WildEarth Guardians
A FORCE FOR NATURE

February 12, 2021

Submitted via Comment and Analysis Response Application (CARA)

Jeff Rivera, District Ranger
Wenatchee River Ranger District
600 Sherbourne Leavenworth, WA 98826

Re: Upper Wenatchee Pilot Project – Preliminary Environmental Assessment

Dear District Ranger Rivera,

WildEarth Guardians (Guardians) respectfully submits these comments to the U.S. Forest Service in response to the agency's draft Environmental Assessment (EA) for the proposed Upper Wenatchee Pilot Project. Guardians is a nonprofit conservation organization with offices in Washington, Oregon and five other states. Guardians has more than 230,000 members and supporters across the United States and works to protect and restore wildlife, wild places, wild rivers, and the health of the American West. Guardians and its members have specific interests in the health and resilience of public lands and waterways.

The types of proposals Guardians hopes to see across this landscape should meet the goals of protecting and improving habitat for northern spotted owls, salmon, steelhead, bull trout and other wildlife, preserving clean and cold water and restoring landscapes where needed. The Upper Wenatchee is a large landscape with many needs and opportunities and we strongly encourage you to take the time to incorporate feedback to ensure this project meets your defined purposes.

The proposal includes a broad swath of actions that aim to improve desired conditions. Actions include:

- up to 37,000 acres of commercial and non-commercial logging and thinning and fuels treatments
- 54 miles of shaded fuel breaks acres proposed for huckleberry enhancement
- forest road improvements including: 14 miles of road closures and 65 miles of road decommissioning
- removal, modification or replacement of fish passage barriers and culverts to improve passage and open 42 miles of potential suitable habitat for fish

We have the following comments to share:

1. **We strongly support the aquatic restoration activities that address water quality, increase the amount of aquatic habitat, and improve watersheds.**

Roads are one of the biggest contributors to impaired water quality and poor fish habitat. The impacts from roads to water, fish, wildlife, and ecosystems are well documented in scientific literature. The following is just a small list of examples:

- Presence of roads can increase sediment delivery and watersheds with high densities of road networks have been shown to have higher rates of erosion and mass wasting than in undisturbed areas (Amaranthus et al. 1985).
- Sedimentation can have negative impacts instream by reducing water quality (Waters 1995; Wilber and Clarke 2001).
- Road networks can also affect flooding and debris movement and lead to altered patch dynamics and channel morphology in streams and riparian zones (Jones et al. 2000).
- Floods and sediment input can alter physical features of the stream and thus impact the channel length and morphology (Lyons and Beschta 1983).
- Increased sedimentation in stream beds has been linked to decreased fry emergence, decreased juvenile densities, loss of winter carrying capacity, and increased predation of fishes, and reductions in macro-invertebrate populations that are a food source to many fish species (Rhodes et al. 1994, Joslin and Youmans 1999, Gucinski et al. 2000, Endicott 2008).
- Roads can act as barriers to fish migration (Gucinski et al. 2000). Culverts in particular often interfere with sediment transport and channel processes such that the road/stream crossing becomes a barrier for fish and aquatic species movement up and down stream.
- Where both stream and road densities are high, the incidence of connections between roads and streams can also be expected to be high, resulting in more common and pronounced effects of roads on streams (Gucinski et al. 2000).
- Roads and trails impact wildlife through a number of mechanisms including: direct mortality (poaching, hunting/trapping) changes in movement and habitat use patterns (disturbance/avoidance), as well as indirect impacts including alteration of the adjacent habitat and interference with predatory/prey relationships (Wisdom et al. 2000, Trombulak and Frissell 2000).
- Road density must be below 0.6 km/km^2 (1.0 mi/mi^2) in order to maintain a naturally functioning landscape with sustained populations of large mammals, (Forman and Hersperger 1996).

The Upper Wenatchee Pilot Project (UWPP) Habitat Assessment and Restoration Report notes that road density across all watersheds is rated Poor, with 3.1 miles of road per square mile. (UWPP Habitat Assessment and Restoration Report Appendix B Final, 7). Total road densities were rated Poor in three of the four UWPP subwatersheds (Beaver Creek-Wenatchee, Big Meadow Creek, and Lower Chiwawa River), with densities ranging from 3.3 to 3.8 miles per square mile. *Id.* The Lake Wenatchee subwatershed, which was rated as At Risk, has 1.4 miles of road per square mile. *Id.* Riparian road density across the UWPP area was rated Poor at 2.7 miles per square mile. *Id.* Subwatershed densities of riparian roads were 3.04 miles/sq. mile for the Beaver Creek-Wenatchee subwatershed, 2.97 miles/sq. mile for Big Meadow Creek, and 2.73 miles/sq. mile for the Lower Chiwawa River. *Id.* Road location was rated Poor for all subwatersheds due to many roads being located within valley bottoms. *Id.*

High road densities severely impact fish, with salmonids and bull trout (found in the project area) to be particularly sensitive. Carnefix and Frissell (2009) provide a concise review of studies that correlate cold water fish abundance and road density, and from the cited evidence concluded that:

> "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/km^2 (1.0 mi/mi^2) or less" (Carnefix and Frissell (2009), p. 1).

The U.S. Fish and Wildlife Service's Final Rule listing bull trout as threatened (USDI Fish and Wildlife Service 1999) addressed road density stating:

> … assessment of the interior Columbia Basin ecosystem revealed that increasing road densities were associated with declines in four non-anadromous salmonid species (bull trout, Yellowstone cutthroat trout, westslope cutthroat trout, and redband trout) within the Columbia River Basin, likely through a variety of factors associated with roads (Quigley & Arbelbide 1997). Bull trout were less likely to use highly roaded basins for spawning and rearing, and if present, were likely to be at lower population levels (Quigley and Arbelbide 1997). Quigley et al. (1996) demonstrated that when average road densities were between 0.4 to 1.1 km/km^2 (0.7 and 1.7 mi/mi^2) on USFS lands, the proportion of subwatersheds supporting "strong" populations of key salmonids dropped substantially. Higher road densities were associated with further declines (USDI Fish and Wildlife Service (1999), p. 58922).

With these current conditions and their impacts, it is critical that the Forest Service reduce road densities in the UWPP project area. We are pleased to see that both alternatives reduce overall road density from 3.1 miles/square mile to 1.8 miles/