled more habitat than the Sauder 2015 model. Below is an excerpt from the Salmon River Ranger District on the Nez Perce National Forest where the SIMPPLLE model denoted fisher habitat, next to the Sauder 2015 model of the same area that didn't.



Above left: excerpt Fisher_Habitat.pdf (SIMPPLLE model); Above right: excerpt Fisher_Sauder2015.pdf

The Forest Service hasn't explained any of the above fisher models to the public in a transparent manner. To our knowledge, the Forest Service hasn't validated these models. This allows the Forest Service to claim, for example, the Sauder 2015 is the best available science for one analysis—the forest plan—while simultaneously ignoring it in a categorical exclusion for Tinker

Bugs, which appears to eliminate modeled habitat, claiming that the project area was not suitable fisher habitat (see below).

Nor are these models available for the public to check to see if the Forest Service's calculations are repeatable. When maps are missing, like they are for fisher in the Clear Creek analysis, figuring out how logging impacts forest configuration is impossible for the public, and the Forest Service's assertions become impossible to ground truth. That the models change anew among projects and, in the case of the Clear Creek project, *during* project analysis makes the impacts to fisher unclear, and a hard look lacking. This is a shell game where no one really knows how fisher are doing or if they are using the habitat scientists have modeled them likely to use. This whole analysis violates NEPA for not being transparent to the public, not having tangible, current information on population, and not taking a hard look at impacts to the fisher.

Finally, these models query a vegetation map GIS layer that the Forest Service has on file. The Forest Service did not discuss the last time that layer was updated, but we think it has been at least six years. How much fisher habitat have logging projects and fires consumed that wouldn't be recognized on this layer?

The cumulative impacts on fisher is very problematic in this project.

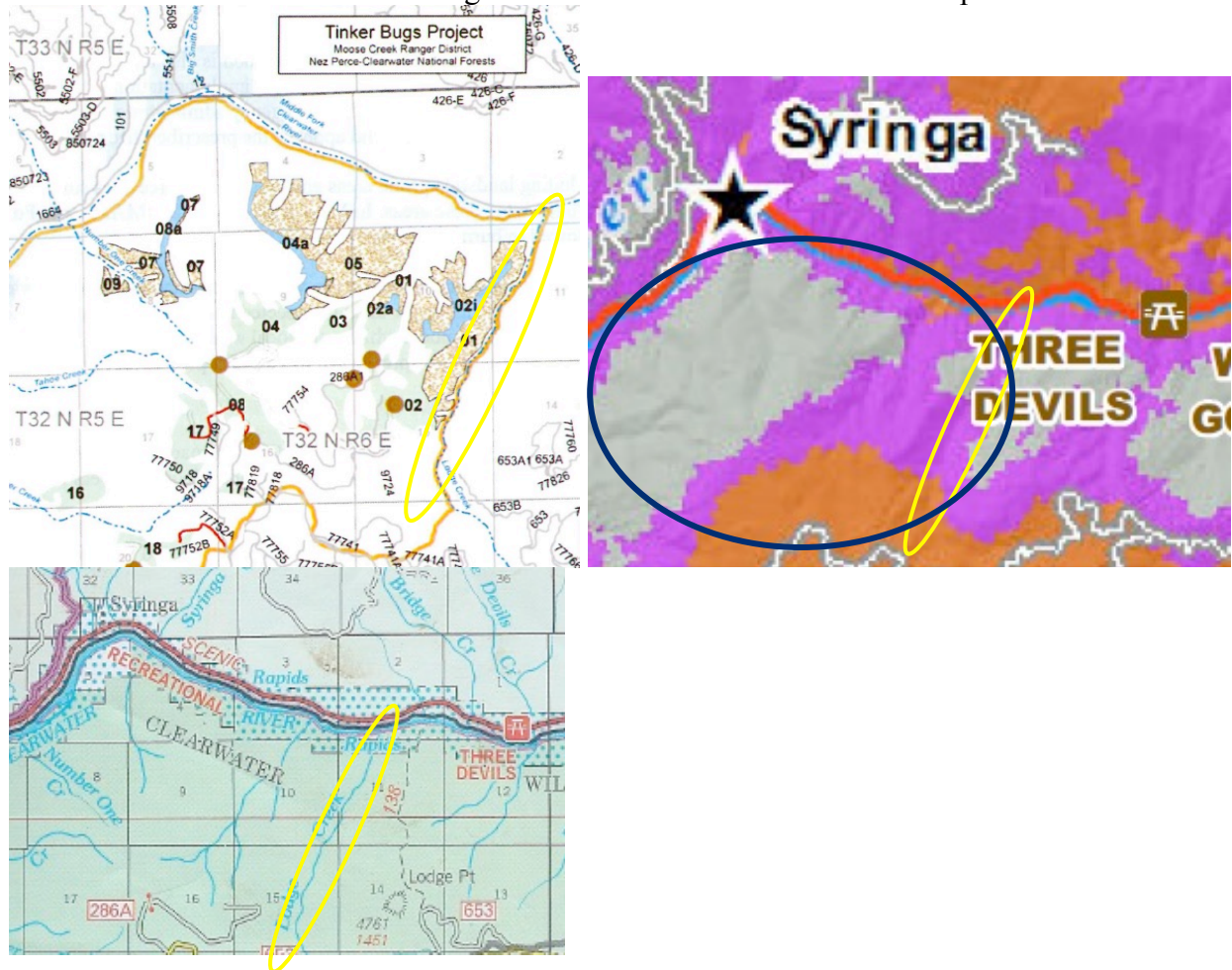
The cumulative impact on habitat from acreage logged is uncertain at best. As described above, each project uses a different model. One can't compare across projects when some of them narrow potential habitat with bigger trees, as supported by the science, and others use a 5" or 8" diameter minimum, which are not mature trees.

Additionally, when accounting for Johnson Bar, the Forest Service did not note that the project implementation logged more than what the Forest Service agreed to authorize in its settlement agreement. See Friends of the Clearwater Aug. 10, 2020 monitoring letter; Johnson Bar Resolution Agreement 2017_FOC-IRU-FS. Fisher rely on large old trees, which take a century to replicate (see the Forest Service's own analysis in the Johnson Bar Supplemental EIS p. 168, noting that mature trees would be "70 years or older"). Why would this impact, greater than anticipated and until the area becomes structurally complex with mature old trees, be dropped from cumulative-effects analysis simply because logging is now complete? The impacts of the logging will be around for the rest of anyone currently living. The widened and long-term impact of this logging project need to be reincorporated to the cumulative effects analysis. Also, in the Johnson Bar supplemental environmental impact statement (p. 168), the Forest Service recognized that recent wildfires had also burned about 12,000 acres in the project area. These don't appear to have been calculated in habitat loss for fisher like the Forest Service has done for the Baldy Fire. Why not?

The Forest Service did not account for the logging to take place in the Lolo Insects and Disease Project. That project is about 5-10 air miles north of Clear Creek. While in the Clearwater National Forest, the trees noted in each wildlife report, as it pertains to fisher, are similar. While a judge halted logging on this project because it violated the Endangered Species Act, some logging has already taken place. Additionally, the Forest Supervisor has no intention of doing

anything but moving forward for logging. *See* Barker 2021. This will eliminate fisher habitat. How much is unclear because of the shifting parameters discussed above.

Tinker Bugs, a logging project next door, claimed no fisher habitat even though the Sauder 2015 map the Forest Service presented for the forest plan suggested some. On the Nez Perce-Clearwater National Forest Map and the Tinker Bugs map, we've circled Lodge Creek in yellow. Lodge Creek is west of the Three Devils Picnic area. Based on the location of the picnic area, we estimated the approximate area where Lodge Creek would be on Sauder's 2015 map that the Forest Service is claiming is the best science in the 2019 forest-plan revision documents. We've also circled the approximate area of the Tinker Bugs project on the 2015 Sauder Map in dark blue. We've included the Tinker Bugs Decision Memo and the Wildlife Report to consider.

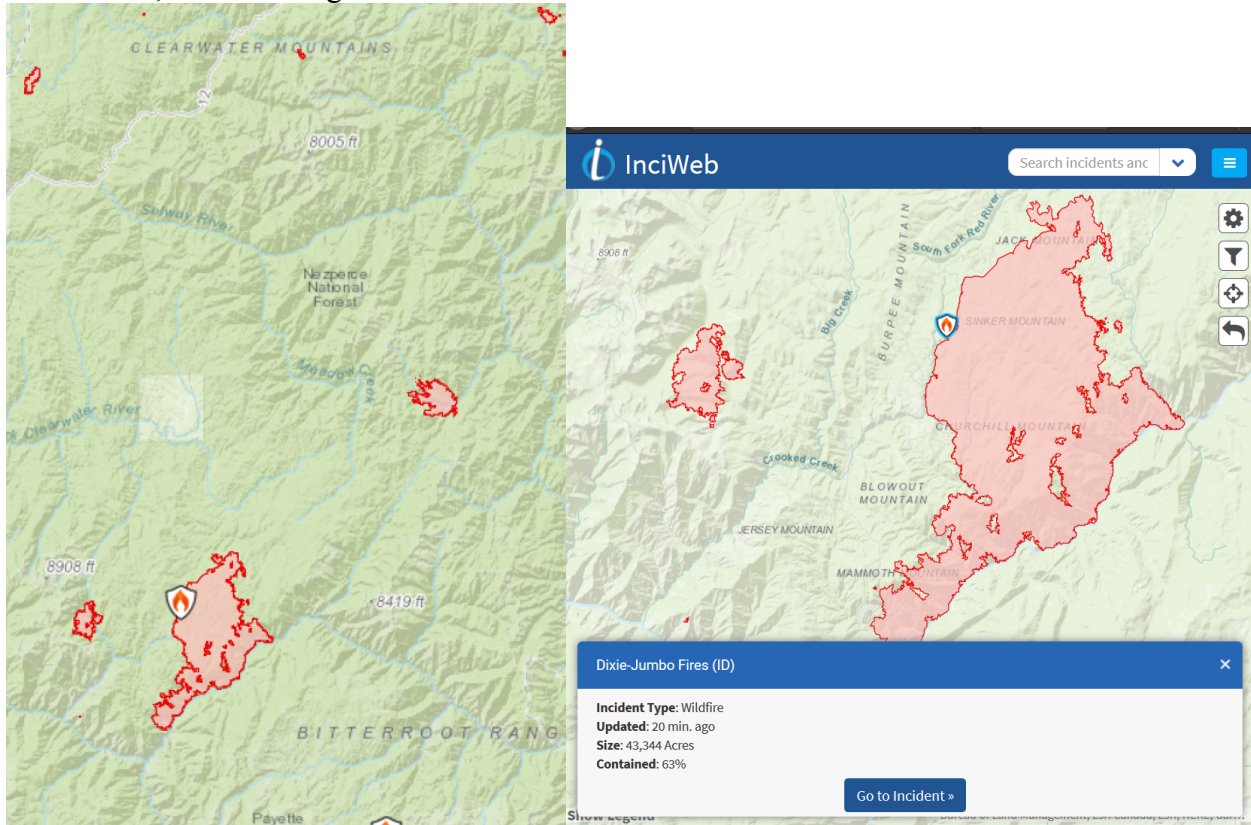


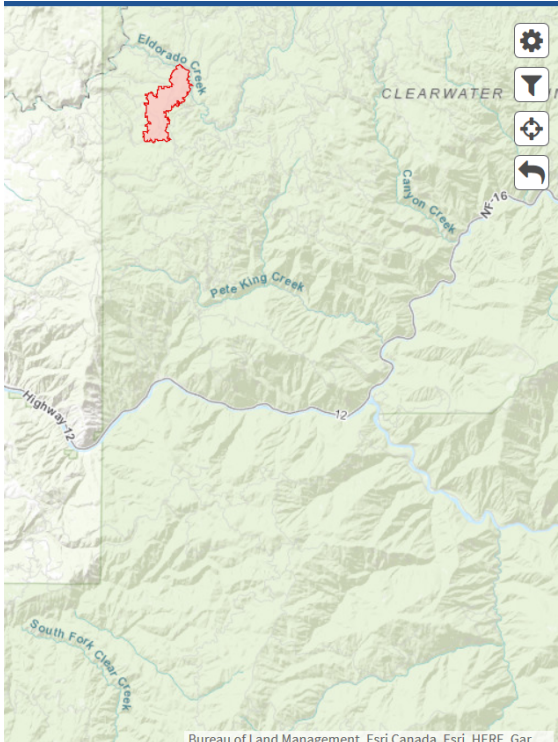
The Red Moose project would reduce fisher habitat as well. But, the Forest Service assumed no impacts on the presumption that the forest-plan standard for old growth was being met. *See* USDA Forest Service Red Moose decision memo p. 13. But, as one might glean from the old-growth section, this is not necessarily a reasonable presumption.

Across the region, and forest-wide, there has been no accounting with a consistent scientific metric that can calculate the true habitat lost. The Forest Service has no real idea about the abundance of the designated habitat proxy for fisher—Appendix N old growth (see that section).

Although the agency cited a 2017 USFWS status report on the fisher in the northern Rockies, we couldn't find this report on your website and thus the public review it. As discussed above, with no recent data on fisher populations, with no current idea on old growth, and with shifting metrics of the fisher habitat this agency has destroyed, it is doubtful that the 2017 USFWS report you cited, whatever it is, is operating with current information.

The Forest Service hasn't considered the forest-wide impact to fisher from fires. In the Clear Creek project, the Forest Service noted that several hundred acres of fisher habitat were lost from the Baldy Creek Fire and admits that fire can impact fisher habitat. Yet, forest-wide there are several fires burning. As of August 16, 2021, the Dixie-Jumbo Fires on the Nez Perce National Forest is 43,344 acres large. How much fisher habitat has that eliminated?





Roughly ten air miles north the Clear Creek Project, along Eldorado Creek there is also a fire. The InciWeb doesn't have information on the size of this fire like the Dixie-Jumbo fire. This fire is in an area where logging will also reduce fisher habitat. Yet, the Forest Service describes nor assesses either.

Given fisher home range sizes, this is relevant.

The Forest Service is also not taking a hard look at trapping impacts. Jones, (undated) recognizes the following:

Roads are directly correlated with trapper access, and consequently, fisher vulnerability. Even in areas where fishers cannot be legally trapped, trapping pressure for other furbearers (i.e., marten) may contribute significantly to fisher mortality. Roads bisecting or adjacent to preferred habitats (i.e., drainage bottoms) have the greatest potential of increasing a trapper's probability of encountering fishers."

And Witmer et al., 1998 state, "The range and population levels of the fisher have declined substantially in the past century, primarily the result of trapping pressure and habitat alteration through logging (Powell and Zielinski 1994)."

Heinemeyer and Jones, 1994 stated,

Fishers are susceptible to trapping, and are frequently caught in sets for other furbearers. Additionally, populations are vulnerable to trapping, as even light pressure may cause local extinction. Western fisher populations may have lower natality and higher natural mortality rates as compared to eastern populations. Consequently, western populations may be more susceptible to over-trapping. It has been suggested that incidental captures may limit population growth in some areas.

Starting with the relatively low numbers that the Nez Perce 2002 Monitoring report recognizes, cumulative impacts from trapping has been adding up in the past eighteen years. In 2019, after the last comment period on the draft SEIS, we have obtained information about trapping.

Trapping is allowed on the Nez Perce-Clearwater National Forest. IDFG has reported that, from 2012-2019, traps set for wolves have caught 56 fisher since 2013, 20 of whom died in the traps. *See* IDFG Non-target wolf trapping LICYEAR2013-2019 spreadsheet. The year that the Forest Service drafted the assessment, in the 2013-2014 season, IDFG reported that 22 fisher were trapped that season, 10 of whom died in the trap. While the trappers reporting these numbers indicated the balance was released, we don't know if trapping contributed to mortality shortly thereafter. Also, these are just the numbers reported, so we don't know if there were more unreported, either because trappers chose not to or did not check their traps. While we don't know where this trapping occurred, the Forest Service has recognized that the Nez Perce-Clearwater contains a lot of fisher habitat, so it follows that at least some of these numbers were likely from this forest. Also, it is very reasonably foreseeable that trapping is going to increase for several reasons. The first reason is that IDFG extended its wolf trapping season, so active traps will exist longer on the landscape, and these season modifications impact parts of both the Nez Perce and Clearwater National Forests. *See* IDFG 2020, compare with IDFG hunting units map (2020). The second reason is that trapping depends on access. As discussed above, roads create access for trappers, and in every alternative, logging levels are increasing, and to increase those logging levels the Forest Service will build roads, both temporary and permanent. Other new information that has arisen since the last comment period is Idaho's war on wolves, which will very likely lead to increased trapping (Oppie 2021); and a new study out in 2021 shows that fishers scavenge more than previously thought, especially in winter. Allen et al. 2021. This is problematic because trappers may set out traps near carcasses that can be wolf bait. *See* Idaho Administrative Procedure Act 13.01.

The Forest Service cannot assume that fisher populations are viable based on old data while the impacts of trapping and logging have been cumulatively adding up and the Forest Service has no recent population data. For the above reasons, the Forest Service has violated the National Environmental Policy Act and the forest plan. The agency has not taken a hard look at its current impacts or cumulative impacts to the fisher and its habitat.

Suggested remedies:

- 1) Choose the no-action alternative
- 2) Withdraw the project
- 3) Reanalyze impacts to the fisher, starting with a forest-wide population analysis on the fisher that is not based on proxy habitat or verify one model that relates to Appendix N old growth. Disclose GIS data, models, and parameters to the public can replicate the analysis. Finally, apply that model across all projects to gauge the habitat that has been lost.

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OLD GROWTH

Objectors submissions to the Forest Service regarding this timber sale discussed this issue in great detail (*see e.g.* FOC et al. previous objection at XXXI. FEIS Fails To Demonstrate Consistency With Forest Plan Standards Designed To Insure Viability Of Old Growth- And Snag-Dependent Wildlife Species; FOC/AWR DSEIS comments at 14-15; Harry Jagemon comments dated May 14, 2013 at 2, 12-13).

The FSEIS describes changes leading to Alternative C modification that note 183 acres previously slated for logging which were “removed due to further analysis which revealed presence of old growth.” Yet nothing in the FSEIS analysis discloses the full extent of such newly discovered old growth areas, presumably meeting old-growth criteria, which the FEIS did not recognize. Nor does the FSEIS disclose changes to project area or Old Growth Analysis Area acres of old growth. Both the FEIS and FSEIS show the same total acres of old growth—4,654. This makes no sense. However that fishy math **is** consistent with the confusion and obfuscations of the issue that the FOC et al. original objection identified.

In response to comments, the FSEIS states, “No old-growth harvest would occur in The Clear Creek Integrated Restoration project.” The FEIS states, “No old-growth habitat would be **regeneration** harvested” (emphasis added) and the FOC et al. original objection raised concerns about that statement, partially relating to the “unverified old growth” mentioned in the FEIS, which was again discussed in the FSEIS. In sum, the FS has not explained if or how it has determined that no areas slated for logging meet old growth criteria, which **must** be for Forest Plan compliance.

The Forest Plan requires:

Viable populations of old-growth-dependent species will be maintained. At least 10 percent of the forested acres across the Forest that are suitable old-growth habitat will be managed as old-growth habitat. This acreage will be distributed across the Forest in a way which assures that at least 5 percent of the forested acres within major prescription watersheds of 6,000 to 10,000 acres will be managed as old-growth habitat.

Provide management for minimum viable populations of old-growth and snag-

dependent species by adhering to the standards stated in Appendix N.

Similarly, the Forest Plan FEIS states:

In order to provide for minimum viable populations of the old-growth dependent wildlife species, at least 10 percent of the forested acres must provide old-growth habitat and half of this or 5 percent of the total forested acres must provide for old-growth habitat that is dispersed evenly across the Forest. All alternatives were constrained to meet these minimum management requirements.

The Forest Plan FEIS also acknowledges the high risk to wildlife species invoked by implementing the Forest Plan, even considering the plan's old-growth retention requirements:

As the quantity of old-growth habitat is reduced and as its distribution patterns and quality are altered, we expect to see **significant decreases in the total number of wildlife species and significant changes in species composition** of wildlife communities that are associated with these habitats. **In effect, an entire ecosystem will drastically change over time as old-growth forests are reduced to a minimum.** (Emphases added.)

Since that casts much doubt on the efficacy of Forest Plan standards for assuring viability for many Sensitive, ESA-listed, and Management Indicator Species (MIS) on the Nez Perce NF, it elevates the importance of both population trend monitoring (required by the Forest Plan) and maintaining an accurate forestwide old-growth inventory. Yet the FS has failed to monitor population trends, and it has no comprehensive inventory of old growth forestwide.

The Forest Plan Management Area 20 "Description" includes:

Management Area 20 is equally distributed across the nonclassified portion of the Forest. It is made up of forested lands in timber productivity classes 3, 4, 5, 6, and 7 and occurs on a variety of landtypes. Approximately half of the area has a timber condition class of overmature sawtimber (150 years or older). The remainder of the area is comprised of immature stands (40-80 years) that will provide for replacement old-growth habitat. These lands provide critical habitat for wildlife species dependent on old-growth forest conditions such as the pileated woodpecker, the pine marten, and the fisher.

Management Area 20 Goals include: "Provide 'suitable' habitat (existing and replacement) for old-growth-dependent wildlife species."

Management Area 20 Standards include:

Schedule no timber harvest in existing old-growth stands until decade 10. Schedule no timber harvest in replacement stands until decade 16.

Select, locate, and administer old-growth areas to protect them from firewood cutting.

Restrict or close all secondary collector and local roads after management activities cease in adjacent areas.

The Forest Plan Management Area 21 "Description" includes:

Management Area 21 consists of timber stands in timber productivity classes 3 and 4 that are old-growth, grand fir-Pacific yew vegetative communities that have been identified as moose winter range. These stands are generally located between the elevations of 4,000 to 6,000 feet on a variety of landtypes. These areas occur across the entire nonclassified portion of the Forest. These areas are key winter habitat for moose.

Management Area 21 Goals include:

Manage the grand fir-Pacific yew plant communities to provide for a continuing presence of Pacific yew "suitable" for moose winter habitat.

The goal for summer elk habitat in this management area is to manage 12,785 acres to achieve at least 75 percent of habitat potential; 31,425 acres to achieve at least 50 percent of habitat potential; and 518 acres to achieve at least 25 percent of habitat potential. Specific methods of how to achieve this will be determined on a site-specific basis during project planning (see Appendix B).

Management Area 21 Standards include:

Close all but specifically-identified roads during the fall and winter.

Restrict range improvements to areas where conifer and Pacific yew regeneration has been established.

The steep lands, greater than 35 percent slope, are "unsuitable" for timber management.

Schedule timber harvest only on the "suitable" lands, less than 35 percent slope, that do not require broadcast slash burning.

For those lands that are scheduled for harvest, harvest a maximum of 5 percent of Pacific yew stand per decade on a 210-year rotation.

Maintain at least 50 percent of the live Pacific yew components scattered throughout the unit in patches 1/4 to 1/2 acre in size.

The preferred harvest type includes patch clearcuts, individual tree selection, group selection, or shelterwood. Patch clearcuts should be no larger than 20 acres in size (5-10 acres preferred).

Maintain leave-strips between yew stands sufficient to provide travel corridors for moose.

Reforest to desired stocking levels either through planting or through natural regeneration to achieve 30 percent crown closure over 20 years for conifers, and 30 percent crown closure over 20-30 years for Pacific yew.

Meet established fishery/water quality objectives for all prescription watersheds as shown in Appendix A.

Planned ignitions, when within prescription, will be allowed to burn to enhance resource values. Generally, broadcast burning will not be prescribed. Do not slash Pacific yew except to provide room to machine pile. Slash piles should not be placed within patches of yew.

The EIS fails to demonstrate consistency with the above Forest Plan requirements.

The FS fails to perform a qualitative analysis of old growth in response to Forest Plan Appendix N Standards. These include:

Where available, stands should be at least 300 acres. Next best would be a core block of 150 acres with the remaining blocks of no less than 50 acres and no more than 1/2 mile away. If existing old-growth blocks are less than 100 acres, the stands between the old-growth blocks should be designated old-growth replacement. The entire unit consisting of old-growth blocks and replacement old growth should be managed as an old-growth complex. If the old-growth component is less than 50 percent of the complex, the complex should be considered replacement old growth. Within the old-growth complex, only the stands that meet old-growth criteria will be counted toward meeting the allocation for existing old growth. The replacement stands will be counted toward meeting the allocation for replacement old growth.

Ideally the perimeter to area ratio of old-growth blocks should be minimized. Linear strips at least 300 feet wide along streams are acceptable if more suitable sites are not available.

Where possible, roads should not be located through or adjacent to old-growth stands in order to reduce human disturbance, loss of snags to firewood cutters, windthrow, and micro-climate changes.

To increase the probability of species immigration and colonization of old-growth islands and to facilitate genetic interchange between isolated population demes, a system of corridors interconnecting old-growth islands is required. Because of

Forest direction to manage riparian areas to enhance riparian-dependent species and because the dendritic pattern of stream-side riparian zones readily facilitates connecting old-growth islands, riparian zones will serve as the principal means to provide interconnecting corridors. Corridors should be extensions of closed or nearly closed canopy of forest of sufficient width to resist blow-down.

Bush et al., 2007 (“Estimates of Old Growth for the Northern Region and National Forests”) states, “To remain current, FIA has started to re-measure 10% of its plots every year. As these re-measured plots accumulate, we will periodically update our FIA old-growth analysis and report.”

So the FS is capable—but apparently unwilling—to update FIA-based analyses such as the one the agency uses to claim consistency with the NPNF forest plan 10% old-growth standard.

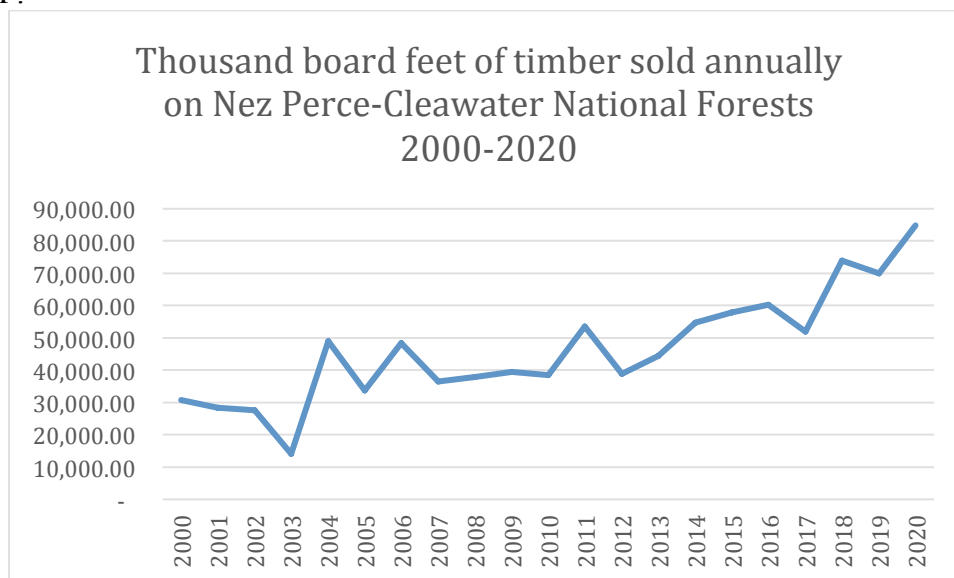
The NPCNF has no management strategy to recognize or conserve fire refugia. This is a problem during wildfire suppression operations, when burnouts might even target these locations.

The FS has failed to maintain a forestwide old-growth inventory consistent with its Forest Plan and has not conducted a landscape-scale analysis of these old-growth ecosystems, including cumulative effects from past, present, and foreseeable management actions in the project area and surrounding landscapes, considering cumulative effects on wildlife. These issues must be addressed before making a final decision.

The FS has not conducted a genuine analysis of cumulative effects on old growth or old-growth associated wildlife. The agency has been increasing the pace of issuing timber sales in recent years. On October 23, 2019, on Facebook, the FS posted the following:



The following chart is based off of Region One annual timber sale numbers for the NPCNF:⁴



⁴ See also R1 Timber sold annual report folder, which contains the chart and the support for the numbers used in the chart.

Despite doubling timber production from 2010 to 2020, the FS still uses Bush et al. 2010 FIA analysis as its forestwide estimate of old growth. Since 2010, however, old-growth has been targeted for logging on the Nez Perce National Forest. Also the FS has determined the 2010 figures include areas that don't meet forest-plan old growth standards. Field visits in at least one project—Dutch Oven Vegetation Management Project—demonstrated inaccuracies with this number. The 2010 data are stale, as supported by the following projects that post-date Bush et al. 2010:

- **Center Johnson:** Approved logging in forest plan OG (final EA p. 46).
- **Dutch Oven Vegetation Management Project:** Also used the Bush et al. 2010 analysis to identify old growth, but upon field visits to only some of what Bush et al. 2010 identified, the Forest Service found on-the-ground that the area did not in fact have old-growth characteristics, and even that one unit had been harvested. (Final EA May 2017 pdf p.168).
- **Windy Shingle:** Used the Bush et al. 2010 analysis as a starting point and approved logging in areas the Forest Service identified as old growth. (Windy Shingle wildlife report, pdf pp. 7, 119).
- **Iron Mountain:** Cited same 12.9% figure from 2010 (EA pdf p. 76), and likely approved logging in old growth (EA pdf p. 79 and DN-FONSI).
- **End of the World:** Used the Bush et al. 2010 analysis and proposed logging in “mature or overmature trees.” (See USDA Forest Service 2019, Nez Perce-Clearwater National Forest End of the World Environmental Assessment and draft Finding of No Significant Impact and accompanying Wildlife Report); “754 acres ...converted through regeneration harvest” (EA)
- **Hungry Ridge:** Proposed action to log in MA20 with a forest plan amendment, with up to 826 acres of forest-plan old growth (DEIS pdf p. 29).

Furthermore, each of the FIA plots have been re-visited since the 2010 report, as standard FIA procedure. The FS has not done analysis of updated FIA information.

The above timber sales represent cumulative effects on old growth that the agency has ignored and failed to consider or discuss under its duties under NEPA. As such, this is a failure to disclose high quality information to the public and a failure to take a hard look at cumulative impacts. Failing to address this issue is also a failure to demonstrate that the FS is complying with the forest-plan minimums for old growth, in violation of NFMA.

The Forest Plan and its FEIS cite no scientific basis for the forestwide 10% standard—an assumption that maintaining 10% would accomplish the task of meeting NFMA requirements for viability while the Forest is simultaneously being managed for high rates of timber production.

The FS lacks any established way of maintaining a publicly accessible inventory of old growth, and “recruitment” old growth. The latter category need only meet very lax criteria, and as far as we're aware, in the three-plus decades of Forest Plan implementation there's no documentation of the FS ever designating “recruitment” old growth which has eventually/later fully met existing old growth criteria. The recruitment

category is an empty promise to the public, to associated wildlife, and other old-growth values.

The FEIS states, “The Green et al. definitions are regarded as the “best available science” for the classification of old growth at the site-specific level.” However Jahn, 2012, whom the FS requested to assist the FS in understanding the intention of Forest Plan Appendix N direction, notes that Thomas, et al., 1979 “was considered the best science on the subject.” The Thomas et al., 1979 definition of an old-growth stand is:

...a stand that is past full maturity and showing decadence; the last stage in forest succession; the USDA Forest Service’s working definition for old-growth stands in the Blue Mountains is 37 live trees or more per hectare (15/acre) over 53-centimeter (21-in) d.b.h., 1.2 or more snags per hectare (0.5 snag/acre) over 53- centimeter (21-in) d.b.h., two or more canopy levels, heart rot and other signs of stand decadence present and obvious, overstory canopy closure of 10-40 percent, usually with a definite shrub-sapling layer with a canopy closure of over 40 percent, with understory and overstory canopy combined exceeding 70 percent, and logs obvious on the ground.

We note that definition is much more consistent with Appendix N criteria than is Green et al., 1992. The FS ignores an important difference between the Forest Plan Appendix N standards and the Green et al., 1992 criteria. Forest Plan Appendix N standards require “(a)t least 15 trees per acre greater than or equal to 21 inches diameter at breast height (DBH).” For every forest type of the Green et al., 1992 criteria) the required minimum number of trees/acre is less, or the required minimum diameter of large trees is lower—or both. Without disclosure or analysis, the FS is attempting brush off this significant difference. To be sure, there are problems with Forest Plan Appendix N standards that ought to be dealt with by a forest plan amendment. But the problems are with the very foundation of the quantitative habitat standard, as discussed in the original FOC/AWR objection to Clear Creek.

Finally we incorporate Juel (2021), into this objection.

Remedy:

1. Prepare alternatives that don’t require degrading the Forest Plan Appendix N old-growth standards. Base the “restoration project” alternatives upon “a landscape OG strategy” as recommended by the ID Team (110929ClearCreekIDTMeetingPrep.docx), one that is based on the best available science so that it genuinely maintains and restores habitat. Examples include Iverson et al. 1996; Harris, 1984; Zack et al., 1997; Hayes, 1980.
2. If the Forest Service is genuinely interested in making its old-growth standards consistent with the best available science, undertake an amendment process that would increase its forestwide and distribution standards to a level within the natural range of variability, resembling reference conditions.

3. Maintain a fully transparent, publicly accessible forestwide inventory of old growth which facilitates complete, independent forestwide mapping of all categories of old growth including existing/verified, unverified old growth, and recruitment old growth.

Old Growth Works Cited

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Juel, Jeff, 2021. Management of Old Growth in the U.S. Northern Rocky Mountains: Debasing the concept and subverting science to plunder national forests. Friends of the Clearwater policy paper, August 16, 2021 Draft.

R1 Timber sold annual report folder

Thomas, J.W. (tech ed.) 1979. Wildlife Habitats in Managed Forests, the Blue Mountains of Oregon and Washington. USDA Forest Service, Ag. Handbook No. 553. Wildl. Manag. Instit. Washington D.C.

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GRIZZLY BEAR

The FOC et al. 6/3/2013 comments discuss the grizzly bear on p. 5 asking, “Why wasn’t any mention of grizzlies made in the DEIS?” Since that time, much about the grizzly bear situation has changed on the NPCNF, but the FSEIS fails to consider it. Please see our comments on the Draft Forest Plan and its Draft EIS, for a discussion of best available science on the grizzly bear. We also transmitted to the Forest Planning Team a March 11, 2021 letter as supplemental comments on the 2019 Draft Forest Plan / Draft EIS, specific to the grizzly bear. We fully incorporate those comment letters into this objection.

The grizzly bear is a Threatened species under the Endangered Species Act (ESA). The FSEIS states:

The CCIR project area is within the Bitterroot ecosystem. Recent verified sightings of grizzly bears on the Forest have occurred; but have been determined to be transitory dispersing males and do not represent resident or breeding populations on the Forest. None of the verified observations fell within the CCIR project area. The USFWS has determined that grizzly bears may be present in the adjacent subwatershed, but this does not overlap with the project area. As a result the CCIR project is not considered an area where grizzly bears may be present. Therefore, the determination for the species in the CCIR Project is No Effect to the grizzly bear.

Given “that grizzly bears may be present in the adjacent subwatershed” and knowing the dispersal capability of grizzlies, it makes no sense to dismiss all possibility that grizzly bears could utilize habitat in the CCIR Project area at a time coincidental to project activities. The FS assertion that essentially nothing management could do in the project area would affect grizzly bears or their potential occupancy and recovery in the NPCNF and/or Bitterroot Ecosystem (BE) Recovery Zone is, of course, arbitrary and capricious.

The FSEIS states that the NPCNF “contributes habitat to the wolverine population in the Greater Yellowstone Ecosystem.” However, why this same ecological relationship doesn’t exist for the similarly wide-ranging grizzly bear is not explained.

Thus the FS demonstrates a complete lack of a strategy and recognition of best available science for helping to build a viable population of the grizzly bear in the BE and NPCNF. The FS has no strategy to provide habitat protections outside recovery zones which would allow for a larger protected zone and/or natural augmentation from outside BE.

FOC submitted a July 17, 2020 request to the FS under the Freedom of Information Act (FOIA), seeking documents relating to all known grizzly bear sightings or grizzly presence on the NPCNF subsequent to October 30, 2013. We incorporate all the documents we received in response to that FOIA, within this objection.

Since there is solid documentation of recent and ongoing grizzly bear occupancy in the Nez Perce and Clearwater National Forests, grizzly bear residency should be considered permanent.

Consultation on the 1987 Forest Plan is out of date, and formal consultation with the USFWS is needed in regards to this project.

Documents provided in response to the FOIA indicate a grizzly bear was confirmed in the White Bird area in 2019 and again in 2020, which means it likely dened in that vicinity. It was confirmed in the End Of The World project area of the NPNF's Salmon River Ranger District, which is not that far away from the CCIR project area considering known movement patterns of grizzly bears—especially males. The FOIA documents also include photos of a grizzly bear in the Newsome Creek area.

We note the FS has failed to regulate black bear baiting in the NPCNF, allowing the state of Idaho to be the sole oversight agency of this unethical practice on the Forests. In 2007, a grizzly bear was shot and killed at a black bear baiting station in the Kelly Creek watershed in the Clearwater National Forest. Given that the grizzly bear's habitat on the Clearwater NF was lethal to the only confirmed occurrence for over half a century, it's clear that FS management is preventing the grizzly population from recovering. All of this triggers a duty for the federal agencies to re-consult and find a way to reduce or eliminate this take of grizzlies under the ESA.

New information has arisen since the DSEIS comment period includes the state of Idaho's war on wolves, which will very likely lead to increased trapping (Oppie 2021) and increased risk to grizzly bears on the NPCNF.

It's well known that young female grizzly bears tend to establish home territories in close proximity to their mother's. Also, grizzly bears have a strong tendency to avoid highly roaded landscapes, which now effectively wall off the Bitterroot Ecosystem recovery zone from known female grizzly home ranges in other recovery areas. In contrast to the Bitterroot Ecosystem and the NPCNF as a whole, habitat for bears in other Recovery Areas is delineated by forest plans into Bear Management Units (BMUs) where total and open road densities are limited in order to reduce human caused bear mortality and increase habitat security. [See USDA Forest Service, 1995c (Flathead National Forest Amendment 19); also see USDA Forest Service, 2009d (Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones).]

So what would it take for the FS to institute BMUs and road density standards? In one of the documents received, the FS explains: "Bear Management Units have not been developed for the BE however the Recovery Plan identifies delineation of BMUs as a future task once home range size and habitat use data are available (USFWS 1996). Such data is currently unavailable for the BE because of the lack of resident grizzly bears." Also, "the definition of a population of grizzly bears (i.e. two or more reproductive females or one female reproducing during two separate years) in the Bitterroot Environmental Impact Statement (EIS) (Service 2000, pp. 3-14-15)."

In other words, female grizzly bears would have to migrate into the BE across perilous, roaded landscapes, find a mate, have cubs, and wait for the federal agencies to acknowledge their existence, determine home range size and gather habitat use data—all in order to earn habitat protections provided in other recovery zones.

The FS's downplaying the idea that incidences of grizzly bears on the NPCNF are evidence that they are part of "resident or breeding populations" misses the point. Grizzly bear habitat quality is still potentially outstanding, but only if strong steps are taken to remove the human impediments to natural recovery. Recovery of the grizzly bear requires its population to grow and its range expand, especially anticipating the impending risks of climate change. We not believe the grizzly bear needs to leap high arbitrary agency-established hurdles before adequate habitat protections are established.

Mattson (2021) is a report investigating grizzly bear recovery in the Bitterroot Ecosystem and NPCNF. At pp. 56 - 59 (7.c. Habitat Security on the Nez Perce-Clearwater National Forests) Mattson discusses road densities and core security in proposed BMUs for the NPCNF. Figure 25 shows the road density situation in the CCIR project area.

As Mattson (2021) explains, grizzly bear habitat quality in the Bitterroot Ecosystem is potentially outstanding, but strong steps are needed immediately to remove the human impediments to natural recovery. Recovery of the overall grizzly bear population in the lower 48 states requires its population to grow and its range expand, especially in anticipation of the impending risk of climate change.

Squires et al. (2013) noted that long-term population recovery of lynx and other species such as the grizzly bear requires maintenance of short and long-distance connectivity. Effective connectivity is not provided for under the Forest Plan.

Carroll et al. (2001b) state:

... the present distribution of the wolverine, like that of the grizzly bear, may be more related to regions that escaped human settlement than to vegetation structure.

The Analysis of the Management Situation Technical Report for Revision of the Kootenai and Idaho Panhandle Forest Plans (USDA Forest Service, 2003c) states:

Direct mortality (related to access) from trapping, legal hunting, and illegal shooting has impacted all wide-ranging carnivores (e.g. lynx, wolverine, grizzly and black bears, wolves)...

The effects to grizzly bears from the timber sale include potential disturbance or displacement due to human presence, road construction and use, motorized use and other mechanized equipment. The presence of these activities and the presence of roads leads grizzly bears to avoid otherwise suitable habitat.

In updating the consultation on forest plan impacts on grizzly bears, the FS should be identifying key habitat components for grizzly bears for prioritizing road density reductions (Proctor, et al., 2020) so populations can recover.

Proctor et al. (2017) is relevant to judging the trade-off between proposed "treatments" and habitat security for grizzlies, especially the hazards associated with road access.

Schwartz et al. (2010) noted that management for grizzly bears requires provisions for security areas and limits of road densities between security areas. Otherwise, grizzly bear mortality risks will be high as bears attempt to move across highly roaded landscapes to other security areas. The forest plan lacks direction regarding road densities located outside of and between security areas.

The FS is aware of the best programmatic agency direction it has adopted to date, that established in Flathead Forest Plan Amendment 19.⁵ It established Open Motorized Route Density (OMRD)/Total Motorized Route Density (TMRD)/Security Core metrics. These are based upon the scientific information concerning security from roads and road density requirements for grizzly bears as found in Mace and Manley, 1993 and Mace et al., 1996. Also see McLellan and Shackleton, 1988, and McLellan and Shackleton, 1989.

Reducing roads and therefore their impacts beyond what the FS seems willing would benefit not only grizzly bears, but most other natural aspects of the ecosystem, as the FS's Access Amendment Draft SEIS for the Cabinet-Yaak Recovery Area (USDA Forest Service, 2009d.) states:

- Alternative D Modified would convert the most roads and consequently would provide the highest degree of habitat security and a lower mortality risk to the **Canada lynx**. (P. 70.)
- Alternative D Modified would provide a higher degree of habitat security (for **gray wolves**) than Alternative E Updated... (P. 74.)
- Alternative D Modified ... could contribute to a cumulative increase in habitat security for **black-backed woodpeckers** (and **pileated woodpeckers**) because timber sales or other ground disturbing or vegetation management activities would be less likely to occur in Core Areas. Newly dead trees that support wood boring beetle populations would be less likely to be removed during vegetation management activities or by woodcutters. Alternative D Modified could provide slightly more secure habitat than Alternative E Updated. (P. 84, 112.)
- Alternative D Modified ... could contribute to a cumulative increase in habitat security because timber sales or other ground disturbing or vegetation management activities would be less likely to occur in Core Areas. Snags would be less likely to be removed during vegetation management activities or by woodcutters. Alternative D Modified could provide slightly more secure habitat (for **Townsend's big-eared bats, flammulated owls, fringed myotis bats**) than Alternative E Updated. (Pp. 85, 86, 95.)
- Alternative D Modified and Alternative E Updated provide different levels of habitat security (for **peregrine falcon, fisher, wolverine**) based on the relative amount of wheeled motorized vehicle access. (Pp. 87, 89, 91.)
- Alternative D Modified, which closes the most miles of road in suitable habitat, would be the preferred alternative for the western toad. (P. 101.)

⁵ Although that Forest Plan has been revised and the Amendment 19 direction replaced with weaker protections, this summer the District Court of Montana invalidated the Biological Opinion for the Flathead NF revised forest plan because this weakening of previous forest plan protection such as those represented by Amendment 19 was not properly considered.

- Alternative D Modified closes the most miles of road in suitable habitat and would provide the greatest benefits for the **goshawk**. (P. 103.)
- Alternative D Modified, which closes the most miles of road in suitable habitat, would be the best Alternative for **elk**. (P. 104.)
- Alternative E Updated would provide some security and reduced vulnerability (for **moose**), but not as much as Alternative D Modified. (P. 104.)
- Although Alternative D Modified and Alternative E Updated would benefit **mountain goats**, Alternative D Modified would improve security and reduce the risk of displacement more than Alternative E Updated. (P. 109.)
- Alternative D Modified would improve security (for **pine marten**) more than Alternative E Updated. (P. 110.)

We incorporate the documents “ECOS Conservation Online System-grizzly bear” and “Species Profile for Grizzly bear (*Ursus arctos horribilis*)” which help explain why the FSEIS’s “no effect” determination is wrong.

The FSEIS ignores the impacts of late-season snowmobile use on grizzly bear spring range, and the cumulative impacts on grizzly bears from human activities and habitat alternations on land of other ownerships, in violation of NEPA.

Remedy: Choose the No Action Alternative. Otherwise, amend the forest plan to include scientifically established grizzly bear security measures and conduct formal consultation with the USFWS.

Works cited for Grizzly Bear

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<https://doi.org/10.2192/URSUS-D-18-00016.2>

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USDA Forest Service, 1995c. Forest Plan Amendment #19. Allowable Sale Quantity and Objectives and Standards For Grizzly Bear Habitat Management Decision Notice. Flathead National Forest, February 1995.

USDA Forest Service, 2003c. TECHNICAL REPORT: Analysis of the Management Situation for Revision of the Kootenai and Idaho Panhandle Forest Plans. United States Department of Agriculture, Forest Service, Kootenai and Idaho Panhandle National Forests, March 2003

USDA Forest Service, 2009d. Draft Supplemental Environmental Impact Statement, Forest Plan Amendments for Motorized Access Management Within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones, Kootenai, Lolo, and Idaho Panhandle National Forests. April 2009.

WOLVERINE

The FOC et al. objection of the original ROD discussed wolverine issues (e.g., pp. 56, 140). Harry Jagemon’s DEIS comments discuss the wolverine (pp. 15-16).

The EIS doesn't disclose the FS's strategy for insuring viable populations of the wolverine. Wolverines in the project area or vicinity depend upon connectivity to other wolverines beyond the project vicinity to comprise a population of sufficient size to be viable. There is no viability analysis for NPCNF wolverines.

The FSEIS states, "Primary and maternal habitats are considered as important for the female wolverine, as these are likely habitats for denning and forage opportunities. The CCIR PA is not located in such habitat." Given this narrow interpretation of habitat use by the wolverine, it is somewhat surprising that the FSEIS still acknowledges the timber sale "May Impact Individuals or Habitat" of the wolverine.

Still, the FSEIS contains no analysis of direct, indirect, or cumulative impacts on the "Sensitive" wolverine.

The FS is ignoring much scientific information. For example, from Lukacs et al. (2020), published after the USFWS's listing denial, the scientists conclude:

Relatively few data exist to provide a clear understanding of whether the population distribution or status, or effects of purported threats on distribution or demographics, place the species at risk. No population monitoring program exists that is commensurate with the large scale at which the wolverine population of the western United States operates. **Given this lack of monitoring, significant changes to the population distribution or status could occur and go unnoticed for years. In addition, factors contributing to any such changes would not be discernable.** (Emphasis added.)

We incorporate, within this Objection, the two 60-day notices to sue under the ESA and the associated Complaints filed to challenge the USFWS's refusal to list the wolverine. Those filings discuss, among other points, the USFWS's arbitrary and capricious dismissal of other scientific information that must be considered as best available science.

The FSEIS cites an Inman model as representing best available science, but still downplays the possibility of the CCIR project area being important habitat for wolverine. However, Inman (2013) shows the NPCNF as largely primary habitat:

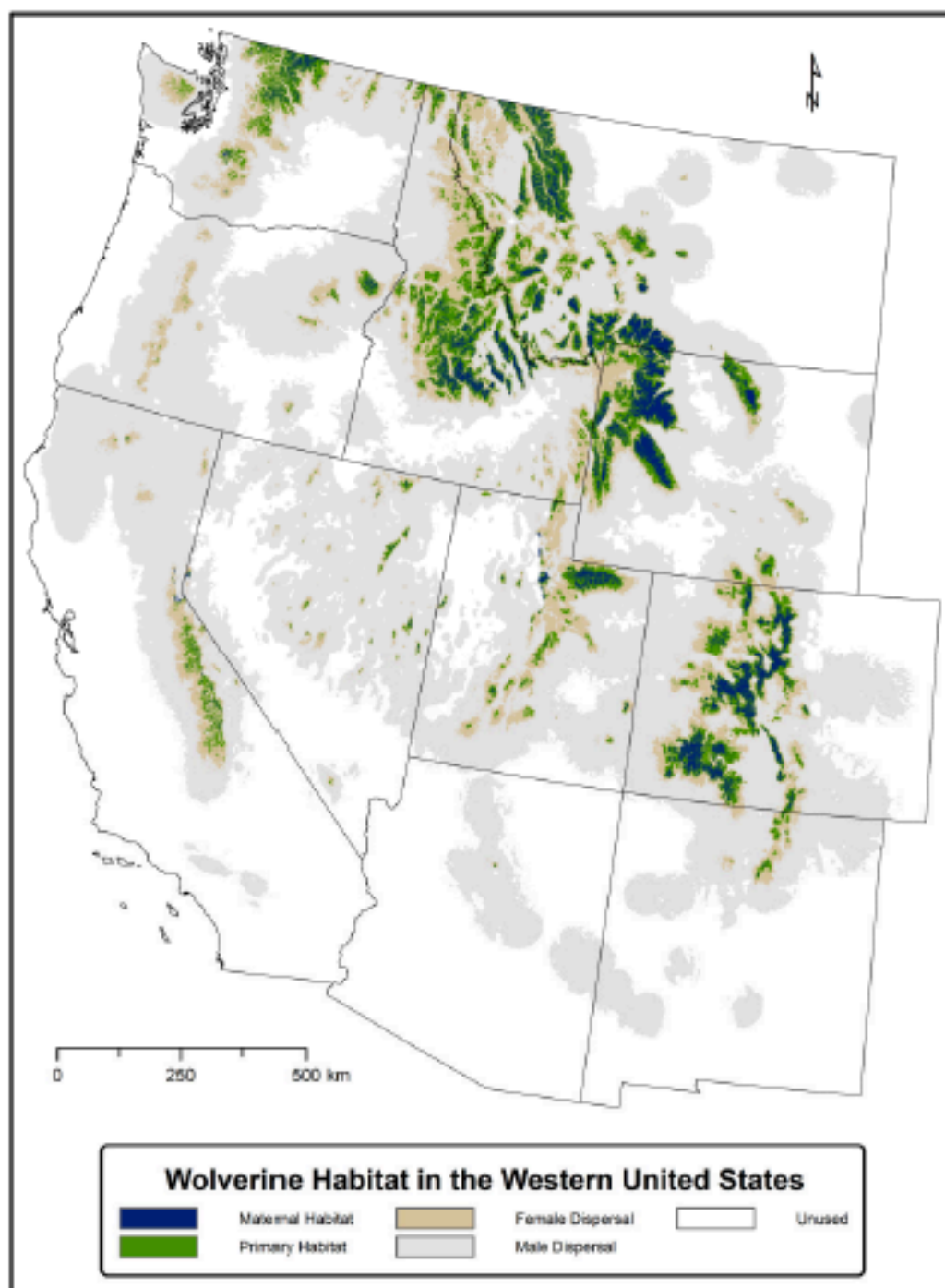


Figure 4. Areas of the western United States predicted to be maternal wolverine habitat (suitable for use by reproductive females), primary wolverine habitat (suitable for survival, i.e., use by resident adults), female dispersal habitat (suitable for relatively brief female dispersal movements), and male dispersal habitat (suitable for relatively brief male dispersal movements) based on resource selection function modeling developed with wolverine telemetry locations from the Greater Yellowstone Ecosystem, of Montana, Idaho, and Wyoming, USA, 2001–2010.

The above is similar to a figure in the research cited by the FSEIS (Inman, et al., 2012) which actually shows much of the NPCNF is largely primary or maternal denning habitat:

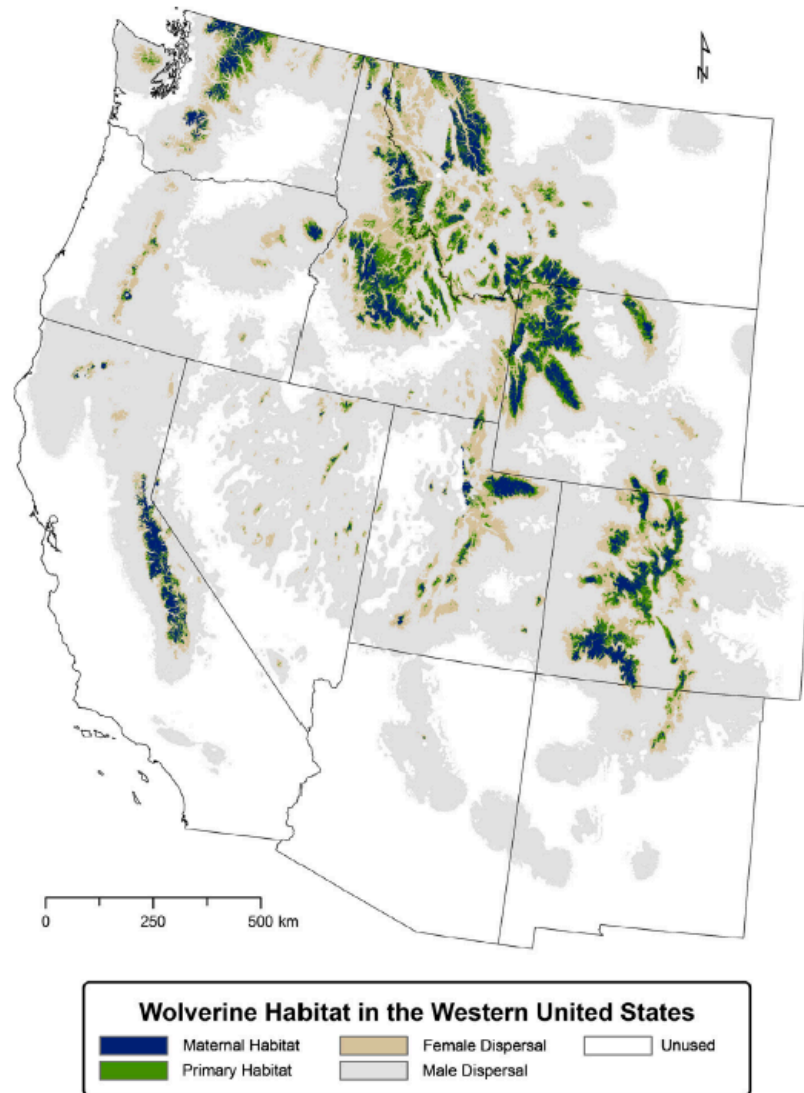


Fig. 2. Areas of the western United States predicted to be maternal wolverine habitat (suitable for use by reproductive females), primary wolverine habitat (suitable for survival, i.e., use by resident adults), female dispersal habitat (suitable for relatively brief female dispersal movements), and male dispersal habitat (suitable for relatively brief male dispersal movements) based on resource selection function modeling developed with wolverine telemetry locations in the Greater Yellowstone Ecosystem, of Montana, Idaho, and Wyoming, USA, 2001–2010.

Also, survey detection results from Lukacs et al. (2020) strongly suggest the NPCNF should be considered occupied habitat, as their Figure 2 map reveals (below).

The meaning of the FSEIS’s “dispersal” habitat is challenged based on Lukacs et al. (2020) detections of wolverines, and the studies by Inman (2013) and Inman et al. (2013).

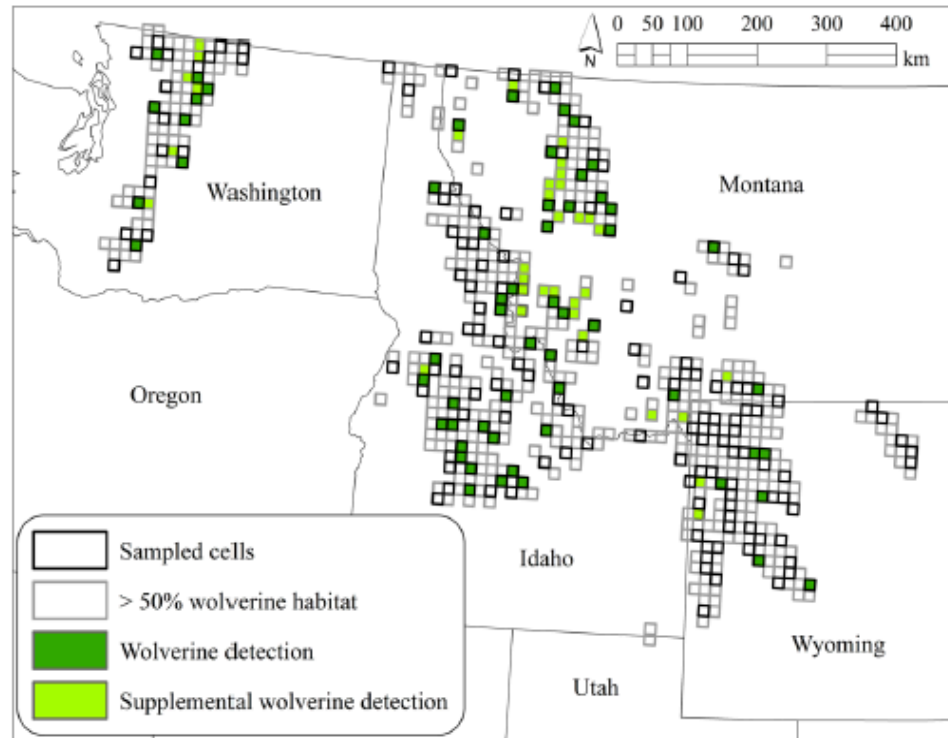


Figure 2. Wolverine detections across a 4-state area, USA, in winters 2016 and 2017.

Logging and road activities may affect wolverines; published, peer-reviewed research finds: “Roaded and recently logged areas were negatively associated with female wolverines in summer.” Fisher et al., 2013. The “analysis suggests wolverines were negatively responding to human disturbance within occupied habitat. The population consequences of these functional habitat relationships will require additional focused research.” Id.

Wolverines use habitats ranging from Douglas-fir and lodgepole pine forest to subalpine whitebark pine forest (Copeland et al., 2007). Lofroth (1997) in a study in British Columbia, found that wolverines use habitats as diverse as tundra and old-growth forest. Wolverine are also known to use mid- to low-elevation Douglas-fir forests in the winter (USDA Forest Service, 1993).

Aubry, et al. 2007 note that wolverine range in the U.S. had contracted substantially by the mid-1900s and that extirpations are likely due to human-caused mortality and low to nonexistent immigration rates.

May et al. (2006) cite: “Increased human development (e.g. houses, cabins, settlements and roads) and activity (e.g. recreation and husbandry) in once remote areas may thus cause reduced ability of wolverines to perform their daily activities unimpeded, making the habitat less optimal or causing wolverines to avoid the disturbed area (Landa & Skogland 1995, Landa et al. 2000a).”

Ruggiero, et al. (2007) state: “Many wolverine populations appear to be relatively small and isolated. Accordingly, empirical information on the landscape features that facilitate or impede immigration and emigration is critical for the conservation of this species.”

Roads result in direct mortality to wolverines by providing access for trappers (Krebs et al., 2007). Trapping was identified as the dominant factor affecting wolverine survival in a Montana study (Squires et al. 2007). Female wolverines avoid roads and recently logged areas, and respond negatively to human activities (Krebs et al., 2007)

Ruggiero et al. (1994b) recognized that “Over most of its distribution, the primary mortality factor for the wolverines is trapping.” Scrafford et al., 2018: state, “the presence of roads can be directly implicated in human-caused mortality (trapping) of this species. Trapping was identified as the dominant factor affecting wolverine survival in a Montana study (Squires et al. 2007).” Also, Carroll et al. (2001b) state, “The combination of large area requirements and low reproductive rate make the wolverine vulnerable to human-induced mortality and habitat alteration. Populations probably cannot sustain rates of human-induced mortality greater than 7–8%, lower than that documented in most studies of trapping mortality (Banci 1994, Weaver et al. 1996).” And the Analysis of the Management Situation Technical Report for Revision of the Kootenai and Idaho Panhandle Forest Plans (USDA Forest Service, 2003c) states, “Direct mortality (related to access) from trapping, legal hunting, and illegal shooting has impacted all wide-ranging carnivores (e.g. lynx, wolverine, grizzly and black bears, wolves)...” As with bear baiting and wolf trapping discussed elsewhere in this Objection, the FS has the authority to regulate such activities on national forest land. The agency is violating NEPA to pretend otherwise, and is short-changing the public owners of these forests by failing to act in our interest.

Ruggiero et al. (1994b) state, “Transient wolverines likely play a key role in the maintenance of spatial organization and the colonization of vacant habitat. Factors that affect movements by transients may be important to population and distributional dynamics.”

Results from Scrafford et al., 2018:

...show that roads, regardless of traffic volume, reduce the quality of wolverine habitats and that higher-traffic roads might be most deleterious. We suggest that wildlife behavior near roads should be viewed as a continuum and that accurate modeling of behavior when near roads requires quantification of both movement and habitat selection. Mitigating the effects of roads on wolverines would require clustering roads, road closures, or access management.”

Roads and human density are important factors influencing current wolverine distribution (Carroll et al. 2001b); and wolverine habitat selection is negatively correlated with human activity – including roads (Krebs et al. 2007). Wolverine occurrence has shown a negative relationship with road densities greater than 2.8 mi/mi² (1.7 km/km²) (Carroll et al. 2001b).

Krebs et al. (2007) state, “Human use, including winter recreation and the presence of roads, reduced habitat value for wolverines in our studies.”

Wisdom et al. (2000) state:

Carnivorous mammals such as marten, fisher, lynx, and wolverine are vulnerable to over-trapping (Bailey and others 1986, Banci 1994, Coulter 1966, Fortin and Cantin 1994, Hodgman and others 1994, Hornocker and Hash 1981, Jones 1991, Parker and others 1983, Thompson 1994, Witmer and others 1998), and over-trapping can be facilitated by road access (Bailey and others 1986, Hodgman and others 1994, Terra-Berns and others 1997, Witmer and others 1998).

...Snow-tracking and radio telemetry in Montana indicated that wolverines avoided recent clearcuts and burns (Hornocker and Hash 1981).

Copeland (1996) found that human disturbance near natal denning habitat resulted in immediate den abandonment but not kit abandonment. Disturbances that could affect wolverine are heli-skiing, snowmobiles, backcountry skiing, logging, hunting, and summer recreation (Copeland 1996, Hornocker and Hash 1981, ICBEMP1996f).

Carroll et al. (2001b) state, "...the present distribution of the wolverine, like that of the grizzly bear, may be more related to regions that escaped human settlement than to vegetation structure."

Wisdom et al. (2000) offered the following strategies:

- Provide large areas with low road density and minimal human disturbance for wolverine and lynx, especially where populations are known to occur. Manage human activities and road access to minimize human disturbance in areas of known populations.
- Manage wolverine and lynx in a metapopulation context, and provide adequate links among existing populations.
- Reduce human disturbances, particularly in areas with known or high potential for wolverine natal den sites (subalpine talus cirques).

The Analysis of the Management Situation Technical Report for Revision of the Kootenai and Idaho Panhandle Forest Plans (USDA Forest Service, 2003c) states, "Wolverine populations may have declined from historic levels, as a result of over-trapping, hunting, habitat changes, and intolerance to human developments. As the amount of winter backcountry recreation increases, wolverine den sites may become more susceptible to human disturbance."

Remedy: Select the No Action alternative. Alternatively, prepare an EIS that addresses the legal, scientific and analytical deficiencies identified above.

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GRAY WOLF

Harry Jagemon’s DEIS comments discuss the wolf (p. 21). Subsequent to the DSEIS comment period, in 2021 the state of Idaho passed legislation that would exponentially increase wolf killing, and with lethal results to other species. *See* the Earthjustice “Sixty-Day Notice of Intent to Sue to Remedy Violations of the Endangered Species Act in Idaho’s Authorization and Promotion of Increased Trapping and Snaring in Canada Lynx and Grizzly Bear Habitat,” to which FOC is a party, which explains the gory details of the state of Idaho’s wolf “management.”

The FEIS determined the CCIR timber sale activities “May Impact Individuals or Habitat...” However, the EIS doesn’t disclose the FS’s strategy and best available science for insuring viable populations of the gray wolf. The FEIS “The Pilot Rock wolf pack uses the Analysis Area. ...The Analysis Area provides a variety of suitable habitats for wolves and their prey.”

FOC transmitted to the Forest Planning Team a December 18, 2020 letter as supplemental comments on the 2019 Draft Forest Plan / Draft EIS, specific to the gray wolf. That comment letter responded to documents, from which the public learned the extent of the slaughter of wolves sanctioned and facilitated by the Idaho Department of Fish and Game (IDFG) and the federal Wildlife Services, at least some of which happening on national forest lands. We fully incorporate that comment letter into this objection.

We also incorporate the May 26, 2021 “Emergency Petition to Relist Gray Wolves (*Canis lupus*) in the Northern Rocky Mountains as an Endangered or Threatened ‘Distinct Population Segment’ Under the Endangered Species Act.”

Actions to kill wolves on national forest lands impacts other rare forest carnivores, the ecosystem, and public-land users who would rather experience seeing a wolf than have it killed. The FS has the authority and duty to protect the gray wolf, including creating protections and forest planning direction (amendment to the 1987 plan or in the revised forest plan.)

As indicated in the FSEIS:

(Elk calf) recruitment decreased from 27 calves per 100 cows (2006) down to 21 in 2008. The calf:cow ratio is an important indicator of population recruitment and long-term herd viability. A ratio of at least 25 calves to 100 cows is needed to offset natural mortality. Reasons for the decline are unclear but may be related to reductions in forage quality (poor condition of cows and low calf weights), high predation rates, less security area, and greater human disturbance and/or hunting pressure. The IDFG mentions that low calf recruitment is a concern in GMU 16 (IDFG 2019).

So the cow/calf ration decline is said to be at least partially due to predation. The Forest Service’s position on predation is found in the Moose Creek Ranger District’s 2021 Green Horse EA, which states, “Predator control is also mentioned, but this effort is outside of Forest’s management. ...The Idaho Department of Fish & Game would determine management actions on the wolf.” This is a cop-out and abrogation of FS management duties.

Remedy: Select the No Action alternative. Alternatively, prepare an EIS that addresses the legal, scientific and analytical deficiencies identified above.

CANADA LYNX

FOC/AWR DSEIS comments discuss Canada lynx (pp. 19-20). Also, please see our comments on the Draft Forest Plan and its Draft EIS, for a discussion of lynx and best available science (pp. 209-219).

The USFWS listed the Canada lynx as a “Threatened” species under the ESA in 2000 due to “lack of guidance for conservation of lynx and snowshoe hare habitat...” and subsequent authorization of actions that may cumulatively adversely affect the lynx.

The FSEIS states, “A portion of the CCIR project area overlaps a lynx analysis unit (LAU). The Biologist submitted the project area to the USFWS online review for listed species, and the response was there is no critical habitat in the Project Area. Therefore, the project would have No Effect to the Canada lynx.” Yet later the FSEIS hedges, acknowledging the CCIR Project “may affect, but not likely to adversely affect a lynx or its habitat.” Still, the FSEIS contains no supplemental analysis of direct, indirect, or cumulative effects. The FEIS states, “The analysis for direct, indirect, and cumulative effects on Canada lynx is the action area encompassing the project area (43,731 acres) and LAU 30 (24,057 acres). Modeled lynx habitat in this LAU

contains the following habitats: foraging (34%), denning (33%), unsuitable (2%), and non-lynx habitat (31%).”

The analyses in the FEIS, FSEIS, and Biological Assessment rely heavily upon the assumption that the Nez Perce National Forest is unoccupied except for “transient” individuals. We note that the term “transient” has no traction under the ESA—that is a meaningless concept cooked up by federal agencies to downplay impacts of federal actions and avoid making difficult decisions to protect habitat rather than rubber stamp industrial resource extraction activities.

The Proposed Action for the NPNF Salmon River Ranger District’s End Of The World project acknowledges, “There have been two documented sightings within the project area near Goodwin Meadow (2002) and Schwartz Meadow (2001) along the Grangeville Salmon Road.” The End of the World project area is not so far from the CCIR project area to preclude lynx from being here.

A big problem with the Forest Plan, including the Northern Rockies Lynx Management Direction (NRLMD) is that it allows with few exceptions the same level of industrial forest management activities that occurred prior to Canada lynx listing under the ESA. The FS approval and implementation of the NRLMD is arbitrary and capricious, violates NEPA’s hard look requirement and scientific integrity mandate and fails to apply the best available science necessary to conserve lynx. For example, the NRLMD contains no protection or standard for conservation of winter lynx habitat (old growth forests).

The FS doesn’t disclose if snowshoe hare occurrence is documented determined in the CCIR project area.

More often than not, when the FS conducts logging projects in Lynx Analysis Units (LAUs), surveys of stands for lynx habitat result in less suitable habitat than previously assumed. That is the case for the CCIR project, not surprisingly. The FS needs to step back and consider the likelihood that its range-wide Canada lynx suitable habitat estimations and assumptions for the NRLMD are too high.

Best available science demonstrates that lynx travel between areas of high hare densities but tend to avoid low cover areas in winter.

The FS doesn’t analyze and disclose cumulative impacts of recreational activities on lynx, such as snowmobiles. USDA Forest Service, 2017g states, “The temporal occurrence of forest uses such ... winter (skiing and snowmobiling) ... may result in a temporary displacement of lynx use of that area...”

The EIS doesn’t analyze and disclose the cumulative effects on Canada lynx from trapping or from use of the road and trail networks in the project area. The NPNF Salmon River Ranger District’s Hungry Ridge FEIS states, “Road construction has impacted wildlife security, making ...lynx ...more vulnerable to hunting and trapping mortality. Additionally, the wide-spread availability and use of off-road vehicles has resulted in a reduction in wildlife security.”

Lynx are highly mobile and generally move long distances [greater than 60 mi. (100 km.)]; they disperse primarily when snowshoe hare populations decline; subadult lynx disperse even when prey is abundant, presumably to establish new home ranges; and lynx also make exploratory movements outside their home ranges. 74 Fed. Reg. at 8617. The contiguous United States is at the southern edge of the boreal forest range, resulting in limited and patchy forests that can support snowshoe hare and lynx populations.

Lynx subsist primarily on a prey base of snowshoe hare, and survival is highly dependent upon snowshoe hare habitat, forest habitat where young trees and shrubs grow densely. In North America, the distribution and range of lynx is nearly “coincident” with that of snowshoe hares, and protection of snowshoe hares and their habitat is critical in lynx conservation strategies.

Squires et al. (2013) noted that long-term population recovery of lynx, as well as other species as the grizzly bear, require maintenance of short and long-distance connectivity. The importance of maintaining lynx linkage zones is also recognized by the FS's Lynx Conservation Assessment and Strategy (LCAS) which stresses that landscape connectivity should be maintained to allow for movement and dispersal of lynx.

Squires et al. (2013) noted in their research report that some lynx avoided crossing highways; in their own report, they noted that only 12 of 44 radio-tagged lynx with home ranges including 2-lane highways crossed them.

The current best science indicates that lynx winter foraging habitat is critical to lynx persistence (Squires et al. 2010), and that this habitat should be “abundant and well-distributed across lynx habitat.” (Squires et al. 2010; Squires 2009.) Existing clearcuts not yet recovered are likely to be avoided by lynx in the winter. (Squires et al. 2010; Squires et al. 2006a.)

Lynx winter habitat, provided only in older, multi-storied forests, is critical for lynx preservation. (Squires et al. 2010.) Winter is the most limiting season for lynx in terms of resource use; starvation mortality has been found to be the most common during winter and early spring. (Squires et al. 2010.) Prey availability for lynx is highest in the summer. (Squires et al. 2013.)

Openings, whether in uneven-aged management such as the proposed “variable density thinning” or with the proposed “regeneration” (aka clearcut or modified clearcut) logging, remove lynx winter travel habitat on those affected acres, since lynx avoid such openings. (Squires et al. 2010.)

Squires et al., 2010 reported that lynx winter habitat should be “abundant and spatially well-distributed across the landscape.” Those authors also note that in heavily managed landscapes, retention and recruitment of lynx habitat should be a priority.

The LCAS (Ruediger et al. 2000) recommends agencies retain future options until conclusive information is developed concerning lynx management; that is, err on the side of maintaining and restoring habitat for lynx and their prey. To err on the side of caution, the FS would retain all remaining stem exclusion forests for recruitment into lynx winter habitat, so that this key habitat would more closely resemble historic conditions.

The LCAS notes that lynx seemingly prefer to move through continuous forest (1-4); lynx have been observed to avoid large openings, either natural or created (1-4); opening and open forest areas wider than 650 feet may restrict lynx movement (2-3); large patches with low stem densities may be functionally similar to openings, and therefore lynx movement may be disrupted (2-4). Squires et al. 2006a reported that lynx tend to avoid sparse, open forests and forest stands dominated by small-diameter trees during the winter. Squires et al. 2010 again reported that lynx avoid crossing clearcuts in the winter; they generally avoid forests composed of small diameter saplings in the winter; and forests that were mechanically thinned were generally avoided in the winter.

Squires et al. 2010 show that the average width of openings crossed by lynx in the winter was 383 feet, while the maximum width of crossed openings was 1240 feet.

And scientific findings since the Forest Plan was amended by the NRLMD call into question much of its direction. This creates a scientific controversy the FS fails to resolve, and in fact it essentially ignores it.

For one, Kosterman, 2014 found that 50% of lynx habitat must be mature undisturbed forest for it to be optimal lynx habitat where lynx can have reproductive success and no more than 15% of lynx habitat should be young clearcuts, i.e. trees under 4 inches dbh. Young regenerating forest should occur only on 10-15% of a female lynx home range, i.e. 10-15% of an LAU. This renders inadequate the agency's assumption in the Forest Plan/NRLMD that 30% of lynx habitat can be open, and that no specific amount of mature forest needs to be conserved. Kosterman, 2014 demonstrates that Forest Plan/NRLMD standards are not adequate for lynx viability and recovery.

Also, the Forest Plan essentially assumes that persistent effects of vegetation manipulations other than regeneration logging and some intermediate treatments are essentially nil. However, Holbrook, et al., 2018 "used univariate analyses and hurdle regression models to evaluate the spatio-temporal factors influencing lynx use of treatments." Their analyses "indicated ...there was a consistent cost in that lynx use was low up to ~10 years after **all silvicultural actions.**" (Emphasis added.) From their conclusions:

First, we demonstrated that lynx clearly use silviculture treatments, but there is a ~10 year cost of implementing any treatment (thinning, selection cut, or regeneration cut) in terms of resource use by Canada lynx. This temporal cost is associated with lynx preferring advanced regenerating and mature structural stages (Squires et al., 2010; Holbrook et al., 2017a) and is consistent with previous work demonstrating a negative effect of precommercial thinning on snowshoe hare densities for ~10 years (Homyack et al., 2007). Second, if a treatment is implemented, Canada lynx used thinnings at a faster rate post-treatment (e.g., ~20 years posttreatment to reach 50% lynx use) than either selection or regeneration cuts (e.g., ~34–40 years post-treatment to reach 50% lynx use). Lynx appear to use regeneration and selection cuts similarly over time suggesting the difference in vegetation impact between these treatments made little difference concerning the potential impacts to lynx (Fig. 4c). Third, Canada lynx tend to avoid silvicultural treatments when a

preferred structural stage (e.g., mature, multi-storied forest or advanced regeneration) is abundant in the surrounding landscape, which highlights the importance of considering landscape-level composition as well as recovery time. For instance, in an area with low amounts of mature forest in the neighborhood, lynx use of recovering silvicultural treatments would be higher versus treatments surrounded by an abundance of mature forest (e.g., Fig. 3b). This scenario captures the importance of post-treatment recovery for Canada lynx when the landscape context is generally composed of lower quality habitat. Overall, these three items emphasize that both the spatial arrangement and composition as well as recovery time are central to balancing silvicultural actions and Canada lynx conservation.

So Holbrook et al., 2018 contradicts Forest Plan assumptions that clearcuts can be considered useful lynx habitat as early as 20 years post-logging.

Results of a study by Vanbianchi et al., 2017 also conflict with Forest Plan/NRLMD assumptions: “Lynx used burned areas as early as 1 year postfire, which is much earlier than the 2–4 decades postfire previously thought for this predator.” The NRLMD erroneously assumes clearcutting/regeneration logging have basically the same temporal effects as stand-replacing fire as far as lynx re-occupancy.

Kosterman, 2014, Vanbianchi et al., 2017 and Holbrook, et al., 2018 demonstrate that Forest Plan direction is not adequate for lynx viability and recovery.

Remedy: Select the No Action Alternative. Alternatively, prepare an EIS which addresses the scientific and analytical deficiencies noted above.

Works cited for Canada lynx

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VIABILITY

The FOC/AWR et al. original objection discusses viability in several places (e.g., 60-64, 72)

The Forest Plan requires the FS to “Maintain viable populations of existing native and desirable non-native vertebrate wildlife species.” The Forest Plan defines “viable population” as “A population which has adequate numbers and dispersion of reproductive individuals to ensure the continued existence of the species population in the planning area.”

Forest Plan Chapter V cites a “NFMA Requirement 36 CFR 219.19(6)” in regards to “Actions, Effects, or Resources to be Measured: Population trends of indicator species—wildlife and fish.”

36 CFR 219.19, as cited in the Forest Plan, states:

Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area.

The NPCNF’s End Of The World Wildlife Specialists Report acknowledges:

The National Forest Management Act (NFMA), requires the Forest Service to manage fish and wildlife habitat “to maintain viable populations of existing native and desired non-native vertebrate species in the planning area” (36 CFR 219.19). Management indicator species (MIS) are designated as surrogates for other species with similar life histories or habitat requirements in order to assess the effects of management activities.

The Nez Perce Forest Plan includes a Goal to: “Provide and maintain a diversity and quality of habitat to support viable populations of native and desirable non-native wildlife species.”

The Forest Plan defines Indicator Species as “Species identified in a planning process that are used to monitor the effects of planned management activities on viable populations of wildlife and fish, including those that are socially or economically important.” Indicator species are also known as Management Indicator Species (MIS). By including MIS population trend monitoring requirements in the Forest Plan, the FS acknowledged, wisely, that it needed to verify its assumption that allowing old-growth habitat to be reduced to 10% forestwide (a level well below the NRV)—assures viability of such species. The FS has failed to meet its MIS monitoring commitments. The FS has also failed to verify its minimum habitat old-growth MIS assumption.

Forest Plan Appendix N also explains the basis for the use of old-growth MIS as a proxy for viability of other species associated with old growth:

Old-growth indicator species are those species of wildlife that are dependent on or that find optimum habitat in old-growth stands for at least part of their life cycle. It is assumed that if the requirements of these species are met, the requirements of other old-growth associated species will be satisfied.

In other words, if viability is not being assured for the old-growth MIS, it is also not being assured for the Sensitive, Threatened, and Endangered species that fulfill important life history needs by utilizing key old-growth forest attributes.

MIS population trend monitoring is an important mechanism upon which the FS’s forest plan management assumptions rely upon to insure old-growth associated wildlife viability. Without such trend data, the FS is unable to apply “adaptive management” to change its management of the forest plan habitat standards turn out to be insufficient for maintaining viability. Therefore the FS is also unable to provide an adequate cumulative effects analysis of its management, as required by NEPA.

Specifically for MA 20 and MA 21, the Forest Plan states:

The monitoring **requirements** from Chapter V that are applicable to Management Area 20 are: 1d, 1e, 1f, 1h, 1i, 1j, 2a, 2d, 2g, 2h, 2i, 2j, 2k, 4, 5, 6, 7, 10, 11. The procedures outlined in Chapter V will be followed to evaluate the data gathered during monitoring.

The monitoring **requirements** from Chapter V that are applicable to Management Area 21 are: 1d, 1e, 1f, 1h, 1i, 1j, 2a, 2d, 2g, 2h, 2i, 2j, 2k, 4, 5, 6, 7, 10, 11. The procedures outlined in Chapter V will be followed to evaluate the data gathered during monitoring.

(Emphases added.) The FS has failed to adequately monitor population trends of old-growth MIS and other old-growth associated wildlife. The Committee of Scientists (1999) state:

Habitat alone cannot be used to predict wildlife populations... The presence of suitable habitat does not ensure that any particular species will be present or will reproduce. Therefore, **populations of species must also be assessed and continually monitored.** (Emphasis added.)

The Committee of Scientists (1999) report stresses the importance of monitoring as a necessary step for the FS's overarching mission of sustainability: "Monitoring is the means to continue to update the baseline information and **to determine the degree of success in achieving ecological sustainability.**" (Emphasis added.) The Committee of Scientists (1999) provide still more emphases on the importance of monitoring:

The proposal is that the Forest Service monitor those species whose status allows inference to the status of other species, are indicative of the soundness of key ecological processes, or provide insights to the integrity of the overall ecosystem. This procedure is a necessary shortcut because monitoring and managing for all aspects of biodiversity is impossible.

No single species is adequate to assess compliance to biological sustainability at the scale of the national forests. Thus, several species will need to be monitored. The goal is to select a small number of focal species whose individual status and trends will collectively allow an assessment of ecological integrity. That is, the individual species are chosen to provide complementary information and to be responsive to specific conservation issues. Thus, the Committee proposed for consideration a broad list of species categories reflecting the diversity of ecosystems and management issues within the NFS.

USDA Forest Service, 1987d states:

Defining viable populations and assessing diversity are difficult tasks in the time frame of the Forest Plan. The wildlife and fisheries section of the Forest Service Handbook on Planning (FSH 1902.12) defines a viable population as one that "consists of the number of individuals, adequately distributed throughout their range, sufficient to perpetuate their long-term existence in natural self-sustaining populations." Shaffer (1981) refines this definition by saying a minimum viable population is one that can withstand these environmental changes and have a 99 percent chance of surviving 1000 years. The terms viable, minimum viable and threshold level are often used interchangeably in relation to population levels. I prefer to distinguish between viable and minimum viable populations and consider a minimum viable population as a population at the threshold level of viability. Above the threshold the population is viable, below it isn't.

Salwasser and Hanley (1980) also list five factors that largely determine population viability. These factors are:

1. population size and density;
2. reproductive potential;
3. dispersal capability
4. competitive capability; and
5. habitat characteristics.

(T)here are some wildlife species that are very sensitive to Forest activities and development such as timber sales, road construction, and oil, gas and mineral development. ...Maintaining viable populations of these species will require special consideration. These species can be lumped into three categories:

1. endangered, threatened or sensitive species
2. old-growth dependent species; and
3. snag dependent species.

The FS says a viable population is one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. The FS must address issues consistent with best available scientific information, such as the “estimated numbers”, minimum number of reproductive individuals of each species, and population dynamics.

Traill et al., 2010 and Reed et al., 2003 are published, peer-reviewed scientific articles discussing what constitutes a minimum viable population. The FS does not identify best available scientific information that provides scientifically sound, minimum viable populations for any species.

The fact that the Nez Perce NF has not monitored the population trends of its MIS as required by the Forest Plan bears more discussion. Considering potential difficulties of using population viability analysis at the project analysis area level (Ruggiero, et al., 1994a), the cumulative effects of carrying out multiple projects simultaneously across the Forest makes it imperative that population viability be assessed at least at the forest-wide scale (Marcot and Murphy, 1992). Also, temporal considerations of the impacts on wildlife population viability from implementing something with such long duration as a Forest Plan must be considered (*Id.*) but the FS has not done this either. It is also of paramount importance to monitor population trends (which the FS promised the public it would do during development of the Forest Plan) during Forest Plan implementation in order to validate assumptions used about long-term species persistence i.e., population viability (Marcot and Murphy, 1992; Lacy and Clark, 1993).

Schultz, 2010 criticizes Forest Service wildlife analyses based primarily upon habitat availability, because habitat alone is insufficient for understanding the status of populations. (See also Noon et al., 2003; Committee of Scientists, 1999.). Schultz, 2010 recommendations call for peer review of large-scale assessments and project level management guidelines, and for adoption of robust, scientifically sound monitoring and measurable objectives and thresholds for maintaining viable populations of native species.

Mills, 1994 also criticizes the FS’s use of the term “viable” while only referring to habitat characteristics while ignoring population dynamics. Population dynamics refers to persistence of a population over time—which is key to making predictions about population viability. Mills, 1994 explains the range of parameters that must be used to make a scientifically sound assessment of wildlife species viability, including assessing population size, population growth rate, and linkages to other populations. Ruggiero, et al. (1994a) also point out that a sound population viability analysis must utilize measures of population dynamics. The FS fails to consider best available science on population dynamics.

In the absence of meaningful thresholds of habitat loss and no monitoring of wildlife populations at the Forest level, projects will continue to degrade wildlife habitat across the Forest over time. (See also Schultz 2012.). The FS would never be able to detect the likelihood of complete extirpation of any wildlife species, using such methodology.

The FS relies upon Region-wide database analyses such as FIA or upon analyses by Samson to conclude that species viability is assured for various wildlife species of concern on the NPCNF. However, those reports have not been subject to scientific peer review and thus fail to meet the best available science standard. The Samson reports rely upon the databases of outdated, unreliable information as its quantitative source. The FS does not address the age and reliability of the data.

The FS tends to claim that population viability for some species (pileated woodpecker, goshawk, fisher and pine marten) has been addressed at the Regional level by Samson (2006b), who concluded well-distributed habitats exist in Region 1 and these habitats are present at levels well in excess of the amounts required to support minimum viable populations.

The FS fails to address the fact that Sampson's analyses are about as old as a Forest Plan was designed to last, and who knows how old the data are that he used in his analyses. Samson did not evaluate long-term viability for the fisher and marten, but he did do so for the goshawk, pileated woodpecker, flammulated owl and black-backed woodpecker. Sampson concluded that "In regard to long-term viability, this conservation assessment has found that long-term habitat conditions in terms of Representativeness, Redundancy, and Resiliency are "low" for all species." The FS must explain Sampson's long-term viability conclusions. In his analysis, Sampson merely uses home range size for each species and makes assumptions of overlap in ranges of males and females. Home range size is then multiplied by the effective population size (n_e - a number that includes young and non-breeding individuals - Allendorf and Ryman 2002) and this is projected as the amount of habitat required to maintain a minimal viable population in the short-term. This simplistic approach ignores a multitude of factors and makes no assumptions about habitat loss or change over time. For the fisher and marten, Samson uses a "critical habitat threshold" as calculated in another publication (Smallwood 2002).

There are several problems with such an approach and the risk to the species would be extremely high if any of the species ever reached these levels in the Northern Region. Surely, all six species would be listed as endangered if this was to occur and the probabilities for their continued existence would be very low. There is also no way that National Forest Management Act (NFMA) and Endangered Species Act (ESA) requirements could be met of maintaining species across their range and within individual National Forests with such an approach. Mills (2007) captured the futility of such approach in his book on Conservation of Wildlife Populations: "MVP is problematic for both philosophical and scientific reasons. Philosophically, it seems questionable to presume to manage for the minimum number of individuals that could persist on this planet. Scientifically, the problem is that we simply cannot correctly determine a single minimum number of individuals that will be viable for the long term, because of inherent uncertainty in nature and management..."

Samson also admits that “Methods to estimate canopy closure, forest structure, and dominant forest type may differ among the studies referred to in this assessment and from those used by the Forest Service to estimate these habitat characteristics” and that “FIA sample points affected within the prior 10 years by either timber harvest or fire are excluded in the estimates of habitat for the four species” and finally that “FIA does not adequately sample rare habitats”. This is especially concerning given the reliance on the FIA queries to identify suitable habitat and the fact that the data used in the analysis is now likely at least 20 years old. There have been more wildfires in this time frame, and more large timber sales.

Thus, the short-term viability analysis is scientifically unsound and it is very doubtful it could sustain scientific peer review. Schultz (2010) captured this sentiment in her critique: “some interviewees also thought the work should be peer reviewed, especially if it was conducted by USFS management, and several were skeptical that it would survive such review.”

Assuring viability also means addressing the issue of fragmentation, road effects, and past logging on wildlife species’ habitat. Viability is only assured if individuals of a species can survive migration and dispersal for genetic diversity. The Forest Plan lacks meaningful direction maintaining landscape connectivity for wildlife. Lehmkuhl, et al. (1991) state:

Competition between interior and edge species may occur when edge species that colonize the early successional habitats and forest edges created by logging (Anderson 1979; Askins and others 1987; Lehmkuhl and others, this volume; Rosenberg and Raphael 1986) also use the interior of remaining forest (Kendeigh 1944, Reese and Ratti 1988, Wilcove and others 1986, Yahner 1989). Competition may ultimately reduce the viability of interior species’ populations.

Microclimatic changes along patch edges alter the conditions for interior plant and animal species and usually result in drier conditions with more available light (Bond 1957, Harris 1984, Ranney and others 1981).

Fragmentation also breaks the population into small subunits, each with dynamics different from the original contiguous population and each with a greater chance than the whole of local extinction from stochastic factors. Such fragmented populations are metapopulations, in which the subunits are interconnected through patterns of gene flow, extinction, and recolonization (Gill 1978, Lande and Barrowclough 1987, Levins 1970).

In terms of quality of habitat, the continued fragmentation of the NPCNF is a major ongoing concern. It is documented that edge effects occur 10-30 meters into a forest tract (Wilcove et al., 1986). The size of blocks of interior forest that existed historically before management (including fire suppression) was initiated must be compared to the present condition. USDA Forest Service, 2004a states:

Forested connections between old growth patches ... (widths) are important because effective corridors should be wide enough to “contain a band of habitat unscathed by edge effects” relevant to species that rarely venture out of their preferred habitats (Lidicker and Koenig 1996 and Exhibit Q-17).

Timber harvest patterns across the Interior Columbia River basin of eastern Washington and Oregon, Idaho, and western Montana have caused an increase in fragmentation of forested lands and a loss of connectivity within and between blocks of habitat. This has isolated some wildlife habitats and reduced the ability of some wildlife populations to move across the landscape, resulting in long-term loss of genetic interchange (Lesica 1996, U.S. Forest Service and Bureau of Land Management 1996 and 1997).

Harvest or burning in stands immediately adjacent to old growth mostly has negative effects on old growth, but may have some positive effects. Harvesting or burning adjacent to old growth can remove the edge buffer, reducing the effective size of old growth stands by altering interior habitats (Russell and Jones 2001). Weather-related effects have been found to penetrate over 165 feet into a stand; the invasion of exotic plants and penetration by predators and nest parasites may extend 1500 feet or more (Lidicker and Koenig 1996). On the other hand, adjacent management can accelerate regeneration and sometimes increase the diversity of future buffering canopy.

The occurrence of roads can cause substantial edge effects on forested stands, sometimes more than the harvest areas they access (Reed, et al. 1996; Bate and Wisdom, in prep.). Open roads expose many important wildlife habitat features in old growth and other forested stands to losses through firewood gathering and increased fire risk.

Effects of disturbance also vary at the landscape level. Conversion from one stand condition to another can be detrimental to some old growth associated species if amounts of their preferred habitat are at or near threshold levels or dominated by linear patch shapes and limited interconnectedness (Keller and Anderson 1992). Reducing the block sizes of many later-seral/structural stage patches can further fragment existing and future old growth habitat (Richards et al. 2002). Depending on landscape position and extent, harvest or fire can remove forested cover that provides habitat linkages that appear to be “key components in metapopulation functioning” for numerous species (Lidicker and Koenig 1996, Witmer et al. 1998). Harvest or underburning of some late and mid seral/structural stage stands could accelerate the eventual creation of old growth in some areas (Camp, et al. 1996). The benefit of this approach depends on the degree of risk from natural disturbances if left untreated.

Effects on old growth habitat and old growth associated species relate directly to ... “Landscape dynamics—Connectivity”; and ... “Landscape dynamics—Seral/structural stage patch size and shapes.”

Harrison and Voller, 1998 assert “connectivity should be maintained at the landscape level.” They adopt a definition of landscape connectivity as “the degree to which the landscape facilitates or impedes movement among resource patches.” Also:

Connectivity objectives should be set for each landscape unit. ...Connectivity objectives need to account for all habitat disturbances within the landscape unit. The objectives must consider the duration and extent to which different disturbances will alienate habitats. ... In

all cases, the objectives must acknowledge that the mechanisms used to maintain connectivity will be required for decades or centuries.

(Id., internal citations omitted.) Harrison and Voller, 1998 further discuss these mechanisms:

Linkages are mechanisms by which the principles of connectivity can be achieved. Although the definitions of linkages vary, all imply that there are connections or movement among habitat patches. Corridor is another term commonly used to refer to a tool for maintaining connectivity. ...the successful functioning of a corridor or linkage should be judged in terms of the connectivity among subpopulations and the maintenance of potential metapopulation processes. (Internal citations omitted.)

Harris, 1984 discusses connectivity and effective interior habitat of old-growth patches:

Three factors that determine the effective size of an old-growth habitat island are (1) actual size; (2) distance from a similar old-growth island; and (3) degree of habitat difference of the intervening matrix. ... (In order to achieve the same effective island size a stand of old-growth habitat that is surrounded by clearcut and regeneration stands should be perhaps ten times as large as an old-growth habitat island surrounded by a buffer zone of mature timber.

Harris, 1984 discusses habitat effectiveness of fragmented old growth:

(A) 200-acre (80 ha) circular old-growth stand would consist of nearly 75% buffer area and only 25% equilibrium area. ... A circular stand would need to be about 7,000 acres (2,850 ha) in order to reduce the 600-foot buffer strip to 10% of the total area. It is important to note, however, that the surrounding buffer stand does not have to be old growth, but only tall enough and dense enough to prevent wind and light from entering below the canopy of the old-growth stand.

Harris, 1984 believes that “biotic diversity will be maintained on public forest lands only if conservation planning is integrated with development planning; and site-specific protection areas must be designed so they function as an integrated landscape system.” Harris, 1984 also states:

Because of our lack of knowledge about intricate old-growth ecosystem relations (see Franklin et al. 1981), and the notion that oceanic island never achieve the same level of richness as continental shelf islands, a major commitment must be made to set aside representative old-growth ecosystems. This is further justified because of the lack of sufficient acreage in the 100- to 200-year age class to serve as replacement islands in the immediate future. ... (A) way to moderate both the demands for and the stresses placed upon the old-growth ecosystem, and to enhance each island’s effective area is to surround each with a long-rotation management area.

The FS fails to provide any analysis of this issue whatsoever. For the End Of The World Project, the Overview for Wildlife Specialist Report however, states:

...clearcut harvests have contributed to forest conditions and landscape patterns that differ from those that would have occurred in the absence of such actions. ...Early- and late-successional forest stages have been reduced in extent and diversity of patch size.

Movement corridors and diversity of wildlife cover are less available. (Emphasis added.)

Remedy: Choose the No Action alternative. Otherwise, prepare an EIS to address the analysis deficiencies this objection identifies.

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CUMULATIVE EFFECTS OF LIVESTOCK GRAZING

FOC/AWR comments on the DSEIS discuss impacts of livestock grazing (pp. 17-18 and elsewhere). Our comments on the Draft Forest Plan/Draft EIS also go into great detail on the impacts and problems of livestock grazing on this national forest.

The FEIS states:

There are two grazing allotments within the project area, Corral Hill and Tahoe/Clear Creek. Each allotment is authorized 110 cow/calf pairs, with 843 Animal Unit Months (AUMs) for Corral Hill and 583 AUM’s assigned to Tahoe/Clear Creek. An Adaptive Management Environmental Impact Statement is currently being developed for these two allotments as part of a larger landscape assessment of grazing that includes 15 grazing allotments covering 350,000 acres. A decision is expected in 2014 or 2015. Past and current grazing impacts are considered as part of the existing condition.

We assume those allotments are grouped into what the FS also calls the “Eastside Grazing Allotment”: [“...foreseeable activities include ...Proposed Eastside Grazing Allotment

(2014/2015)”. The CCIR EISs fail to take a hard look at the cumulative impacts of livestock grazing in the project/analysis areas, in violation of NEPA

We incorporate into this objection the scientific opinion as expressed in Scientists Letter (2011) [Livestock Grazing Comments on National Forest System Land Management Planning Draft Programmatic Environmental Impact Statement (DEIS)].

It is not scientifically defensible to engage in “restoration” via timber harvest in an area already significantly impacted by ongoing livestock grazing without including grazing in a comprehensive environmental analysis including a full range of ecological alternatives that accounts for the cumulative impacts to the degraded ecosystem from historic timber harvest, roads, fire suppression, climate change **and** livestock grazing.

The most immediate progress in healing damaged riparian areas is made under rest from livestock grazing (Platts, 1991), and studies of larger-sized livestock exclosures confirm that exclusion promotes more rapid recovery of damaged riparian areas (Duff, 1977; Belsky et al., 1999).

There is no analysis in the EISs or other documents disclosing existing conditions in the Eastside grazing allotments, specific to impacts caused by livestock in the allotment. The EISs fail to analyze or disclose how the CCIR Project and livestock grazing affect other resources cumulatively.

Impacts of continued grazing in the analysis area will include continued degradation of riparian and upland habitats; aquatic species habitats; soil erosion; invasion of weedy species; loss of fish and wildlife habitat and numbers; altered fire cycles and accelerated fragmentation of habitat; and impairment of the aesthetic, recreational and scientific experiences of public lands users. Clearing trees and other wood through logging and burning creates openings and corridors for expanding and intensifying cattle impacts into previously less accessible areas of the streams, drainage arteries and watershed uplands.

We find it difficult to understand how increasing cattle access to streams, riparian areas and other areas of dense trees, while increasing forage in those opened areas via prescribed burning and “mechanical treatments” constitutes “restoration” since what will also occur is spreading the weeds, soil damage, and other direct impacts of livestock into areas they don’t currently access.

The EIS fails to analyze and disclose the extent, degree, and significance of livestock grazing (and associated infrastructure and activities) impacts on other resources.

Belsky and Gelbard, 2000 is a literature review of livestock as contributing to noxious weed spread.

The interactions between the invasive grass cheatgrass and fire regimes is a positive feedback system which has led to very extensive infestation in the western U.S. Wildfire and this highly flammable grass feed off each other. The plant grows well in areas that have been disturbed, so fire generally results in more cheatgrass, which results in more fire, which again results in more

cheatgrass. Livestock grazing corresponds with increased cheatgrass occurrence and prevalence regardless of variation in climate, topography, or community composition (Williamson et al., 2019).

Belsky et al., 1999 is a literature review of peer-reviewed studies concerning effects of livestock grazing on water resources:

Livestock grazing was found to negatively affect water quality and seasonal quantity, stream channel morphology, hydrology, riparian zone soils, instream and streambank vegetation, and aquatic and riparian wildlife... through direct impacts of cattle on riparian areas and aquatic habitats, as well as indirect and cumulative effects from disturbance and impairment to the watershed uplands and drainage network. An extensive body of scientific literature has developed concerning the harmful effects of domestic livestock grazing on western public lands, on the environmental effects of deforestation, and climate change stress on ecosystems and ecosystem processes.

Livestock grazing would work hand in hand with other agency policies to create the adverse effects of fire suppression claimed in the EIS. Belsky and Blumenthal, 1997 investigate these impacts livestock grazing causes to stand dynamics and soils of upland forests of the Interior West.

Cumulatively, rilling, gullyng, and soil erosion will accelerate due to logging, burning, and continued chronic grazing stress and overarching climate stress. Once disturbed, soils which may take millennia to form in arid lands like this can wash away in a single thunderstorm or snowmelt runoff event, or be eroded by winds. Ephemeral and intermittent drainages, including those located in areas of very erodible or unprotected soils, may suffer significant harmful impacts from livestock grazing and trampling. During spring runoff or thunderstorm events, intermittent drainages carry large flows of water, sediments, and debris.

Protective vegetative cover in uplands is usually the most important management variable affecting surface runoff and erosion from uplands that deliver runoff, sediment, and bacteria to these drainages. Extensive soil disturbance from logging, skidding, burning, bulldozing roads, and other project activities combine cumulatively with chronic grazing disturbance stressors by creating access for cattle to vacant allotment areas and previously inaccessible riparian zones.

Scientific studies have found significant reductions in runoff and sediment yield related to livestock grazing changes (Lusby, 1979).

Extensive deforestation and bulldozing roads exacerbate climate change effects – causing hotter, dry, windier local site conditions, changing local microclimate conditions. Cleared areas lose protective vegetation cover to buffer extreme rainfall or other weather events. With earlier snowmelt and runoff predicted under climate change, watersheds dry out earlier, lengthening the fire season and perennial flows are reduced. Cattle cause soil and microbiotic crust disturbance accelerating site drying and erosion, soil compaction and other impacts. This reduces the capacity of the watershed and drainage networks to absorb and slowly release water in sustainable perennial flows. Soils disturbed by logging, skidding, road bulldozing, and burning,

considered cumulatively with ongoing cattle grazing and trampling disturbances, will be prone to rapid snowmelt runoff and erosion into drainage networks. Drainages subject to these kinds of cumulative ecological stressors increasingly erode, downcut, suffer accelerated runoff, and lose water holding capacity.

With the advent of climate change, air temperature increases, altered precipitation patterns, and drought periods are expected to become more frequent. One effective means of ameliorating the effects of climate change on ecosystems is to reduce environmental stressors under management control, such as land and water uses (Beschta et al., 2012). Climate change and ungulates, singly and in concert, influence ecosystems at the most fundamental levels by affecting soils and hydrologic processes. These effects, in turn, influence many other ecosystem components and processes - nutrient and energy cycles; reproduction, survival, and abundance of terrestrial and aquatic species; and community structure and composition. Moreover, by altering so many factors crucial to ecosystem functioning, the combined effects of a changing climate and ungulate use can affect biodiversity at scales ranging from species to ecosystems and limit the capability of large areas to supply ecosystem services (Christensen and others, 1996; Millenium Ecosystem Assessment, 2005b; Beschta et al., 2012). Gerber, et al., 2013 state, “Livestock producers, which include meat and dairy farming, account for about 15 percent of greenhouse gas emissions around the world. That’s more than all the world’s exhaust-belching cars, buses, boats, and trains combined.”

Saunois et al., 2016a note “the recent rapid rise in global methane concentrations is predominantly biogenic—most likely from agriculture—with smaller contributions from fossil fuel use and possibly wetlands. ...Methane mitigation offers rapid climate benefits and economic, health and agricultural co-benefits that are highly complementary to CO₂ mitigation.” (Also see Saunois et al., 2016b; Gerber et al., 2013; and the Grist articles [“Why isn’t the U.S. counting meat producers’ climate emissions?”](#) and [“Cattle grazing is a climate disaster, and you’re paying for it”](#) and Stanford News article [“Methane from food production could be wildcard in combating climate change, Stanford scientist says”](#).)

Ripple et al. 2014 provide some data and point out the opportunities available for greenhouse gas reductions via change in livestock policy.

Beschta et al., 2012 provide a scientific basis for expecting significant environmental damage from livestock grazing with the changing climate:

- Climate impacts are compounded from heavy use by livestock and other grazing ungulates, which cause soil erosion, compaction, and dust generation; stream degradation; higher water temperatures and pollution; loss of habitat for fish, birds and amphibians; and desertification.
- Encroachment of woody shrubs at the expense of native grasses and other plants can occur in grazed areas, affecting pollinators, birds, small mammals and other native wildlife.
- Livestock grazing and trampling degrades soil fertility, stability and hydrology, and makes it vulnerable to wind erosion. This in turn adds sediments, nutrients and pathogens to western streams.
- Water developments and diversion for livestock can reduce streamflows and increase water temperatures, degrading habitat for fish and aquatic invertebrates.

- The advent of climate change has significantly added to historic and contemporary problems that result from cattle and sheep ranching.

Remedy: Select the No Action alternative. Alternatively, prepare an EIS that addresses the analytical and scientific issues identified above.

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ROADLESS AREAS ARE IMPROPERLY IDENTIFIED AND EVALAUTED

The FOC/AWR et al. original Clear Creek project objection discusses the roadless issue in much detail (see section XIX. ROADLESS AREAS ARE IMPROPERLY IDENTIFIED AND EVALAUTED).

The FSEIS repeats a statement from the DSEIS:

The DSEIS incorporates the original FEIS (September 2015) by reference. The following resources are not being carried forward in this DSEIS as the effects analyses have not changed from the original FEIS: Cultural Resources, Noxious Weeds, Rare Plants, Roadless Areas, Soils, Vegetation, and Visuals. For a complete effects analyses of these resources please see the original FEIS, September 2015.

FSEIS at 64. This is reflected in the FSEIS table of comments, which omits roadless analysis. We raised the following points in our DSEIS comment:

The DSEIS does no more to analyze impacts on the roadless area or the wider roadless expanse than did the FEIS. This is an example of the issues raised in objections being ignored in the DSEIS. For example, the issue of human-ignited fire is not adequately analyzed. It is an intentional manipulation (trammeling) of the area (see also the attached objection).

Ignoring the broader roadless expanse is a problem, especially since logging would occur right up to the boundary of the inventoried roadless area. There is no analysis of the impact to the larger unroaded expanse on the wilderness character or roadless characteristics of

any land that would make up the larger roadless expanse as was done, for example, in the Lolo Insects and Disease FEIS.

There are two relevant points raised in those comments that the FSEIS misses. One is the issue of trammeling and impacts to wilderness character. This was not addressed in the FSEIS. The other is that of the wider roadless expanse. That was not addressed either, in spite of regional guidance to the contrary and case law.⁶ Instead, the draft ROD tries mislead the reader into thinking the overall issue of roadless and unroaded areas was addressed. For example:

Idaho Roadless Rule

Alternative C modified implements low-mixed severity prescribed fire on approximately 1,400 acres within the Clear Creek Roadless Area over a period of several years.

Implementing Alternative C modified will have a beneficial effect to the natural qualities of the area, cause little effect to the undeveloped characteristics of the Roadless Area, cause no effect to wilderness characteristics of the area, cause a temporary effect to solitude and primitive unconfined recreation, and cause no effect to the manageability of the Roadless Area.

The State of Idaho, Idaho Roadless Commission reviewed the project's proposed activities on March 14, 2013 and have received updated briefings throughout the SEIS process.

Draft ROD at 30. As noted above in reference to the FEIS and FSEIS, there is no explicit discussion here of the impact of the untrammled nature of the Clear Creek Roadless Area from the proposal. This is indeed ironic as the draft EIS for the Land Management Plan Revision for the Nez Perce-Clearwater Forests (hereinafter Plan DEIS) clearly indicates that the untrammled nature of an area is part of the way the Forest Service, rightly or wrongly, analyzes whether it will or won't recommend areas for designation as Wilderness.⁷ For example, the Plan DEIS states as one of the indicators in evaluating areas for the category of Recommended Wilderness:

Idaho Roadless Areas providing High and Medium –High Capability for providing wilderness character as assessed using wilderness character attributes of untrammled, natural, undeveloped, outstanding opportunities for solitude or a primitive and unconfined type of recreation and Special Features such as Ecological, Geologic, Scientific, Educational, Scenic or Historical Values.

Plan DEIS at 1-29. The omission of any discussion of the impacts of the project on the untrammled nature of the Clearwater Creek Roadless Area in the FEIS or FSEIS, or the draft ROD, including any contiguous roadless lands, clearly demonstrates the inadequacy of the analysis.

Further, the claim in the draft ROD that the proposal would have “no effect to wilderness characteristics of the area” is belied by the Forest Plan DEIS. One of the reasons given for

⁶ See attached roadless folder. See also *Kettle Range Conservation Group v. USFS*, 971 F. Supp 480 (DCt. OR, June 17, 1997)

⁷ See attached roadless folder references. In particular, see the Forest Plan DEIS, our comments on the plan (included elsewhere in the objection references) and our roadless appendix, Landres et al. 2015, and Cole et al. 2015

dropping the Lochsa Face area from further consideration for wilderness, in spite of its obvious value and the fact it was part of the old Selway Primitive Area, is the implicit impact on the untrammelled nature of the area, “More recent, there has been use of management fire to maintain vegetation composition and structure for wildlife.” Plan DEIS at E-224. That is the same reason for the so-called management fire in the Clear Creek Roadless Area. This gross inconsistency in the way the Forest Service analyzes what constitutes impacts to wilderness character or attributes between various analyses seems to be merely a matter of convenience. Our attached roadless report and other materials, prepared after the comment period on the Clear Creek DSEIS, documents this inconsistent trend. In essence, when an action that might affect a roadless area is proposed, the Forest Service usually deems it has little or no impact to the area. When it comes time to evaluate the area for wilderness recommendation in the forest plan revision process, those same actions now have tremendous impact so the area is dropped from further wilderness consideration.

In sum, nothing changed in the analysis between the inadequate FEIS and FSEIS regarding roadless impacts. We have also submitted information only available since after the DSEIS comment period, including various analyses in the roadless folder that demonstrates how the Forest Service has been wildly inconsistent in the way it evaluates roadless and wilderness attributes or characteristics. Also included are citations from our earlier comments and objections as they relate to the Clear Creek Roadless Area and roadless policy.

Remedy:

1. Prepare a supplemental EIS that complies with NEPA and includes the roadless expanse for the Clear Creek Roadless Area.
2. Drop the prescribed fire in the Clear Creek Roadless Area.
3. Adjust the boundaries of all logging or other units at least 1/2 mile back from the “imprecise” roadless boundary for the Clear Creek Roadless Area, as mapped in the FEIS.

Works cited for ROADLESS AREAS

Bilodeau, K. and G. Macfarlane. 2019 revised 2020. *The Roadless Report: Analyzing the Impacts of Two Roadless Rules on Forested Wildlands*. Friends of the Clearwater.

Brown, et al. 2001. *Ensuring the Stewardship of the National Wilderness Preservation System*. Pinchot Institute for Conservation. A Report to the USDA Forest Service, Bureau of Land Management US Fish and Wildlife Service, National Park Service, US Geological Survey

Cole, et al. 2015. *The Definition of Wilderness Character in “Keeping It Wild” Jeopardizes the Wilderness of Wilderness*

Friends of the Clearwater et al. 2020 *Comments on the draft Plan and EIS for the Land Management Plan Revision for the Nez Perce-Clearwater Forests*.

Friends of the Clearwater et al. 2020 *Comments on the draft Plan and EIS for the Land Management Plan Revision for the Nez Perce-Clearwater Forests, Roadless Appendix*

Friends of the Clearwater et al. 2021 *Comments on the Limber Elk Project*

Friends of the Clearwater et al. 2018 accentuated 2021. *Roadless comments form the Hungry Ridge Project.*

Friends of the Clearwater et al. 2020 *Hungry Ridge Objection*

Landres et al. 2008. *Keeping It Wild: An Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System.* RMRS-GTR-212

Landres et al. 2015. *Keeping It Wild 2: An Updated Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System.* RMRS-GTR-340

USDA Forest Service Region 1. 2010. *Our Approach to Roadless Area Analysis And Analysis of Unroaded Lands Contiguous to Roadless Areas.*

USDA Forest Service. 2019. *NEPA Analysis for Unroaded Lands Contiguous to Roadless Areas.*

USDA Forest Service. 2019a. *NEPA Analysis: Potential for Future Recommended Wilderness.*

USDA Forest Service. 2019b. *NEPA Analysis of Effect for Projects in Inventories Roadless Areas*

USDA Forest Service. 2019c. *Draft Land Management Plan Revision for the Nez Perce-Clearwater Forests.*

USDA Forest Service. 2019d. *Draft Environmental Impact Statement Land Management Plan Revision for the Nez Perce-Clearwater Forests.*

INADEQUATE ANALYSIS OF CUMULATIVE IMPACTS

The FOC/AWR et al. original Clear Creek project objection discusses this issue (see section V – CUMULATIVE IMPACTS WERE INADEQUATELY ANALYZED).

We include in our folder of incorporated references a Google Timelapse of the Clear Creek project area with surrounding areas. The Forest Service indicated it was no longer considering cumulative effects like the Johnson Bar timber sale for species like fisher. While the timber sale might be over, one may see from the map how long it takes the land to **begin** to start recovering from logging.

The light brown spots are from logging. As one can see from the timelapse, most light brown spots become light green spots and the green darkens to a richer, darker green as the land recovers. The reddish brown spots, as one can see near the Johnson Bar Campground, are from fire. Looking at Google Timelapse as it flips through 40 years of data, the light brown spots are outpacing the darkening green spots. This logging rate is unsustainable. The Forest Service

should consider this as it considers the old growth, unroaded/roadless areas, and mature-forest habitat that will be eliminated with this project.

ILLEGITIMACY OF COLLABORATIVE PROCESS AND THE CLEARWATER BASIN COLLABORATIVE

The FOC/AWR et al. original Clear Creek project objection discusses this issue [see section VI – FAILURE TO MEET FEDERAL ADVISORY COMMITTEE ACT (FACA), NEPA AND COLLABORATIVE FOREST LANDSCAPE RESTORATION ACT (CFLRA)].

The danger is that private, locally-focused interests are prioritized by the magic wand of “collaboration” above the interests of the owners of the land in general, the American public—regardless of where those Americans live or whether or not they can attend collaborative meetings to make sure their interests are being heard.

The FEIS states:

The Clear Creek Project is part of the larger Selway-Middle Fork Clearwater Collaborative Forest Landscape Restoration Project. In 2010, the Clearwater Basin Collaborative (CBC) in partnership with the Nez Perce–Clearwater National Forests produced a comprehensive restoration strategy that was submitted for funding through the Collaborative Forest Landscape Restoration Program (CFLRP). This science-based proposal was designed to restore and maintain ecological conditions within the 1.4-million-acre Selway–Middle Fork ecosystem in Idaho.

The CBC is actually collusion among special interest groups, which set the stage for the FS’s skewed selected alternative. The Forest Service should use a Science Consistency Review Group instead of the timber-biased CBC. The CBC is Not a Science Consistency Review Group. The FS should be utilizing its own non-collaborative process, the Science Consistency Review, to evaluate alternatives. Guldin et al. (2003):

...outlines a process called the science consistency review, which can be used to evaluate the use of scientific information in land management decisions. Developed with specific reference to land management decisions in the U.S. Department of Agriculture Forest Service, the process involves assembling a team of reviewers under a review administrator to constructively criticize draft analysis and decision documents. Reviews are then forwarded to the responsible official, whose team of technical experts may revise the draft documents in response to reviewer concerns. The process is designed to proceed iteratively until reviewers are satisfied that key elements are **consistent with available scientific information**.

Such an undertaking would also assist the public, per NEPA direction, in understanding best available science.

Nie and Metcalf, 2015 provide a social science analysis of the problems posed by collaboration. Among the many problems, it's clear that most environmental groups don't have the resources to participate meaningfully in long processes created by the collaborators. The authors cite an earlier inquiry in stating, "Organizational resources and capacity were found to be significant factors shaping the decision about whether to collaborate or sue. If trends in collaboration continue, says the author, '[W]e will see a marginalization of smaller, ideologically pure environmental groups [and] their values will not be included in decision making because they are unable or unwilling to collaborate...'"

Nie and Metcalf, 2015 document perceptions of several negative outcomes of collaboration, from the perspective of those skeptical of the process.

- The under-representation of conservation interests in many collaborative efforts, a perception that there is a heavy skew of the membership of the group against conservation and in favor of the folks who are impacting the environment.
- An inappropriate and often dominant role played by the Forest Service in some collaborative processes.
- Those making a profit from federal lands will dominate these processes because they have the organizational and financial capacity and resources to participate over the long haul.
- Collaboration sets up two classes of citizens, those who are part of the process and those who aren't, even if the latter participate fully in the NEPA process.
- Collaboration weeds out dissent and opposition and is most conducive to defending the status quo.
- Collaboration is undermining, subverting, and disempowering the more democratic NEPA process.
- There is a contrast between an exclusive and self-selected set of (often) paid interest groups participating in a collaborative versus a more broad-based and inclusive public participation process governed by NEPA.
- Collaborative groups having a disproportionate amount of influence with the Forest Service.
- Collaborative group recommendations precede NEPA analysis, and there is an implicit understanding the collaborative group's recommendation will be implemented, rendering the NEPA process a pro forma exercise.
- Laws such as the ESA are designed to be used and enforced by citizens, who forgo such rights by being included in collaborative groups.
- Collaborative groups do not consider the best available science on resource management.

- Collaborative groups promote logging which is a pretense or price to be paid for genuine forest restoration.

Dukes and Firehock, 2001 wrote a guide for environmental advocates which includes a set of principles. There is nothing on the CCIR Project record indicating CBC collaborators subscribe to any such collaborative principles.

The FEISs do not demonstrate the CCIR Project as been developed consistent with the requirements of Title IV of the Omnibus Public Lands Management Act of 2009 (also known as the Collaborative Forest Landscape Restoration Act or CFLRA). For example, the EISs do not demonstrate the CCIR Project meets the eligibility criteria under Sec. 4003 (b)(1)(B) for prioritizing restoration for a 10-year period.

The FEISs do not demonstrate the CCIR Project meets the eligibility criteria under the CFLRA Sec. 4003 (b)(1)(B)(iv) because there is substantial doubt that the project is focused on small-diameter wood.

The FEISs do not demonstrate the CCIR Project meets the eligibility criteria under the CFLRA Sec. 4003 (b)(1)(C) because it fails to incorporate best available science, as discussed in various sections our previous comments and this and other objections.

The FEISs do not demonstrate the CCIR Project meets the eligibility criteria under the CFLRA Sec. 4003 (b)(1)(D) and (E) because the proposal fails to retain the largest trees contributing to old growth structure, focus on small diameter trees, and maximize retention of large trees.

It also does not have a realistic chance of preventing, remediating, or controlling invasions of exotic species; [CFLRA Sec. 4003 (b)(3)(D)].

Because the CCIR Project is not consistent with the Endangered Species Act (ESA), and the FEISs do not conform to NEPA and the planning rule, it violates the CFLRA at Sec. 4003(a).

Remedy:

- Withdraw the ROD
- Ensure the process is consistent with the Collaborative Forest Landscape Restoration Act

Works cited regarding illegitimacy of collaboration

Dukes, E. Franklin, and Karen Firehock, 2001. Collaboration: A Guide for Environmental Advocates. (Charlottesville, Virginia, University of Virginia, The Wilderness Society, and the National Audubon Society, 2001.)

Guldin, James M., David Cawrse, Russell Graham, Miles Hemstrom, Linda Joyce, Steve Kessler, Ranotta McNair, George Peterson, Charles G. Shaw, Peter Stine, Mark Twery, Jeffrey Walter. 2003. The Science Consistency Review: A Tool to Evaluate the Use of Scientific Information in

Land Management Decisionmaking. United States Department of Agriculture Forest Service FS-772, September 2003.

Nie, Martin and Peter Metcalf, 2015. The Contested Use of Collaboration & Litigation in National Forest Management: A Bolle Center Perspective Paper. Bolle Center For People & Forests, University of Montana College Of Forestry & Conservation, Missoula, Mt. October 2015.

INCONSISTENCY WITH BEST AVAILABLE SCIENCE

Objectors' previous comments and objections are sprinkled throughout with discussions on the manner the CCIR Project EISs are not consistent with best available scientific information.

Instead of unnecessarily re-stating those discussions we've already incorporated into this objection, objectors refer to the FOC/AWR et al. comments on the NPCNF forest plan revision draft Forest Plan/Draft EIS, and most specifically to the section entitled: NEPA - SCIENTIFIC INTEGRITY.

Remedy:

- Withdraw the ROD
- Institute an independent Science Consistency Review to evaluate alternatives as per Guldin et al. (2003).

TRAVEL MANAGEMENT

Objectors' previous comments and objections raised concerns regarding roads and travel management, including the direct, indirect and cumulative impacts of roads on wildlife and other resources (e.g., FOC/AWR et al. objection section XXXV - INCONSISTENCY WITH TRAVEL MANAGEMENT REGULATIONS AND FOREST PLAN ROADS AND TRAILS STANDARDS).

The CCIR project area contains "about 207 miles of road, or a road density of around 3 miles/square mile." DSEIS at 194. The FSEIS states the CCIR Project would include 13.2 miles of system road decommissioning and 73 miles of non-system road decommissioning. However, we also notice the FSEIS states, "The Clear Ridge Non-System Road Decommissioning Project, which proposes decommissioning 65 miles of non-system roads and removing 15 culverts (see Appendix J of 2015 FEIS for a more detailed outline) was signed on January 15, 2015 but **has yet to be implemented**" (emphasis added.) Apparently the FS believes they don't have to honor previous commitments for finishing road decommissioning, that it can be delayed indefinitely.

The FEISs do not demonstrate that their analyses are consistent with the Travel Management Regulations (36 CFR 212) Subpart A (hereafter "TMR Subpart A") requirement to conduct a science-based analysis to identify the minimum road system needed to manage the Forest

ecologically sustainably and within expected budgets. Friends of the Clearwater's August 29, 2014 Travel Analysis letter is incorporated within this Objection.

Applicable statutory and regulatory requirements should shape a project's statement of purpose and need. When the agency takes an action "pursuant to a specific statute, the statutory objectives of the project serve as a guide by which to determine the reasonableness of objectives outlined in an EIS." *Westlands Water Dist. v. U.S. Dept. of Interior*, 376 F.3d 853, 866 (9th Cir. 2004). Under subpart A of its travel rule, the FS has a substantive duty to address its over-sized road system. See 36 C.F.R. § 212.5. Identifying a resilient future road system is one of the most important endeavors the Forest Service can undertake to restore aquatic systems and wildlife habitat, facilitate adaptation to climate change, ensure reliable recreational access, and operate within budgetary constraints. This underlying substantive duty must inform the scope of, and be included in, the agency's NEPA analysis. After more than 15 years since finalizing the subpart A rules, the Forest Service can no longer delay in addressing this duty. Yet, the FS fails to incorporate this duty within the CCIR project's purpose and need. Therefore the CCIR project still fails to fulfill the agency's obligations under the TMR Subpart A. Should the FS revise its decision to include identification of the minimum road system, then it needs to address the numerous deficiencies in its project analysis and demonstrate how the minimum system reflects anticipated funding and minimizes adverse impacts associated with construction, reconstruction, maintenance and decommissioning of roads. Correcting systemic analysis deficiencies with the roads analysis is also necessary to comply with NEPA.

As objectors have written elsewhere, the FS fails to quantify the potential sedimentation from each of the actions, for each year the project activities would occur. This is especially concerning in regards to sedimentation from log hauling as those would occur throughout the entire project period.

Over-reliance on BMPs and design features

Much of the agency's lack of analysis stems from its over-reliance on Best Management Practices and project design features. The draft ROD states the following:

Project design and mitigation measures and BMPs included as part of this project provide direction for the protection of soil, watershed, fish, wildlife, visual resources, cultural and historic resources, and the regeneration of timber resources.

The FS cannot rely on BMPs or design features as a rationale to forego proper analysis or demonstrate compliance with the Clean Water Act. WildEarth Guardians, 2020 is a report titled, "The Environmental Consequences of Forest Roads and Achieving a Sustainable Road System (March 2020)." Section III of that report details the inconsistencies and ineffectiveness of utilizing mitigation measures, which supports the need for more detailed analysis in an EIS to support the FS's reliance on project design features for the CCIR project.

Specifically, when considering how effective BMPs are at controlling nonpoint pollution on roads, both the rate of implementation, and their effectiveness should both be considered. The Forest Service tracks the rate of implementation and the relative effectiveness of BMPs from in-

house audits. This information is summarized in the National BMP Monitoring Summary Report with the most recent data being the fiscal years 2013-2014. Carlson et al. 2015. The rating categories for implementation are “fully implemented,” “mostly implemented,” “marginally implemented,” “not implemented,” and “no BMPs.” “No BMPs” represents a failure to consider BMPs in the planning process. More than a hundred evaluations on roads were conducted in FY2014. Of these evaluations, only about one third of the road BMPs were found to be “fully implemented.” *Id.* at 12.

The monitoring audit also rated the relative effectiveness of the BMP. The rating categories for effectiveness are “effective,” “mostly effective,” “marginally effective,” and “not effective.” “Effective” indicates no adverse impacts to water from project or activities were evident. When treated roads were evaluated for effectiveness, almost half of the road BMPs were scored as either “marginally effective” or “not effective.” *Id.* at 13.

Further, a technical report by the FS entitled, “Effectiveness of Best Management Practices that Have Application to Forest Roads: A Literature Synthesis,” summarized research and monitoring on the effectiveness of different BMP treatments for road construction, presence and use. Edwards et al. 2016. The report found that while several studies have concluded that some road BMPs are effective at reducing delivery of sediment to streams, the degree of each treatment has not been rigorously evaluated. Few road BMPs have been evaluated under a variety of conditions, and much more research is needed to determine the site-specific suitability of different BMPs (Edwards et al. 2016, also *see* Anderson et al. 2011). Edwards et al. (2016) cites several reasons for why BMPs may not be as effective as commonly thought. Most watershed-scale studies are short-term and do not account for variation over time, sediment measurements taken at the mouth of a watershed do not account for in-channel sediment storage and lag times, and it is impossible to measure the impact of individual BMPs when taken at the watershed scale. When individual BMPs are examined there is rarely broad-scale testing in different geologic, topographic, physiological, and climatic conditions. Further, Edwards et al. (2016) observes, “[t]he similarity of forest road BMPs used in many different states’ forestry BMP manuals and handbooks suggests a degree of confidence validation that may not be justified,” because they rely on just a single study. *Id.* at 133. Therefore, ensuring BMP effectiveness would require matching the site conditions found in that single study, a factor land managers rarely consider.

Comprehensive monitoring of the effectiveness of logging road BMPs in achieving water quality standards does not demonstrate the BMPs are protecting water quality, nor does it undermine the abundant evidence that stormwater infrastructure along logging roads continues to deposit large quantities of sediment into rivers and streams (Endicott, 2008). Even as new information becomes available about BMP effectiveness, many states do not update their logging road BMPs, and some states have retained BMPs that have been discredited for some time, such as using fords when they are known to have greater water quality impacts than other types of stream crossings. (*Id.*) If the measure of success is whether a nonpoint source control program has achieved compliance with state water quality standards, the state forest practices programs have failed.

Climate change will further call into question the effectiveness of many road BMPs (Edwards et al. 2016). While the impacts of climate will vary from region to region (Furniss et al. 2010),

more extreme weather is expected across the country, which will increase the frequency of flooding, soil erosion, stream channel erosion, and variability of streamflow (*Id.*). BMPs designed to limit erosion and stream sediment for current weather conditions may not be effective in the future. Edwards et al. (2016) states, “[m]ore-intense events, more frequent events, and longer duration events that accompany climate change may demonstrate that BMPs perform even more poorly in these situations. Research is urgently needed to identify BMP weaknesses under extreme events so that refinements, modifications, and development of BMPs do not lag behind the need.” *Id.* at 136.

The FEISs fail to disclose the impacts of project area system roads not maintained in conformance to BMP or in compliance with standards because of funding shortfalls, and fails to disclose the impacts of roads that go without maintenance because they are unauthorized or non-system.

The FS must not assume the project will adequately mitigate the problems chronically posed by the road network by project road work and BMP implementation. The FS admits such problems in a non-NEPA context (USDA Forest Service, 2010t):

Constructing and improving drainage structures on Forest roads is an ongoing effort to reduce road-related stream sediment delivery. Although BMPs are proven practices that reduce the effects of roads to the watershed, it is not a static condition. Maintaining BMP standards for roads requires ongoing maintenance. Ecological processes, traffic and other factors can degrade features such as ditches, culverts, and surface water deflectors. Continual monitoring and maintenance on open roads reduces risks of sediment delivery to important water resources.

Also in a non-NEPA context, a forest supervisor (Lolo National Forest, 1999) frankly admits that projects are a “chance to at least correct some (BMP) departures rather than wait until the funding stars align that would allow us to correct all the departures at once.”

The extreme contrast between streams in roaded areas vs. unroaded areas found on the Lolo NF (Riggers, et al. 1998) is a testament to the failures of the agency’s BMP approach.

Ziemer and Lisle (1993) note a lack of reliable data showing that BMPs are cumulatively effective in protecting aquatic resources from damage. Espinosa et al., 1997 noted that the mere reliance on BMPs in lieu of limiting or avoiding activities that cause aquatic damages serves to increase aquatic damage. Even activities implemented with somewhat effective BMPs still often contribute negative cumulative effects (Ziemer et al. 1991b, Rhodes et al. 1994, Espinosa et al. 1997, Beschta et al. 2004).

Significant uncertainties persist about the effectiveness of BMPs or project design features as a result of climate change, compounded by the inconsistencies revealed by BMP evaluations, which suggests that the Forest Service cannot simply rely on them to mitigate project-level activities. This is especially relevant where the FS relies on the use of BMPs instead of fully analyzing potentially harmful environmental consequences from road design, construction, maintenance or use as it did here for the CCIR Project.

Travel Analysis – Failure to properly analyze or disclose findings in the EIS

The FS failed to disclose each step of the Travel Analysis Process detailed in the FSH 7709.55 Ch. 20. The FS failed to disclose the precise issues (Step 3) considered in the analysis or the agency assessed each risk and benefits. To be clear, the amount of information necessary is that which supports a NEPA-level decision with sufficient detail to demonstrate the minimum road system complies with the four factors provided in the TMR subpart A requirements:

The minimum road system is the road system necessary: (1) to meet “resource and other management objectives” consistent with the forest plan; (2) to meet applicable statutory and regulatory requirements”; (3) to reflect “long term funding expectations”; and (4) to ensure the road system “minimizes adverse environmental impacts associated with road[s.]” 36 C.F.R. § 212.5(b)(1).

Friends of Bitterroot v. Marten, No. 9:20-cv-00019-DLC, 2020 WL 5804251 (D. Mont. Sept. 29, 2020). Having established that both the forest wide and project level TARs cannot replace actual NEPA-level analysis and that the agency cannot tier to non-NEPA documents to meet its analysis requirements.

WildEarth Guardians, 2021 details the Forest Service’s inconsistencies in complying with the TMR Subpart A direction, and in particular the biases various forest units build into their travel analysis processes.

More roads issues, discussion and science

The FS simply does not analyze the potential impacts of abandoning culverts to clogging and potential catastrophic failure or any erosion at all.

The FS is playing nondisclosure with its road inventory. It’s clear that the FS is making it standard practice to re-use “abandoned” road templates—and even roads actively decommissioned—not including them on the official road inventory therefore constantly avoiding responsibilities, regulations, and forest plan requirements for roads.

“Temporary road” is a fictitious concept—much of the impact will affect the landscape indefinitely, at least for many decades.

The FS does not explain how annual maintenance funding could ever be adequate for the post-project road network, and doesn’t disclose how deferred maintenance needs or costs might increase or decrease post-project. Again, this is a concern because roads not properly maintained have caused chronic ecological stress to watersheds and damage other resources.

The EISs don’t disclose the likelihood of the selected alternative covering all the costs of proposed road work activities such as road decommissioning, culvert upgrades, etc.

We can understand that the FS doesn't want to be held accountable for the failure of Congress to appropriate enough money for the agency to do its job adequately, but it is disingenuous and unethical to pretend the ongoing ecological damage is a non-issue. This is also illegal under NEPA.

Forestwide, roads are not being maintained as needed: "Congressionally appropriated road maintenance funding is approximately 9% of what is needed for the current classified road system." (Nez Perce National Forest Roads Analysis Report, 2006.) That report also admits:

Some arterial, collector and local roads are not being maintained to specified standards. In some areas the road system will continue to degrade and this will affect future access to areas served by these roads.

The NPCNF's End of the World EA notes that "Recent reviews on project roads by the Nez Perce Tribe and Forest Service personnel have noted a number of potential impacts to watershed and streams as a result of deferred maintenance."

The Nez Perce National Forest Roads Analysis Report, 2006 acknowledges:

Some roads are causing adverse impacts, such as sedimentation in streams, wildlife impacts, and reduced access due to landslides, and should be evaluated for mitigation projects at the sub-forest level.

Roads in streamside or valley bottom locations disrupt the riparian areas through constriction, removal of woody debris and shade, introduction of sediment, reduction in leafy primary production, and through increased hazard of introduction of toxic pollutants to the stream.

Roads can alter physical channel dynamics, including isolating floodplains, constraining channel migration, and movement of large wood, fine organic matter, and sediment. This happens most at road-stream intersections and where roads are within close proximity to streams. Of the 3873 miles of National Forest system roads, approximately 23 percent exist within 300 feet of stream channels.

Wolverines are the most sensitive MIS species to motorized access. They typically inhabit remote mountainous areas where human disturbance is lower. Wolverines typically avoid human disturbance and roaded landscapes.

Standing and down dead wood is important to pileated woodpecker and marten habitat. Roads facilitate the removal of these habitat components for firewood. A major implication is that some MIS habitats are likely underused.

The FEIS does not disclose the Road Management Objectives and Trail Management Objectives of each road and trail segment in the project area. The FS doesn't demonstrate compliance with agency directives: the intended purpose, design criteria (FSM 2353.26 and 7720), and operation and maintenance criteria (FSM 2353.25 and 7730.3) for each NFS road and NFS trail.

The FEISs also do not demonstrate the FS is managing the project area and forest consistent with 36 CFR 212 Subparts B and C, or adequately analyze cumulative impacts of winter motorized travel. The FS doesn't demonstrate consistency with the Travel Management Rule requirements that off-road motorized travel impacts be minimized.

The EIS also fails to demonstrate consistency with Forest Plan Roads and Trails standards, including #4:

An Access Management Plan will be implemented to monitor and evaluate the effects of access on forest resources and the ability of the transportation system to accomplish the designed use. As measuring or monitoring tools, Forest access management will use two indices⁸ to monitor change over time. These indices will allow us to compare between points in time, between areas, and between alternate access management schemes or proposals.

On March 3, 2000, the FS set a course to revise 36 CFR Part 212 to shift emphasis from transportation development to managing administrative and public access within the capability of the lands. The proposal was to shift the focus of National Forest System road management from development and construction of new roads to maintaining and restoring needed roads and decommissioning unneeded roads within the context of restoring healthy ecosystems.

On January 12, 2001, the FS issued the final National Forest System Road Management Rule. The rule revised regulations concerning the management, use, and maintenance of the National Forest Transportation System. Consistent with changes in public demands and use of National Forest System resources and the need to better manage funds available for road construction, reconstruction, maintenance, and decommissioning, the final rule removed the emphasis on transportation development and **added a requirement for science-based transportation analysis**. The final rule is to help ensure that additions to the National Forest System road network are those deemed essential for resource management and use; that construction, reconstruction, and maintenance of roads minimize adverse environmental impacts; and that **unneeded roads are decommissioned** and restoration of ecological processes are initiated. (Emphases added.)

Friends of the Clearwater's August 27, 2014 Travel Analysis letter to the Forest Supervisor cited scientific information including Wisdom, et al. (2000):

Our analysis also indicated **that >70 percent of the 91 species are affected negatively by one or more factors associated with roads**. Moreover, maps of the abundance of source habitats in relation to classes of road density suggested that road-associated factors hypothetically may reduce the potential to support persistent populations of terrestrial carnivores in many subbasins. Management implications of our summarized road effects include the potential to mitigate a diverse set of negative factors associated with roads. **Comprehensive mitigation of road-associated factors would require a substantial reduction in the density of existing roads as well as effective control of road access in**

⁸ These two Forest Plan indices are Road Density Index and Distribution Index.

relation to management of livestock, timber, recreation, hunting, trapping, mineral development, and other human activities.

...Efforts to restore habitats without simultaneous efforts to reduce road density and control human disturbances will curtail the effectiveness of habitat restoration, or even contribute to its failure; this is because of the large number of species that are simultaneously affected by decline in habitat as well as by road-associated factors. (Emphases added.)

36 CFR § 212 Subpart A directs each national forest to conduct “a science-based roads analysis,” generally referred to as the “travel analysis process.” The FS Washington Office, through a series of directive memoranda, instructed forests to use the Subpart A process to “maintain an appropriately sized and environmentally sustainable road system that is responsive to ecological, economic, and social concerns.” These memoranda also outline core elements that must be included in each Travel Analysis Report.

The Washington Office memorandum dated March 29, 2012 (USDA Forest Service, 2012d) directed the following:

- A TAP must analyze all roads (maintenance levels 1 through 5);
- The Travel Analysis Report must include a map displaying roads that will inform the Minimum Road System pursuant to 36 C.F.R. § 212.5(b), and an explanation of the underlying analysis;
- The TAP and Watershed Condition Framework process should inform one another so that they can be integrated and updated with new information or where conditions change.

The December 17, 2013 Washington Office memorandum (USDA Forest Service, 2013b) clarifies that by the September 30, 2015 deadline each forest must:

- Produce a Travel Analysis Report summarizing the travel analysis;
- Produce a list of roads *likely not needed for future use*; and
- Synthesize the results in a map displaying roads that are *likely needed* and *likely not needed in the future* that conforms to the provided template.

The Subpart A analysis is intended to account for benefits and risks of each road, and especially to account for affordability. The TAP must account for the cost of maintaining roads to standard, including costs required to comply with Best Management Practices related to road maintenance.

The Travel Management Regulations at 36 CFR § 212.5 state:

(b) Road system—(1) *Identification of road system*. For each national forest, national grassland, experimental forest, and any other units of the National Forest System (§ 212.1), the responsible official must identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands. In determining the minimum road system, the responsible official must incorporate a science-based roads analysis at the appropriate scale and, to the degree practicable, involve a broad spectrum of interested and affected citizens, other state and federal agencies, and tribal governments. The minimum system is the road system determined to be needed to

meet resource and other management objectives adopted in the relevant land and resource management plan (36 CFR part 219), to meet applicable statutory and regulatory requirements, to reflect long-term funding expectations, to ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.

The huge estimated annual maintenance costs for roads on the NPCNF far exceed all published estimates of road maintenance funding the Forest has received annually for decades. And although the FS never likes to conduct an analysis of or disclose the forest-wide ecological impacts of its road maintenance funding shortfalls, projecting from discussion in Gucinski et al. 2001 helps to start imagining the scale of the impacts.

It is also important to recognize the ongoing ecological damage of roads—regardless of the adequacy of maintenance funding. Undesirable consequences include adverse effects on hydrology and geomorphic features (such as debris slides and sedimentation), habitat fragmentation, predation, road kill, invasion by exotic species, dispersal of pathogens, degraded water quality and chemical contamination, degraded aquatic habitat, use conflicts, destructive human actions (for example, trash dumping, illegal hunting, fires), lost solitude, depressed local economies, loss of soil productivity, and decline in biodiversity. (Gucinski et al., 2001)

Huge bibliographies of scientific information indicate the highly significant nature of departures from historic conditions that are the impacts on forest ecosystems caused by motorized travel routes and infrastructure. From the Wisdom et al. (2000) Abstract:

Our assessment was designed to provide technical support for the ICBEMP and was done in five steps. ... Third, we summarized the effects of roads and road-associated factors on populations and habitats for each of the 91 species and described the results in relation to **broad-scale patterns of road density**. Fourth, we mapped classes of the current abundance of source habitats for four species of terrestrial carnivores in relation to **classes of road density** across the 164 subbasins and used the maps to identify areas having high potential to support persistent populations. And fifth, we used our results, along with results from other studies, to describe broad-scale implications for managing habitats deemed to have undergone long-term decline and for managing species negatively affected by **roads or road-associated factors**. (Emphases added.)

Carnefix and Frissell, 2009 make a very strong scientific rationale for including ecologically-based road density standards (emphases added):

Roads have well-documented, significant and widespread ecological impacts across multiple scales, often far beyond the area of the road “footprint”. Such impacts often create large and extensive departures from the natural conditions to which organisms are adapted, which increase with the extent and/or density of the road network. Road density is a useful metric or indicator of human impact at all scales broader than a single local site because it integrates impacts of human disturbance from activities that are associated with roads and their use (e.g., timber harvest, mining, human wildfire ignitions, invasive species introduction and spread, etc.) with direct road impacts. Multiple, convergent lines of

empirical evidence summarized herein support two robust conclusions: 1) no truly “safe” threshold road density exists, but rather negative impacts begin to accrue and be expressed with incursion of the very first road segment; and 2) **highly significant impacts (e.g., threat of extirpation of sensitive species) are already apparent at road densities on the order of 0.6 km per square km (1 mile per square mile) or less.** Therefore, restoration strategies prioritized to reduce road densities in areas of high aquatic resource value from low-to-moderately-low levels to zero-to-low densities (e.g., <1 mile per square mile, lower if attainable) are likely to be most efficient and effective in terms of both economic cost and ecological benefit. By strong inference from these empirical studies of systems and species sensitive to humans’ environmental impact, with limited exceptions, **investments that only reduce high road density to moderate road density are unlikely to produce any but small incremental improvements in abundance, and will not result in robust populations of sensitive species.**

Frissell, 2014 states:

Roads are ecologically problematic in any environment because they affect biota, water quality, and a suite of biophysical processes through many physical, chemical, and biological pathways (Trombulak and Frissell 2000, Jones et al. 2000). The inherent contribution of forest roads to nonpoint source pollution (in particular sediment but also nutrients) to streams, coupled with the extensive occurrence of forest roads directly adjacent to streams through large portions of the range of bull trout in the coterminous US, adversely affects water quality in streams to a degree that is directly harmful to bull trout and their prey. This impairment occurs on a widespread and sustained basis; runoff from roads may be episodic and associated with annual high rainfall or snowmelt events, but once delivered to streams, sediment and associated pollutant deposited on the streambed causes sustained impairment of habitat for salmon and other sensitive aquatic and amphibian species. Current road design, management of road use and conditions, the locations of roads relative to slopes and water bodies, and the overall density of roads throughout most of the Pacific Northwest all contribute materially to this impairment. This effect is apart from, but contributes additively in effect to the point source pollution associated with road runoff that is entrained by culverts or ditches before being discharged to natural waters.

Ongoing and proposed activities will deliver sediment into stream networks. Sediment in streams degrades native fish habitat by filling in interstitial spaces and pools, and decreasing inter-gravel dissolved oxygen concentrations. Deposited sediments harm native fish directly by smothering eggs in redds, altering spawning habitat, and reducing overwintering habitat for fry, and indirectly by altering invertebrate species composition, thereby decreasing abundance of preferred prey.

Climate change is expected to lead to more extreme weather events, resulting in increased flood severity, more frequent landslides, altered hydrographs, and changes in erosion and sedimentation rates and delivery processes. (Halofsky et al., 2011.) Many National Forest roads are poorly located and designed to be temporarily on the landscape, making them particularly vulnerable to these climate alterations. (*Id.*) Even those designed for storms and water flows

typical of past decades may fail under future weather scenarios, further exacerbating adverse ecological impacts, public safety concerns, and maintenance needs. (Strauch et al., 2015.) At bottom, climate change predictions affect all aspects of road management, including planning and prioritization, operations and maintenance, and design. (Halofsky et al., 2011.)

The Forest Service must analyze in detail the impact of climate change on forest roads and forest resources. It should start with a vulnerability assessment, to determine the analysis area's exposure and sensitive to climate change, as well as its adaptive capacity. For example, the agency should consider the risk of increased disturbance due to climate change when analyzing this proposal. It should include existing and reasonably foreseeable climate change impacts as part of the affected environment, assess them as part of the agency's hard look at impacts, and integrate them into each of the alternatives, including the no action alternative. The agency should also consider the cumulative impacts likely to result from the proposal, proposed road activities, and climate change. In planning for climate change impacts and the proposed road activities, the Forest Service should consider: (1) protecting large, intact, natural landscapes and ecological processes; (2) identifying and protecting climate refugia that will provide for climate adaptation; and (3) maintaining and establishing ecological connectivity. (Schmitz and Trainor, 2014.)

Log hauling itself adds sediment to streams. From an investigation of the Bitterroot Burned Area Recovery Project, hydrologist Rhodes (2002) notes, "On all haul roads evaluated, haul traffic has created a copious amounts of mobile, non-cohesive sediment on the road surfaces that will elevate erosion and consequent sedimentation, during rain and snowmelt events." USDA Forest Service, 2001a also presents an analysis of increased sedimentation because of log hauling, reporting "Increased traffic over these roads would be expected to increase sediment delivery from a predicted 6.30 tons per year to 7.96 tons per year."

USDA Forest Service, 2016b (your Johnson Bar Draft EIS) states, "Increased heavy-truck traffic related to log hauling can increase rutting and displacement of road-bed material, creating conditions conducive to higher sediment delivery rates (Reid and Dunne, 1984)." The abstract from Reid and Dunne, 1984 states:

Erosion on roads is an important source of fine-grained sediment in streams draining logged basins of the Pacific Northwest. Runoff rates and sediment concentrations from 10 road segments subject to a variety of traffic levels were monitored to produce sediment rating curves and unit hydrographs for different use levels and types of surfaces. These relationships are combined with a continuous rainfall record to calculate mean annual sediment yields from road segments of each use level. A heavily used road segment in the field area contributes 130 times as much sediment as an abandoned road. A paved road segment, along which cut slopes and ditches are the only sources of sediment, yields less than 1% as much sediment as a heavily used road with a gravel surface.

U.S. Fish and Wildlife Service, 1998 (Bull Trout Biological Opinion) indicates that bull trout are absent when road densities exceed 1.71 mi./mi^2 , depressed when the road density = 1.36 mi./mi^2 and strong when road density equals or is less than $.45 \text{ mi./mi}^2$.

U.S. Fish and Wildlife Service, 2015 states:

Culverts that remain in the road behind gates and berms that are not properly sized, positioned, and inspected ...have an increased risk for failure by reducing awareness of potential maintenance needs. The accumulation of debris has the potential to obstruct culverts and other road drainage structures. Without maintenance and periodic cleaning, these structures can fail, resulting in sediment production from the road surface, ditch, and fill slopes. The design criteria to address drainage structures left behind gates and berms require annual monitoring of these structures.

Members of the ID Team for the CCIR Project fully expressed concerns in project files for that project. From 110606TransportationNFMAQuestions.docx:

2. What is broke or at risk?

The existing size of the transportation system is in excess of what is needed for current uses of the National Forest land. Newer technologies require a less invasive road system structure. A history of skid road or jammer road use, and not properly stabilizing roads has lead to a higher risk of failure by landslides and culvert washouts. These risks are even higher in landslide prone landscapes.

Another concern with the large transportation system is that it is cost prohibitive to maintain. The Forest cannot currently maintain all of the transportation system. Currently higher priority roads are being maintained to minimal standards, while other roads are not being maintained and have deferred maintenance. Roads with reduced maintenance or no maintenance are at a higher risk of failures and road closures.

More than 50 percent of the Nez Perce National Forest roads were built between 1960 and 1979. Road standards used during construction of these roads employed current BMPs. The life span of BMPs range anywhere from 10 to 50 years with repeated maintenance, so it is likely that many BMPs installed during original construction are at the end of their life span. BMPs productivity and life spans are reduced if maintenance has not occurred. Roads with BMPs near or at the end of their life span have a higher risk of failure.

4. How do you fix it?

Analyze all the system and non-system roads in the area and determine a minimum road system required based on needs and risks. Maintain roads needed for public and administrative use. Prioritize the repair of the needed roads based on risk and needs. Update all needed roads to ensure existing standards are met. Updates may include reconstruction, relocation or maintenance of roadways so they are in a stable condition. During the updates, use BMPs for minimal impact on the watershed.

Decommissioning roads no longer needed for access, that are temporary in nature, that are causing environmental damage or that are redundant.

9. What are the social / resource implications of no actions?

With only limited road maintenance and no decommissioning, roads will fail causing irreparable resource damage. Road fill and culvert failures will have an impact on stream quality. Public safety is also a concern with no action. To protect individuals from failing roads, road closures would be a common occurrence. Limited to no maintenance leads to structure failures of culverts, bridges and road fills. As road densities in the assessment area are considered high, by no action, there will be a continued adverse affects on the wildlife.

10. What are some of the foundational elements used in shaping your responses?

Nez Perce National Forest Plan

Selway Middle Fork Subbasin Assessment

CFR 36, Part 212, Travel Management Rule - Subpart A

Interior Columbia Basin Assessment

(Emphasis added.) From 111017WildlifeClearCreekNFMAComments.docx:

What's broke / at risk (threats) (this is all based on roads which are likely the largest cumulative effects out there. I believe we need to manage motorized uses in identified "sacrifice areas" and restrict motorized use in high quality habitats. I believe there is demand for a restricted roaded setting for hunters to use roads in a non-motorized setting.

From 110606NFMAQuestionsKaren.docx:

What's broke / at risk

Roads are the major contributor of sediment to streams, especially at stream crossings. Ditchlines can direct flow and road surface sediment into perennial streams at crossings. These can be a chronic (ongoing) source of sediment to streams. Culverts at crossings are mostly undersized which greatly increases the risk of plugging and failure. Crossing failures can contribute large amounts of sediment to streams. They can be costly to fix and the sediment delivered to streams can take decades to flush out of the system. Road failures also disturb existing vegetation and expose bare soil to potential erosion until the site heals.

Forest Plan Roads and Trails Standards state:

1. Develop an "Area Transportation Analysis" prior to entering drainages with land-disturbing activities.
2. Analyze the economics of proposed access developments using proven tools, and incorporate them into the project design.
3. Evaluate all facilities using the Access Management Analysis Worksheet to determine use restrictions and access needs. This worksheet will be an integral part of the Decision Document.
4. An Access Management Plan will be implemented to monitor and evaluate the effects of access on forest resources and the ability of the transportation system to accomplish the designed use. As measuring or monitoring tools, Forest access management will use two indices to monitor change over time. These indices will allow us to compare between

points in time, between areas, and between alternate access management schemes or proposals.

The FS fails to demonstrate compliance with all these Standards, in violation of the Forest Plan and NFMA. The EIS violates the Travel Management Regulations at 36 CFR § 212. It also violates NEPA by failing to use the best available science, and by failing to disclose project inconsistency with the Travel Management Regulations.

Remedy: Select the No Action alternative. Alternatively, prepare an EIS that addresses the analytical issues identified above. Also, disclose the following information concerning the project area:

- The deferred road maintenance backlog
- The annual road maintenance funding needs
- The annual road maintenance budget
- The capital improvement needs for existing roads
- The road density in the project area
- The number of miles of project area roads that fail to meet BMP standards or design standards
- If adequate maintenance funding will exist for the post-project road network, and disclose how deferred maintenance costs might increase or decrease post-project.

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FIRE POLICY AND FIRE ECOLOGY

The FOC/AWR et al. original Clear Creek project objection discusses this issue (see section XXXII. DEFICIENT CUMULATIVE EFFECTS ANALYSIS OF FIRE SUPPRESSION).

The FS claims there is a need to reduce hazardous fuels, and wildfire risk. The FS is taking the position that “fuel” arrangement is the overriding threat to private property and structures. This runs counter to best available scientific information. The EIS fails to disclose that fuel moisture, weather, and topography are by far the factors with the most influence on fire behavior and spread. Responsibility for the risk of fire burning private structures rests squarely on the shoulders of the owners of those structures—not on U.S. taxpayers.

The EIS completely omitted any discussion around well-documented uncertainty of the strategy of logging to reduce future fire behavior, especially regeneration logging of mature forests, which could serve as fire refugia. It is increasingly understood and accepted that reducing fuels does not consistently prevent large fires and does not reduce the outcome of these fires. *See* Lydersen et al. 2014. There is much scientific controversy surrounding this issue.

We incorporate “A New Direction for California Wildfire Policy—Working from the Home Outward” from the Leonard DiCaprio Foundation. It criticizes policies from the state of California, which are essentially the same FS fire policies on display in the NPCNF. From the Executive Summary: “These policies try to alter vast areas of forest in problematic ways through logging, when instead they should be focusing on helping communities safely co-exist with California’s naturally fire-dependent ecosystems by prioritizing effective fire-safety actions for homes and the zone right around them. This new direction—working from the home outward—can save lives and homes, save money, and produce jobs in a strategy that is better for natural ecosystems and the climate.” It also presents an eye-opening analysis of the Camp Fire, which destroyed the town of Paradise.

We also incorporate the John Muir Project document “Forest Thinning to Prevent Wildland Fire ...vigorously contradicted by current Science” (Attachment A).

We likewise incorporate “Open Letter to Decision Makers Concerning Wildfires in the West” signed by over 200 scientists (Attachment C).

And also see “Land Use Planning More Effective Than Logging to Reduce Wildfire Risk” (Attachment D).

The EIS does not disclose if actions have been taken to reduce fuels on private lands the FS supposes will be somehow protected by this “project”, or how those activities (or lack of) will impact the efficacy of the activities proposed for this Project.

The risks of fire are best dealt with in the immediate vicinity of homes, and by focusing on routes for egress during fire events—not by logging national forest lands well away from human occupied neighborhoods. The EIS fails to disclose that the only effective way to prevent structure damage is to manage the fuels in the immediate vicinity of those structures.

The nine-part Wildfire Research Fact Sheet Series was produced by the National Fire Protection Association (NFPA)’s Firewise USA® program, as part of the NFPA/USDA Forest Service cooperative agreement and with research provided by the Insurance Institute for Business and Home Safety (IBHS). They are a product of the research done by the IBHS lab in South Carolina, covering a wide range of issues. This Firewise approach also begs the question—why isn’t the NPCNF implementing an aggressive outreach and education program to assist homeowners living in and near project areas, and elsewhere in the Wildland-Urban Interface (WUI)?

In support of focusing on manipulating limited areas near homes, Finney and Cohen, 2003, state:

Research findings indicate that a home’s characteristics and the characteristics of a home’s immediate surroundings within 30 meters principally determine the potential for wildland-urban fire destruction. This area, which includes the home and its immediate surroundings, is termed the home ignition zone. The home ignition zone implies that activities to reduce the potential for wildland-urban fire destruction can address the necessary factors that determine ignitions and can be done sufficiently to reduce the likelihood of ignition. Wildland fuel reduction outside and adjacent to a home ignition zone might reduce the potential flame and firebrand exposure to the home ignition zone (i.e., within 30 m of the home). However, the factors contributing to home ignition within this zone have not been mitigated. Given a wildfire, wildland fuel management alone (i.e., outside the home ignition zone) is not sufficient nor does it substitute for mitigations within the home ignition zone. ... (I)t is questionable whether wildland fuel reduction activities are necessary and sufficient for mitigating structure loss in wildland urban fires.

...(W)ildland fuel management changes the ... probability of a fire reaching a given location. It also changes the distribution of fire behaviors and ecological effects experienced at each location because of the way fuel treatments alter local and spatial fire behaviors (Finney 2001). **The probability that a structure burns, however, has been shown to depend exclusively on the properties of the structure and its immediate surroundings (Cohen 2000a).** (Emphasis added.)

Our take from Finney and Cohen (2003) is that there is much uncertainty over effects of fuel reduction, which the EIS fails to acknowledge or recognize. The authors point out:

Although the conceptual basis of fuel management is well supported by ecological and fire behavior research in some vegetation types, the promise of fuel management has lately become loaded with the expectation of a diffuse array of benefits. Presumed benefits range from restoring forest structure and function, bringing fire behavior closer to ecological precedents, reducing suppression costs and acres burned, and preventing losses of ecological and urban values. For any of these benefits to be realized from fuel management, a supporting analysis must be developed to physically relate cause and effect, essentially evaluating how the benefit is physically derived from the management action (i.e. fuel management). Without such an analysis, the results of fuel management can fail to yield the expected return, potentially leading to recriminations and abandonment of a legitimate and generally useful approach to wildland fire management.

Finney and Cohen, 2003 recognize: “To reduce expected loss from home ignition, it is necessary and **often sufficient to manage fuels only within the home ignition zone ...and abide by fire resistant home construction standards...**” (Emphasis added).

The EIS emphasizes actions that attempt to adapt a fire-prone ecosystem to the presence of human development, however we firmly believe the emphasis must be the opposite—assisting human communities to adapt to the fire-prone ecosystems into which they been built.

We strongly support government actions that facilitate cultural change towards private landowners taking the primary responsibility for mitigating the safety and property risks from fire, by implementing firewise activities on their property. Indeed, the best available science supports such a prioritization. (Kulakowski, 2013; Cohen, 1999a) Also, see Firewise Landscaping⁹ as recommended by Utah State University, and the Firewise USA website by the National Fire Protection Association¹⁰ for examples of educational materials.

A recent article in Phys.org reports on results of a study by DellaSala and Hanson, 2019:

They found no significant trend in the size of large high-severity burn patches between 1984 and 2015, disputing the prevailing belief that increasing megafires are setting back post-fire forest regeneration. "This is the most extensive study ever conducted on the high-severity fire component of large fires, and our results demonstrate that there is no need for massive forest thinning and salvage logging before or after a forest fire," says Dr. Dominick A. DellaSala, lead author of the study and Chief Scientist at the Geos Institute. "The perceived megafire problem is being overblown. After a fire, conditions are ideal for forest re-establishment, even in the interior of the largest severely burned patches. We found conditions for forest growth in interior patches were possible over 1000 feet from the nearest low/moderately burned patch where seed sources are most likely."

DellaSala, et al. (1995) state:

⁹ <https://extension.usu.edu/ueden/ou-files/Firewise-Landscaping-for-Utah.pdf>

¹⁰ <http://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA/The-ember-threat-and-the-home-ignition-zone>

Scientific evidence does not support the hypothesis that intensive salvage, thinning, and other logging activities reduce the risk of catastrophic fires if applied at landscape scales ... At very local scales, the removal of fuels through salvage and thinning may hinder some fires. However, applying such measures at landscape scales removes natural fire breaks such as moist pockets of late-seral and riparian forests that dampen the spread and intensity of fire and has little effect on controlling fire spread, particularly during regional droughts. ... Bessie and Johnson (1995) found that surface fire intensity and crown fire initiation were strongly related to weather conditions and only weakly related to fuel loads in subalpine forest in the southern Canadian Rockies. . . . Observations of large forest fires during regional droughts such as the Yellowstone fires in 1988 (Turner, et al. 1994) and the inland northwest fires of 1994 . . . raise serious doubts about the effectiveness of intensive fuel reductions as “fire-proofing” measures.

“Only treating fuels in the immediate vicinity of the homes themselves can reduce risk to homes, not backcountry fuel reductions projects that divert scarce resources away from true home protection.” DellaSala et al. 2015 (Chapter 13), p. 384 (citing Cohen, 2000; Gibbons et al. 2012; Calkin et al. 2013; Syphard et al, 2014).

Veblen (2003) states:

The premise behind many projects aimed at wildfire hazard reduction and ecological restoration in forests of the western United States is the idea that unnatural fuel buildup has resulted from suppression of formerly frequent fires. This premise and its implications need to be critically evaluated by conducting area-specific research in the forest ecosystems targeted for fuels or ecological restoration projects. Fire regime researchers need to acknowledge the limitations of fire history methodology and avoid over-reliance on summary fire statistics such as mean fire interval and rotation period. While fire regime research is vitally important for informing decisions in the areas of wildfire hazard mitigation and ecological restoration, there is much need for improving the way researchers communicate their results to managers and the way managers use this information.

Riggers, et al. 2001 state:

(T)he real risk to fisheries is not the direct effects of fire itself, but rather the existing condition of our watersheds, fish communities, and stream networks, and the impacts we impart as a result of fighting fires. Therefore, attempting to reduce fire risk as a way to reduce risks to native fish populations is really subverting the issue. If we are sincere about wanting to reduce risks to fisheries associated with future fires, we ought to be removing barriers, reducing road densities, reducing exotic fish populations, and re-assessing how we fight fires. At the same time, we should recognize the vital role that fires play in stream systems, and attempt to get to a point where we can let fire play a more natural role in these ecosystems.

Those FS biologists emphasize, “the importance of wildfire, including large-scale, intense wildfire, in creating and maintaining stream systems and stream habitat. ...(I)n most cases, proposed projects that involve large-scale thinning, construction of large fuel breaks, or salvage logging as tools to reduce fuel loading with the intent of reducing negative effects to watersheds and the aquatic system are largely unsubstantiated.”

Kauffman (2004) suggests that current FS fire suppression policies are what is catastrophic, and that fires are beneficial:

Large wild fires occurring in forests, grasslands and chaparral in the last few years have aroused much public concern. Many have described these events as “catastrophes” that must be prevented through aggressive increases in forest thinning. **Yet the real catastrophes are not the fires themselves but those land uses, in concert with fire suppression policies that have resulted in dramatic alterations to ecosystem structure and composition.** The first step in the restoration of biological diversity (forest health) of western landscapes must be to implement changes in those factors that have resulted in the current state of wildland ecosystems. Restoration entails much more than simple structural modifications achieved through mechanical means. **Restoration should be undertaken at landscape scales and must allow for the occurrence of dominant ecosystem processes, such as the natural fire regimes achieved through natural and/or prescribed fires at appropriate temporal and spatial scales.** (Emphases added.)

Noss et al. (2006) state:

Forest landscapes that have been affected by a major natural disturbance, such as a severe wildfire or wind storm, are commonly viewed as devastated. Such perspectives are usually far from ecological reality. Overall species diversity, measured as number of species—at least of higher plants and vertebrates – is often highest following a natural stand replacement disturbance and before redevelopment of closed-canopy forest (Lindenmayer and Franklin 2002). Important reasons for this include an abundance of biological legacies, such as living organisms and dead tree structures, the migration and establishment of additional organisms adapted to the disturbed, early-successional environment, availability of nutrients, and temporary release of other plants from dominance by trees. Currently, early-successional forests (naturally disturbed areas with a full array of legacies, i.e. not subject to post-fire logging) and forests experiencing natural regeneration (i.e. not seeded or planted), are among the most scarce habitat conditions in many regions.

High-severity fire is ecologically important. (Bond et al. 2012.) Snag forest habitat “is one of the most ecologically important and biodiverse forest habitat types in western U.S. conifer forests (Lindenmayer and Franklin 2002, Noss et al. 2006, Hutto 2008).” (Hanson 2010.)

Even if there is scientific legitimacy to the claims that fuel reductions reduce ecological damage from subsequent fire—a claim that is scientifically controversial and unproven for the long term, and unquantified for any defined short term—the area affected by such projects in recent years is miniscule compared to the entire, allegedly fire-suppressed Forest.

It may be that fire suppression in the project area has not, in reality, caused a significantly elevated risk of abnormal fire in the project area. We believe the agency is playing this fire-scare card largely to justify logging as restoration. However, playing the fire scare card is not just a project area issue—it's forestwide. The agency puts the joker in the deck, changing the whole game—not just for one hand as the FS pretends.

Scientific information concerning fire suppression was a major theme of the Interior Columbia Basin Ecosystem Management Project (ICBEMP) in the 1990s: “Aggressive fire suppression policies of Federal land-managing agencies have been increasingly criticized as more has been learned about natural fire cycles.” (USDA FS & USDI BLM 1996, p. 22.)

Also, “Substantial changes in disturbance regimes—especially changes resulting from fire suppression, timber management practices, and livestock grazing over the past 100 years—have resulted in moderate to high departure of vegetation composition and structure and landscape mosaic patterns from historical ranges.” (USDA FS & USDI BLM 2000, Ch. 4. P. 18.)

The effects of fire suppression are not unique to this project area—similar language has been included in NEPA documents for all logging projects on this Forest for at least a decade. If fire suppression effects as described in the EIS are occurring, it means that, as forestwide fire suppression continues, the results of this management include continuing **increases in these adverse effects across the entire forest**. So multiply the above list of effects times the extent of the entire forest, and what the agency tacitly admits is, forestwide fire suppression is leading to stand-replacing fires outside what is natural, and that alternation of fire regimes results in wide-scale disruption of habitats for wildlife, rare plants, tree insect and disease patterns and increases the occurrence of noxious weeds. Such analyses and disclosures are not found in the Forest Plan FEIS.

The no-action alternative contemplated under the ICBEMP EIS is the management direction found in the Forest Plan: “Alternative S1 (no action) continues management specified under each existing Forest Service and BLM land use plan, as amended or modified by interim direction—known as Eastside Screens (national forests in eastern Oregon and Washington only), PACFISH, and INFISH—as the long-term strategy for lands managed by the Forest Service or BLM.” (USDA FS & USDI BLM 2000. Ch. 5, pp 5-6.)

The philosophy driving the FS strategy to replicate historic vegetative conditions (i.e. desired conditions) is that emulation of the results of disturbance processes would conserve biological diversity. McRae et al. 2001 provide a scientific review summarizing empirical evidence that illustrates several significant differences between logging and wildfire—differences which the FS fails to address. Also, Naficy et al. 2010 found a significant distinction between fire-excluded ponderosa pine forests of the northern Rocky Mountains logged prior to 1960 and paired fire-excluded, unlogged counterparts:

We document that fire-excluded ponderosa pine forests of the northern Rocky Mountains logged prior to 1960 have much higher average stand density, greater homogeneity of stand structure, more standing dead trees and increased abundance of fire-intolerant trees than paired fire-excluded, unlogged counterparts. Notably, the magnitude of the interactive

effect of fire exclusion and historical logging substantially exceeds the effects of fire exclusion alone. These differences suggest that historically logged sites are more prone to severe wildfires and insect outbreaks than unlogged, fire-excluded forests and should be considered a high priority for fuels reduction treatments. Furthermore, we propose that ponderosa pine forests with these distinct management histories likely require distinct restoration approaches. We also highlight potential long-term risks of mechanical stand manipulation in unlogged forests and emphasize the need for a long-term view of fuels management.

Bradley et al. 2016 studied the fundamental premise that mechanical fuel reduction will reduce fire risk. This study “found forests with higher levels of protection had lower severity values even though they are generally identified as having the highest overall levels of biomass and fuel loading.” In fact, the study’s results suggest the opposite: “(B)urn severity tended to be higher in areas with lower levels of protection status (more intense management), after accounting for topographic and climatic conditions in all three model runs. Thus, we rejected the prevailing forest management view that areas with higher protection levels burn most severely during wildfires.” The study goes on to discuss other findings:

An extension of the prevailing forest/fire management hypothesis is that biomass and fuels increase with increasing time after fire (due to suppression), leading to such intense fires that the most long-unburned forests will experience predominantly severe fire behavior (e.g., see USDA Forest Service 2004, Agee and Skinner 2005, Spies et al. 2006, Miller et al. 2009b, Miller and Safford 2012, Stephens et al. 2013, Lydersen et al. 2014, Dennison et al. 2014, Hessburg 2016). However, this was not the case for the most long-unburned forests in two ecoregions in which this question has been previously investigated—the Sierra Nevada of California and the Klamath-Siskiyou of northern California and southwest Oregon. In these ecoregions, the most long-unburned forests experienced mostly low/moderate-severity fire (Odion et al. 2004, Odion and Hanson 2006, Miller et al. 2012, van Wagten et al. 2012). Some of these researchers have hypothesized that as forests mature, the overstory canopy results in cooling shade that allows surface fuels to stay moister longer into fire season (Odion and Hanson 2006, 2008). This effect may also lead to a reduction in pyrogenic native shrubs and other understory vegetation that can carry fire, due to insufficient sunlight reaching the understory (Odion et al. 2004, 2010).

From a [news release](#) announcing the results of the Bradley et al. 2016 study:

“We were surprised to see how significant the differences were between protected areas managed for biodiversity and unprotected areas, which our data show burned more severely,” said lead author Curtis Bradley, with the Center for Biological Diversity.

The study focused on forests with relatively frequent fire regimes, ponderosa pine and mixed-conifer forest types; used multiple statistical models; and accounted for effects of climate, topography and regional differences to ensure the findings were robust.

“The belief that restrictions on logging have increased fire severity did not bear out in the study,” said Dr. Chad Hanson, an ecologist with the John Muir Project. “In fact, the findings suggest the opposite. The most intense fires are occurring on private forest lands, while lands with little to no logging experience fires with relatively lower intensity.”

“Our findings demonstrate that increased logging may actually increase fire severity,” said Dr. Dominick A. DellaSala, chief scientist of Geos Institute. “Instead, decision-makers concerned about fire should target proven fire-risk reduction measures nearest homes and keep firefighters out of harm’s way by focusing fire suppression actions near towns, not in the back country.”

Zald and Dunne, 2018 state, “intensive plantation forestry characterized by young forests and spatially homogenized fuels, rather than pre-fire biomass, were significant drivers of wildfire severity.”

Wales, et al. 2007 modeled various potential outcomes of fire and fuel management scenarios on the structure of forested habitats in northeast Oregon. They projected that the **natural disturbance scenario resulted in the highest amounts of all types of medium and large tree forests combined** and best emulated the Natural Range of Variability for medium and large tree forests by potential vegetation type after several decades. Restoring the natural disturbances regimes and processes is the key to restoring forest structure and functionality similar to historical conditions.

In his testimony before Congress, DellaSala, 2017 discusses “...how proposals that call for increased logging and decreased environmental review in response to wildfires and insect outbreaks are not science driven, in many cases may make problems worse, and will not stem rising wildfire suppression costs” and “what we know about forest fires and beetle outbreaks in relation to climate change, limitations of thinning and other forms of logging in relation to wildfire and insect management” and gives “recommendations for moving forward based on best available science.”

Typically, attempts to control or resist the natural process of fire have been a contributor to deviations from historic conditions. The FS analyses skew toward considering fire as well as native insects and other natural pathogens as threats to the ecosystem rather than rejuvenating natural processes. It seems to need the obsolete viewpoint in order to justify and prioritize the proposed vegetation manipulations, tacitly for replacing natural processes with “treatments” and “prescriptions.” However the scientific support for assuming that ecosystems can be restored or continuously maintained by such manipulative actions is entirely lacking.

Karr (1991) cites a definition of ecological integrity as “the ability to support and maintain “a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region.” Karr (1991) also cites a definition of ecological health: “a biological system ... can be considered healthy when its inherent potential is realized, its condition is stable, its capacity for self-repair when perturbed is preserved, and **minimal external support for management is needed.**” (Emphasis added.) The FS misses that last aspect of ecological health—specifically that it doesn’t need management meddling.

Likewise Angermeier and Karr (1994) describe biological integrity as referring to “conditions under little or no influence from human actions; a biota with high integrity reflects natural evolutionary and biogeographic processes.”

In their conclusion, Hessburg and Agee, 2003 state “Desired future conditions will only be realized by planning for and creating the desired ecosystem dynamics represented by ranges of conditions, set initially in strategic locations with minimal risks to species and processes.”

The FS’s foreseeable budget for the NPCNF would not allow enough vegetation management under the agency’s paradigm to “fix” the problems the FS says would be perpetuated by fire suppression. The FS did not conduct any analysis that faces up to any **likely** budget scenario, in regards to the overall management emphases. The implication is clear: logging and fire suppression is intended to continually dominate, except in those weather situations when and where suppression actions are ineffective, in which case fires of high severity will occur across relatively wide areas. No cumulative effects analysis at any landscape scale exists to disclose the environmental impacts.

Also in claiming and implying departures from historic conditions, the FS does not provide a spatial analysis, either for the true reference conditions or of current project area conditions. The FS has no scientifically defensible analysis of the project area **landscape pattern** departure from HRV.

Churchill, 2011 points out:

Over time, stand development processes and biophysical variation, along with low and mixed-severity disturbances, **break up these large patches into a finer quilt of patch types. These new patterns then constrain future fires.** Landscape pattern is thus generated from a blend of finer scale, feedback loops of vegetation and disturbance and broad scale events that are driven by extreme climatic events.

(Emphases added.) Churchill describes above the ongoing natural processes that will alleviate problems alleged in the EIS—without expensive and ecologically risky logging and road building. Since no proper spatial analysis of the landscape pattern’s departure has been completed, the EIS has no scientifically defensible logging solution.

Any assumption that drier forests did not experience stand-replacing fires, that fire regimes were frequent and nonlethal, that these stands were open and dominated by large well-spaced trees, and that fuel amounts determine fire severity (the false thinning hypothesis that fails to recognize climate as the overwhelming main driver of fire intensity) are not supported by science (see for example Baker and Williams 2015, Williams and Baker 2014, Baker et al. 2006, Pierce et al. 2004, Baker and Ehle 2001, Sherriff et al. 2014). Even research that has uncritically accepted the questionable ponderosa pine model that may only apply to the Mogollon Rim of Arizona and New Mexico (and perhaps in similar dry-forest types in California), notes the inappropriateness of applying that model to elsewhere (see Schoennagel et al. 2004). The FS’s assertion that the

proposed treatments will result in likely or predictable later wildland fire effects is of considerable scientific doubt (Rhodes and Baker, 2008).

Despite the fact that the EIS makes many statements to the effect that without the proposed treatments there is a high likelihood of highly adverse effects on various resources due to wildfire, it discloses nothing about such effects from recent fires in the general area. The FS's fear-invoking statements about the impacts of fire are speculative and not based upon data or any empirical evidence, in violation of NEPA.

Large fires are weather-driven events, not fuels-driven. When the conditions exist for a major fire—which includes drought, high temperatures, low humidity and high winds—nothing, including past logging, halts blazes. Such fires typically self-extinguish or are stopped only when less favorable conditions occur for fire spread. As noted in Graham, 2003:

The prescriptions and techniques appropriate for accomplishing a treatment require understanding the fuel changes that result from different techniques and the fire behavior responses to fuel structure. **Fuel treatments, like all vegetation changes, have temporary effects and require repeated measures, such as prescribed burning, to maintain desired fuel structure.**

If the predictions of uncharacteristically severe fire were accurate, one might think that the results of scientific validation of such assumptions would have been conducted in the NPCNF by now, and cited in the EIS. We find no data or scientific analysis of those fires' effects validating the FS's predictions of uncharacteristically severe fire effects if the logging is not conducted.

The EIS fails to explain the fire implications of no treatment applied to untreated portions of the project area under the action alternatives.

The EIS did not provide a genuine analysis and disclosure of the varying amounts and levels of effectiveness of fuel changes attributable to: the varying ages of the past cuts, the varying forest types, the varying slash treatments, etc.

There has been extensive research in forests about the ecological benefits of mixed-severity (which includes high-severity) fire over the past two decades, so much so that in 2015 science and academic publishers Elsevier published a 400-page book, *The Ecological Importance of Mixed-Severity Fires: Nature's Phoenix* which synthesizes published, peer-reviewed science investigating the value of mixed- and high-severity fires for biodiversity (DellaSala and Hanson, 2015). The book includes research documenting the benefits of high-intensity wildfire patches for wildlife species, as well as a discussion of mechanical "thinning" and its inability to reduce the chances of a fire burning in a given area, or alter the intensity of a fire, should one begin under high fire weather conditions, because overwhelmingly weather, not vegetation, drives fire behavior (DellaSala and Hanson, 2015, Ch. 13, pp. 382-384).

Baker, 2015, states: "Programs to generally reduce fire severity in dry forests are not supported and have significant adverse ecological impacts, including reducing habitat for native species

dependent on early-successional burned patches and decreasing landscape heterogeneity that confers resilience to climatic change.”

Baker, 2015 concluded: “Dry forests were historically renewed, and will continue to be renewed, by sudden, dramatic, high-intensity fires after centuries of stability and lower-intensity fires.”

Baker, 2015 writes: “**Management issues...** The evidence presented here shows that efforts to generally lower fire severity in dry forests for ecological restoration are not supported.”

In his book, “Fire Ecology in Rocky Mountain Landscapes” William Baker writes on page 435, “...a prescribed fire regime that is too frequent can reduce species diversity (Laughlin and Grace 2006) and favor invasive species (M.A. Moritz and Odion 2004). Fire that is entirely low severity in ecosystems that historically experience some high-severity fire may not favor germination of fire-dependent species (M.A. Moritz and Odion 2004) or provide habitat key animals (Smucker, Hutto, and Steele 2005).” And on page 436: “Fire rotations equal the average mean fire interval across a landscape and are appropriate intervals at which individual points or the whole landscape is burned. Composite fire intervals underestimate mean fire interval and fire rotation (chap 5) and should not be used as prescribed burning intervals as this would lead to too much fire and would likely lead to adversely affect biological diversity (Laughlin and Grace 2006).”

Baker estimates the high severity fire rotation to be 135 - 280 years for lodgepole pine forests. (See page 162.). And on pp. 457-458: “Fire rotation has been estimated as about 275 years in the Rockies as a whole since 1980 and about 247 years in the northern Rockies over the last century, and both figures are near the middle between the low (140 years) and high (328 years) estimates for fire rotation for the Rockies under the HRV (chap. 10). These estimates suggest that since EuroAmerican settlement, fire control and other activities may have reduced fire somewhat in particular places, but a general syndrome of fire exclusion is lacking. Fire exclusion also does not accurately characterize the effects of land users on fire or match the pattern of change in area burned at the state level over the last century (fig. 10.9). In contrast, fluctuation in drought linked to atmospheric conditions appear to match many state-level patterns in burned area over the last century. Land uses that also match fluctuations include logging, livestock grazing, roads and development, which have generally increased flammability and ignition at a time when the climate is warming and more fire is coming.”

Schoennagel et al., 2004 state: “High-elevation subalpine forests in the Rocky Mountains typify ecosystems that experience infrequent, high-severity crown fires []. . . The most extensive subalpine forest types are composed of Engelmann spruce (*Picea engelmannii*), subalpine fir (*Abies lasiocarpa*), and lodgepole pine (*Pinus contorta*), all thin-barked trees easily killed by fire. Extensive stand-replacing fires occurred historically at long intervals (i.e., one to many centuries) in subalpine forests, typically in association with infrequent high-pressure blocking systems that promote extremely dry regional climate patterns.”

Schoennagel et al., 2004 state:

(I)t is unlikely that the short period of fire exclusion has significantly altered the long fire intervals in subalpine forests. Furthermore, large, intense fires burning under dry conditions are very difficult, if not impossible, to suppress, and such fires account for the majority of area burned in subalpine forests.

Moreover, there is no consistent relationship between time elapsed since the last fire and fuel abundance in subalpine forests, further undermining the idea that years of fire suppression have caused unnatural fuel buildup in this forest zone.

No evidence suggests that spruce–fir or lodgepole pine forests have experienced substantial shifts in stand structure over recent decades as a result of fire suppression. Overall, variation in climate rather than in fuels appears to exert the largest influence on the size, timing, and severity of fires in subalpine forests []. We conclude that large, infrequent stand replacing fires are ‘business as usual’ in this forest type, not an artifact of fire suppression.

Contrary to popular opinion, previous fire suppression, which was consistently effective from about 1950 through 1972, had only a minimal effect on the large fire event in 1988 []. Reconstruction of historical fires indicates that similar large, high-severity fires also occurred in the early 1700s []. Given the historical range of variability of fire regimes in high-elevation subalpine forests, fire behavior in Yellowstone during 1988, although severe, was neither unusual nor surprising.

Mechanical fuel reduction in subalpine forests would not represent a restoration treatment but rather a departure from the natural range of variability in stand structure.

Given the behavior of fire in Yellowstone in 1988, fuel reduction projects probably will not substantially reduce the frequency, size, or severity of wildfires under extreme weather conditions.

The Yellowstone fires in 1988 revealed that variation in fuel conditions, as measured by stand age and density, had only minimal influence on fire behavior. Therefore, we expect fuel-reduction treatments in high-elevation forests to be generally unsuccessful in reducing fire frequency, severity, and size, given the overriding importance of extreme climate in controlling fire regimes in this zone. Thinning also will not re-store subalpine forests, because they were dense historically and have not changed significantly in response to fire suppression. Thus, fuel-reduction efforts in most Rocky Mountain subalpine forests probably would not effectively mitigate the fire hazard, and these efforts may create new ecological problems by moving the forest structure outside the historic range of variability.

The proposed action will result in increased fire severity and more rapid fire spread. This common sense is recognized in a [news media discussion](#) of the 2017 Eagle Creek fire in Oregon:

Old growth not so easy to burn:

Officials said the fire spread so rapidly on the third and fourth days because it was traveling across lower elevations.

The forests there aren't as thick and as dense as the older growth the fire's edge is encountering now - much of it in the Mark O. Hatfield Wilderness, Whittington said.

Whittington said because **there's more cover from the tree canopy, the ground is moister -- and that's caused the fire to slow. Also, bigger trees don't catch fire as easily**, he said.

(Emphasis added.) The FS also likes to trot out the premise that tree mortality from native insect activity and other agents of tree mortality increase risk of wildfire. Again, this is not supported by science. Meigs, et al., 2016 found “that insects generally reduce the severity of subsequent wildfires. ... By dampening subsequent burn severity, native insects could buffer rather than exacerbate fire regime changes expected due to land use and climate change. In light of these findings, we recommend a precautionary approach when designing and implementing forest management policies intended to reduce wildfire hazard and increase resilience to global change.” [Also *see* Black, 2005; Black, et al., 2010; DellaSala (undated); Kulakowski (2013); Hanson et al., 2010; Hart et al., 2015.] And for an ecological perspective from the FS itself, see Rhoades et al., 2012, who state: “While much remains to be learned about the current outbreak of mountain pine beetles, researchers are already finding that **beetles may impart a characteristic critically lacking in many pine forests today: structural complexity and species diversity.**” (Emphasis added.)

McClelland (undated) criticizes the aim to achieve desired conditions by the use of mitigation measures calling for retention of specific numbers of certain habitat structures:

The snags per acre approach is not a long-term answer because it **concentrates on the products of ecosystem processes rather than the processes themselves**. It does not address the most critical issue—long-term perpetuation of diverse forest habitats, a mosaic pattern which includes stands of old-growth larch. **The processes that produce suitable habitat must be retained or reinstated by managers. Snags are the result of these processes** (fire, insects, disease, flooding, lightning, etc.).

Castello et al. (1995) discuss issues ignored in chasing static Desired Conditions:

Pathogens help decompose and release elements sequestered within trees, facilitate succession, and maintain genetic, species and age diversity. Intensive control measures, such as thinning, salvage, selective logging, and buffer clearcuts around affected trees remove crucial structural features. Such activities also remove commercially valuable, disease-resistant trees, thereby contributing to reduced genetic vigor of populations.

Hayward, 1994 states:

Despite increased interest in historical ecology, scientific understanding of the historic abundance and distribution of montane conifer forests in the western United States is not

sufficient to indicate how current patterns compare to the past. In particular, knowledge of patterns in distribution and abundance of older age classes of these forests is not available. ...Current efforts to put management impacts into a historic context seem to focus almost exclusively on what amounts to a snapshot of vegetation history—a documentation of forest conditions near the time when European settlers first began to impact forest structure. ...The value of the historic information lies in the perspective it can provide on the potential variation... I do not believe that historical ecology, emphasizing static conditions in recent times, say 100 years ago, will provide the complete picture needed to place present conditions in a proper historic context. Conditions immediately prior to industrial development may have been extraordinary compared to the past 1,000 years or more. Using forest conditions in the 1800s as a baseline, then, could provide a false impression if the baseline is considered a goal to strive toward.

Noss, 2001, believes “If the thoughtfully identified critical components and **processes of an ecosystem are sustained**, there is a high probability that the ecosystem as a whole is sustained.” (Emphasis added.) Noss 2001 describes basic ecosystem components (Emphasis added):

Ecosystems have **three basic components: composition, structure, and function**. Together, they define biodiversity and ecological integrity and provide the foundation on which standards for a sustainable human relationship with the earth might be crafted.

Noss, 2001 goes on to define those basic components (Emphases added):

Composition includes the kinds of species present in an ecosystem and their relative abundances, as well as the composition of plant associations, floras and faunas, and habitats at broader scales. We might describe the composition of a forest, from individual stands to watersheds and regions.

Structure is the architecture of the forest, which includes the vertical layering and shape of vegetation and its horizontal patchiness at several scales, from within stands (e.g., treefall gaps) to landscape patterns at coarser scales. Structure also includes the presence and abundance of such distinct structural elements as snags (standing dead trees) and downed logs in various size and decay classes.

Function refers to the **ecological processes** that characterize the ecosystem. These processes are both biotic and abiotic, and include decomposition, nutrient cycling, disturbance, succession, seed dispersal, herbivory, predation, parasitism, pollination, and many others. Evolutionary processes, including mutation, gene flow, and natural selection, are also in the functional category.

Hutto, 1995 also addresses natural processes, referring specifically to fire:

Fire is such an important creator of the ecological variety in Rocky Mountain landscapes that the conservation of biological diversity [required by NFMA] is likely to be accomplished only through **the conservation of fire as a process**... Efforts to meet legal

mandates to maintain biodiversity should, therefore, be directed toward **maintaining processes like fire**, which create the variety of vegetative cover types upon which the great variety of wildlife species depend. (Emphases added.)

Noss and Cooperrider (1994) state:

Considering process is fundamental to biodiversity conservation because process determines pattern. Six interrelated categories of ecological processes that biologists and managers must understand in order to effectively conserve biodiversity are (1) energy flows, (2) nutrient cycles, (3) hydrologic cycles, (4) disturbance regimes, (5) equilibrium processes, and (6) feedback effects. (Emphasis added.)

The Environmental Protection Agency (1999) recognizes the primacy of natural processes:

(E)cological processes such as natural disturbance, hydrology, nutrient cycling, biotic interactions, population dynamics, and evolution determine the species composition, habitat structure, and ecological health of every site and landscape. **Only through the conservation of ecological processes** will it be possible to (1) represent all native ecosystems within the landscape and (2) maintain complete, unfragmented environmental gradients among ecosystems. (Emphasis added.)

Frissell and Bayles (1996) state:

...The concept of range of natural variability ...suffers from its failure to provide defensible criteria about **which factors ranges should be measured**. Proponents of the concept assume that a finite set of variables can be used to define the range of ecosystem behaviors, when ecological science strongly indicates many diverse factors can control and limit biota and natural resource productivity, often in complex, interacting, surprising, and species-specific and time-variant ways. **Any simple index for measuring the range of variation will likely exclude some physical and biotic dimensions important for the maintenance of ecological integrity and native species diversity.** (Emphases added.)

Forest Service researcher Everett (1994) states:

To prevent loss of future options we need to simultaneously **reestablish ecosystem processes and disturbance effects that create and maintain desired sustainable ecosystems**, while conserving genetic, species, community, and landscape diversity and long-term site productivity.

...We must address **restoration of ecosystem processes and disturbance effects** that create sustainable forests before we can speak to the restoration of stressed sites; otherwise, we will forever treat the symptom and not the problem. ... **One of the most significant management impacts on the sustainability of forest ecosystems has been the disruption of ecosystem processes** through actions such as fire suppression (Mutch and others 1993), dewatering of streams for irrigation (Wissmar and others 1993), **truncation of stand succession** by timber harvest (Walstad 1988), and maintaining

numbers of desired wildlife species such as elk in excess of historical levels (Irwin and others 1993). Several ecosystem processes are in an altered state because we have interrupted the cycling of biomass through fire suppression or have created different cycling processes through resource extraction (timber harvest, grazing, fish harvest). (Emphases added.)

George and Zack, 2001 “recommend that managers: (1) identify the wildlife species they want to target for restoration efforts, (2) consider the size and landscape context of the restoration site and whether it is appropriate for the target species, (3) identify the habitat elements that are necessary for the target species, (4) develop a strategy for restoring those **elements and the ecological processes that maintain them**, and (5) implement a long-term monitoring program to gauge the success of the restoration efforts.” (Emphasis added.) None of this is found in any Clear Creek analysis of restoration needs.

Collins and Stephens (2007) understand that *educating the public* is a prerequisite for restoring the process of wildland fire. This means explaining and embracing the inevitability of wildland fire and teaching about fire ecology. Also, there is a proliferation of information on the worldwide web for property owners, who have the primary responsibility for protecting their homes. See this [video](#) by the National Fire Protection Association, for example.

Further, Collins and Stephens (2007) suggest direction to implement restoring the process of fire by educating the public:

(W)hat may be more important than restoring structure is restoring the process of fire (Stephenson 1999). By allowing fire to resume its natural role in limiting density and reducing surface fuels, competition for growing space would be reduced, along with potential severity in subsequent fires (Fule and Laughlin 2007). As a result, we contend that the forests in Illilouette and Sugarloaf are becoming more resistant to ecosystem perturbations (e.g. insects, disease, drought). This resistance could be important in allowing these forests to cope with projected changes in climate. ... Although it is not ubiquitously applicable, (wildland fire use) could potentially be a cost-effective and ecologically sound tool for “treating” large areas of forested land. Decisions to continue fire suppression are politically safe in the short term, but ecologically detrimental over the long term. Each time the decision to suppress is made, the risk of a fire escaping and causing damage (social and economic) is essentially deferred to the future. Allowing more natural fires to burn under certain conditions will probably mitigate these risks. If the public is encouraged to; recognize this and to become more tolerant of the direct, near-term consequences (i.e. smoke production, limited access) managers will be able to more effectively use fire as a tool for restoring forests over the long term.

Biologist Payne, 1995 includes a commentary on the kind of hubris represented by the FS’s view that it can manipulate and control its way to a restored forest by more intensive management:

One often hears that because humanity’s impact has become so great, the rest of life on this planet now relies on us for its succession and that we are going to have to get used to managing natural systems in the future—the idea being that since we now threaten

everything on earth we must take responsibility for holding the fate of everything in our hands. This bespeaks a form of unreality that takes my breath away... The cost of just finding out enough about the environment to become proper stewards of it—to say nothing of the costs of acting in such a way as to ameliorate serious problems we already understand, as well as problems about which we haven't a clue—is utterly prohibitive. And the fact that monitoring must proceed indefinitely means that on economic grounds alone the only possible way to proceed is to face the fact that by far the cheapest means of continuing life on earth as we know it is to **curb ourselves instead of trying to take on the proper management of the ecosystems we have so entirely disrupted.** (Emphasis added.)

Hutto, 1995 states: “Fires are clearly beneficial to numerous bird species, and **are apparently necessary for some.**”

See Attachment E, which is a collection of news media articles, quoting experts including those in the FS, who do understand the high value of severely burned forest for wildlife and other resources.

The FS fails to disclose or acknowledge the scientific information that indicates severe fires burning over large acreages are normal for these forests, and that fire intensity and severity are dependent much more upon weather than fuels. It's common knowledge by now. If the purpose for a project is built upon false information about ecological functioning, then the predicted effects of the project are not credible. This EIS does not comply with NEPA's requirements for scientific integrity.

Huff et al., 1995 state:

In general, rate of spread and flame length were positively correlated with the proportion of area logged (hereafter, area logged) for the sample watersheds. ...The potential rate of spread and intensity of fires associated with recently cut logging residues is high, especially the first year or two as the material decays. High fire-behavior hazards associated with the residues can extend, however, for many years depending on the tree.

Logged areas generally showed a strong association with increased rate of spread and flame length, thereby suggesting that tree harvesting could affect the potential fire behavior within landscapes. In general, rate of spread and flame length were positively correlated with the proportion of area logged in the sample watersheds.

As a by-product of clearcutting, thinning, and other tree-removal activities, activity fuels create both short- and long-term fire hazards to ecosystems. The potential rate of spread and intensity of fires associated with recently cut logging residues is high, especially the first year or two as the material decays. High fire-behavior hazards associated with the residues can extend, however, for many years depending on the tree. Even though these hazards diminish, their influence on fire behavior can linger for up to 30 years in the dry forest ecosystems of eastern Washington and Oregon.

We incorporate DellaSala, et al. (2018), a synopsis of current literature summarizing some of the latest science around top-line wildfire issues, including areas of scientific agreement, disagreement, and ways to coexist with wildfire.

As far as the “restoration” being alleged to address the impacts of long-term fire suppression, there is no coherent plan for integrating wildland fire back into this ecosystem. Nothing is being changed to learn from the admitted suppression ecological damage. The war against wildland fire, i.e., nature, is ongoing.

The proposed and ongoing management are all about continuing a repressive and suppressive regime, however the FS has never conducted an adequate cumulative effects analysis of forestwide fire suppression despite the vast body of science that has arisen since the Forest Plan was adopted. The “plan” is clearly to log now, suppress fires continuously, and log again in the future based on the very same “need” to address the ongoing results of fire suppression.

Odion and DellaSala, 2011 describe this situation: “...fire suppression continues unabated, creating a self-reinforcing relationship with fuel treatments which are done in the name of fire suppression. Self-reinforcing relationships create runaway processes and federal funding to stop wildfires now amounts to billions of tax dollars each year.”

The FS has never conducted consultation with the USFWS on its forestwide fire management plan, which has clear ramifications for species listed under the Endangered Species Act.

Tingley et al., 2016 note the diversity of habitats following a fire is related to the diversity of burn severities: “(W)ithin the decade following fire, different burn severities represent unique habitats whose bird communities show differentiation over time... Snags are also critical resources for many bird species after fire. Increasing densities of many bird species after fire—primarily wood excavators, aerial insectivores, and secondary cavity nesters—can be directly tied to snag densities...”

Similarly, Hutto and Patterson, 2016 state, “the variety of burned-forest conditions required by fire-dependent bird species cannot be created through the application of relatively uniform low-severity prescribed fires, through land management practices that serve to reduce fire severity or through post-fire salvage logging, which removes the dead trees required by most disturbance-dependent bird species.”

Hutto et al., 2016 urge “a more ecologically informed view of severe forest fires”:

Public land managers face significant challenges balancing the threats posed by severe fire with legal mandates to conserve wildlife habitat for plant and animal species that are positively associated with recently burned forests. Nevertheless, land managers who wish to maintain biodiversity must find a way to embrace a fire-use plan that allows for the presence of all fire severities in places where a historical mixed-severity fire regime creates conditions needed by native species while protecting homes and lives at the same time. This balancing act can be best performed by managing fire along a continuum that spans from aggressive prevention and suppression near designated human settlement areas to

active “ecological fire management” (Ingalsbee 2015) in places farther removed from such areas. This could not only save considerable dollars in fire-fighting by restricting such activity to near settlements (Ingalsbee and Raja 2015), but it would serve to retain (in the absence of salvage logging, of course) the ecologically important disturbance process over most of our public land while at the same time reducing the potential for firefighter fatalities (Moritz et al. 2014). Severe fire is not ecologically appropriate everywhere, of course, but the potential ecological costs associated with prefire fuels reduction, fire suppression, and postfire harvest activity in forests born of mixed-severity fire need to be considered much more seriously if we want to maintain those species and processes that occur only where dense, mature forests are periodically allowed to burn severely, as they have for millennia.

Ultimately the EIS reflects an overriding bias favoring vegetation manipulation and resource extraction via “management” needed to “move toward” some selected desired conditions, along the way neglecting the ecological processes driving these ecosystems. Essentially the FS rigs the game, as its desired conditions would only be achievable by resource extractive activities. But since desired conditions must be maintained through repeated management/manipulation the management paradigm conflicts with natural processes—the real drivers of the ecosystem.

Since the FS’s Desired Conditions must be maintained through repeated management/manipulation, the management paradigm conflicts with natural processes—the evolutionary drivers of the ecosystem. This is evident by the habitat types identified by Cooper et al. 1991, which identify the climax vegetation when climate drives the ecological process and the Forest Service doesn’t set arbitrary static numbers.

Fire, insects & disease are endemic to western forests and are natural processes resulting in the forest self-thinning. This provides for greater diversity of plant and animal habitat than logging can achieve. In areas that have been historically and logged there are less diversity of native plants, more invasive species, and less animal diversity. Six et al., 2014 documented that logging to prevent or contain insect and disease has not been empirically proven to work, and because of lack of monitoring the FS can’t content this method is viable for containing insect outbreaks.

See David Erickson’s news article “Experts: more logging and thinning to battle wildfires might just burnt taxpayer dollars”. It cites testimony to Congress from scientist Tania Schoennagel (Schoennagel, 2017.)

We likewise incorporate Scientists Letter-Wildfire, 2018, signed by over 200 scientists.

The EIS fails to present an analysis of the cumulative effects of livestock grazing on fire regimes. USDA Forest Service 2012c states:

Fire regime condition class ... is used to describe the degree of departure from the historic fire regimes that results from alterations of key ecosystem components such as composition, structural stage, stand age, and canopy closure. One or more of the following activities may have caused this departure: fire exclusion, timber harvesting, **grazing**,

introduction and establishment of nonnative plant species, insects or disease (introduced or native), or other past management activities. (Id., emphasis added.)

The EIS primarily discusses fuel conditions only in the areas proposed for treatment, yet wildland fire operates beyond artificial ownership or other boundaries. In regards to the proper cumulative effects analysis area for fire risk, Finney and Cohen (2003) discuss the concept of a “fireshed involving a wide area around the community (for many miles that include areas that fires can come from).” In other words, for any given entity that would apparently have its risk of fire reduced by the proposed project (or affected cumulatively from past, ongoing, or foreseeable actions on land of all ownerships within this “fireshed”)—just how effective would fuel reduction be? The EIS fails to include a thorough discussion and detailed disclosure of the current fuel situation within the fireshed within and outside the proposed treatment units, making it impossible to make scientifically supportable and reasonable conclusions about the manner and degree to which fire behavior would be changed by the project.

The EIS also fails to deal with the fuels issue on the appropriate temporal scale. How landscape-level fire behavior at any period except for very shortly after treatment would be changed or improved is ignored.

Rhodes (2007) states: “The transient effects of treatments on forest, coupled with the relatively low probability of higher-severity fire, makes it unlikely that fire will affect treated areas while fuel levels are reduced.” (Internal citations omitted.) And Rhodes also points out that using mechanical fuel treatments (MFT) to restore natural fire regimes must take into consideration the root causes of the alleged problem:

In order to be ultimately effective at helping to restore natural fire regimes, fuel treatments must be part of wider efforts to address the root causes of the alteration in fire behavior. At best, MFT can only address symptoms of fire regime alteration. Evidence indicates that primary causes of altered fire regimes in some forests include changes in fuel character caused by the ongoing effects and legacy of land management activities. These activities include logging, post-disturbance tree planting, livestock grazing, and fire suppression. Many of these activities remain in operation over large areas. Therefore, unless treatments are accompanied by the elimination of or sharp reduction in these activities and their impacts in forests where the fire regime has been altered, MFT alone will not restore fire regimes. (Internal citations omitted.)

Cohen, 1999a recognizes “the imperative to separate the problem of the wildland fire threat to homes from the problem of ecosystem sustainability due to changes in wildland fuels” (Id.). In regards to the latter—ecosystem sustainability—Cohen and Butler (2005) state:

Realizing that wildland fires are inevitable should urge us to recognize that excluding wildfire does not eliminate fire, it unintentionally selects for only those occurrences that defy our suppression capability—the extreme wildfires that are continuous over extensive areas. If we wish to avoid these extensive wildfires and restore fire to a more normal ecological condition, **our only choice is to allow fire occurrence under conditions other**

than extremes. Our choices become ones of compatibility with the inevitable fire occurrences rather than ones of attempted exclusion. (Emphasis added.)

In their conclusion, Graham, et al., 1999a state:

Depending on intensity, thinning from below and possibly free thinning can most effectively alter fire behavior by reducing crown bulk density, increasing crown base height, and changing species composition to lighter crowned and fire-adapted species. Such intermediate treatments can reduce the severity and intensity of wildfires for a given set of physical and weather variables. **But crown and selection thinnings would not reduce crown fire potential.** (Emphasis added.)

The EIS does not disclose the project logging impacts on the rate of fire spread. Graham, et al., 1999a point out that fire modeling indicates:

For example, the 20-foot wind speed¹¹ must exceed 50 miles per hour for midflame wind speeds to reach 5 miles per hour within a dense Stand (0.1 adjustment factor). In contrast, in an open stand (0.3 adjustment factor), the same midflame wind speeds would occur at only a 16-mile-per-hour wind at 20 feet.

The EIS also fails to recognize the implications of how the fire regime is changing due to climate change.

And many direct and indirect effects of fire suppression are also ignored in the EIS as well as in the programmatic context. For example, Ingalsbee, 2004 describes the direct, indirect, and cumulative environmental impacts of firefighting:

Constructing firelines by handcrews or heavy equipment results in a number of direct environmental impacts: it kills and removes vegetation; displaces, compacts, and erodes soil; and degrades water quality. When dozerlines are cut into roadless areas they also create long-term visual scars that can ruin the wilderness experience of roadless area recreationists. Site-specific impacts of firelines may be highly significant, especially for interior-dwelling wildlife species sensitive to fragmentation and edge effects.

...Another component of fire suppression involves tree cutting and vegetation removal. Both small-diameter understory and large-diameter overstory trees are felled to construct firelines, helispots, and safety zones.

...A host of different toxic chemical fire retardants are used during fire suppression operations. Concentrated doses of retardant in aquatic habitats can immediately kill fish, or lead to algae blooms that kill fish over time. Some retardants degrade into cyanide at levels deadly to amphibians. When dumped on the ground, the fertilizer in retardant can stimulate the growth of invasive weeds that can enter remote sites from seeds transported inadvertently by suppression crews and their equipment.

¹¹ Velocity of the wind 20 feet above the vegetation, in this case tree tops.

...One of the many paradoxes of fire suppression is that it involves a considerable amount of human-caused fire reintroduction under the philosophy of "fighting fire with fire." The most routine form of suppression firing, "burnout," occurs along nearly every linear foot of perimeter fireline. Another form of suppression firing, "backfiring," occurs when firefighters ignite a high-intensity fire near a wildfire's flaming edge, with or without a secured containment line. In the "kill zone" between a burnout/backfire and the wildfire edge, radiant heat intensity can reach peak levels, causing extreme severity effects and high mortality of wildlife by entrapping them between two high-intensity flame fronts.

...Firelines, especially dozerlines, can become new "ghost" roads that enable unauthorized or illegal OHV users to drive into roadless areas. These OHVs create further soil and noise disturbance, can spread garbage and invasive weeds, and increase the risk of accidental human-caused fires.

...Roads that have been blockaded, decommissioned, or obliterated in order to protect wildlife or other natural resource values are often reopened for firefighter vehicle access or use as firelines.

...Both vegetation removal and soil disturbance by wildfire and suppression activities can create ideal conditions for the spread of invasive weeds, which can significantly alter the native species composition of ecosystems, and in some cases can change the natural fire regime to a more fire-prone condition. Firefighters and their vehicles can be vectors for transporting invasive weed seeds deep into previously uninfested wildlands.

...Natural meadows are attractive sites for locating firelines, helispots, safety zones, and fire camps, but these suppression activities can cause significant, long-term damage to meadow habitats.

The FS does not disclose scientifically-acknowledged limitations of the use of Fire Regime Condition Classes. Fire Regime Condition Class is a metric that estimates the departure of the forest from historic fire processes and vegetation conditions. Fire regime condition class is derived by comparing current conditions to an estimate of the historical conditions that existed before significant Euro-American settlement. The EIS does not disclose the limitations of this methodology. This method likely has very limited accuracy and tends to overestimate the risk of higher-severity fire posed by fuel loads, as documented by studies of recent fires (Odion and Hanson, 2006). Those researchers state:

Condition Class, was not effective in identifying locations of high-severity fire. ... In short, Condition Class identified nearly all forests as being at high risk of burning with a dramatic increase in fire severity compared to past fires. Instead, we found that the forests under investigation were at low risk for burning at high-severity, especially when both spatial and temporal patterns of fire are considered.

Another critique is found in Rhodes (2007) who states:

Several of the biases ...are embodied in the Fire Regime Condition Class (FRCC) approach

(Hann and Bunell, 2001), which is widely used to provide an index of the potential for uncharacteristically severe fire and fire regime alteration. The FRCC relies on estimates of mean fire intervals, but does not require that they be estimated on the basis of site-specific historical data. It emphasizes fire scar data, but does not require its collection and analysis on a site-specific basis. The FRCC's analysis of departure from natural fire regimes also relies on estimates of how many estimated mean fire intervals may have been skipped. The method does not require identification and consideration of fire-free intervals in site-specific historic record. Notably, a recent study that examined the correlation of FRCC estimates of likely fire behavior with actual fire behavior in several large fires recently burning the Sierra Nevada in California concluded: "[Fire Regime] Condition Class was not able to predict patterns of high-severity fire. . . . Condition Class identified nearly all forests as being at high risk of burning with a dramatic increase in fire severity compared to past fires. Instead, we found that the forests under investigation were at low risk for burning at high-severity, especially when both spatial and temporal patterns of fire are considered." (Odion and Hanson, 2006.) These results corroborate that FRCC is biased toward overestimating the alteration of fire regimes and the likelihood of areas burning at uncharacteristically high severity if affected by fire. Therefore, in aggregate there is medium degree of certainty that the FRCC is biased toward overestimating departures from natural fire regimes and the propensity of forests to burn at higher severity when affected by fire.

Remedy: Select the No Action alternative. Alternatively, prepare another EIS that remedies the above noted analytic and scientific deficiencies.

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WATERSHED/FISHERIES/AQUATICS¹²

VII . INADEQUATE WATERSHED ANALYSIS

VIII. USE OF OUTDATED FISHSED AND NEZSED MODELS

IX. FAILURE TO SHOW AN UPWARD TREND IN WATER QUALITY AS PER THE FOREST PLAN

X. FAILSAFE MECHANISMS TO PROTECT WATER QUALITY, AND FISH HABITAT (INCLUDING SPECIES LISTED UNDER THE ESA) ARE NOT BASED UPON THE BEST AVAILABLE SCIENCE

XI. THE BIOLOGICAL ASSESSMENT (ANY CONCURRENCE OR BIOLOGICAL OPINION) FOR LISTED ANADROMOUS FISH IS FLAWED BECAUSE IT IS BASED UPON FAULTY DATA

XII. BULL TROUT AND THEIR HABITAT ARE NOT PROPERLY EVALUATED

The FOC/AWR et al. original Clear Creek project objection discusses these issues (see sections VI through XII. While there is some new information about watersheds, the points raised in our DSEIS comments and our first objection have not been addressed or rectified.¹³ As such, we

¹² It is odd that the draft ROD at 2 fails to mention aquatic or watershed restoration as one of the bulleted goals, though it is mentioned in a list of items in the preceding paragraph.

¹³ For example, we raise the issue of the Safe Drinking Water Act in our first objection. It is not mentioned in the watershed regulatory framework in the FSEIS on pages 109 to 111. See <http://www2.deq.idaho.gov/water/swaOnline/Search> (type in Kamiah or Public Water Supply

refer you to those documents. At best, the recent surveys shift things around but don't change the overall picture. For example, the FSEIS states:

This report provides a variety of new information not displayed in the 2015 FEIS. New baseline aquatic habitat and species information was collected on anadromous fish streams in 2015, 2016, and 2019 and is summarized here. This additional data resulted in the determination that South Fork Clear Creek prescription watershed does not meet its Forest Plan water quality objectives and therefore requires an upward trend analysis. Changes to the effects analyses including FISHSED model updates and upward trend for South Fork Clear Creek are included. Only updated information is presented below. Cobble embeddedness data collected in 2019 indicates Hoodoo prescription watershed now meets the Forest Plan water quality objective. No upward trend analysis is therefore required; however, one was already completed for the DSEIS and remains in the FSEIS. Continued work in this watershed will include live wataer (sic) culvert replacements, road reconstructin (sic), and road decommissioning, which will continue to help improve this watershed and further contribute towards an upward trend. Planned road improvements will increase drainage and decrease sediment delivery to streams and culvert replacements will reduce the risk of road failure and subsequent sediment input to streams.

FSEIS at 55. So, the FS maintains that one watershed has remarkably recovered (Hoodoo) and one deteriorated (South Fork Clear Creek, though that was reported in the DSEIS) based upon updated information. That information, at least in the case of Hoodoo was not available during the DSEIS comment period. This alone suggests another round of public comment is needed. Whether or not those new data sets are sufficient or comparable, we addressed in our past comments and objection and explore later in this objection point.

That said, what is clear is that Clear Creek itself shows a downward trend in two key parameters, cobble embeddedness and fishery habitat potential (FSEIS at 61). Thus, any upward trend analysis is flawed based upon that data set alone, if the data are to be believed. Further, the fact that the FSEIS maintains there has been no logging in the area for over two decades, yet key streams still do not meet forest plan standards and objectives, suggests that the upward trend analyses are either flawed or that they are not the best way scientifically to gauge whether streams are on track to meeting the standards and objectives. Either way, the FSEIS is insufficient.

The FSEIS tries to excuse the need to meet objectives, which are also adopted as standards in the Forest Plan (Forest Plan page II-20). The FSEIS states, "The Forest Plan provides no timeframe for when objectives must be met." This is a flimsy excuse. If the streams still don't meet objectives and standards after 34 years—three times the normal length of a Forest Plan—then the

#4310003) and

<http://www2.deq.idaho.gov/water/swaOnline/SurfaceWaterSummaryReport?PwsId=ID2310003&SourceTagNumber=E0010461>

idea of objectives and standards becomes meaningless.

If the data are not to be believed, or more likely, are insufficient and not comparable (FSEIS at 60 and 61), then the agency really has no basis on which to make an informed trend analysis. This is not the case of an impossible burden cynically referred to on page 54 of the FSEIS, rather it is the failure of the Forest Service to fulfill its obligation to the American citizens and complete monitoring as required by the Forest Plan. The fact that the last Forest Plan monitoring report is nearly two decades old speaks volumes about the agency's commitment, or lack thereof, to its duties to the American people.

Current data on steelhead in Idaho and the Clearwater Basin (see attached news article) should have informed the analysis. Rather than a rosy picture, the conditions are dire for steelhead, other anadromous, and other cold water fish. This downward trend, which dates back a few years, should have played a role in the analysis. Not only does the seem to violate NFMA and NEPA, it would also appear to violate the ESA.¹⁴

Table 22 (FSEIS at 132 and 133) does not combine the prescriptions watersheds into true watersheds, as the Forest Plan requires in Appendix A:

These prescription watersheds, unlike most, are not true watersheds. By definition, a true watershed includes all the lands draining through a stream reach. These footnoted watersheds drain only part of such a hydrologic unit and generally contain the downstream reaches of relatively large streams. For sediment yield analyses on these downstream reaches, all upstream prescription watersheds are combined into a true watershed. Sediment yield guidelines (Column 6) apply only to true watersheds. Entry frequency guidelines (column 7) apply to prescription watersheds regardless of whether they are true watersheds.

Forest Plan Appendix A at 7. It appears that there is no table that combines the non-true prescription watersheds into true watersheds. Comparing the map at FSEIS 116, Figure 18, the following should be combined: South Fork Clear Creek should include Kay Creek; Middle Fork Clear Creek should include Solo Creek; Clear Creek should include Brown Springs, Pine Knob, Solo, and Middle Fork Clear Creeks, and Clear Creek at the Forest Boundary would include all upstream prescription watersheds. For consistency's sake, the same idea should be applied to the ECA calculations in the Table 21, Page 125.

In sum, the analyses in the FSEIS ignore NFMA, NEPA, and ESA requirements. The decision is not based upon the best information or science. Rather than the analysis is done to reach a pre-determined decision couched as a recommendation by a so-called consensus process.

Remedy:

- 1- Prepare a new Supplemental EIS that complies with NEPA, NFMA, and the ESA.
- 2- Drop all logging and road building in watersheds that don't meet Forest Plan objectives.

¹⁴ There is also the issue of bull trout, raised in past comments and objection, which is not analyzed in the FSEIS.

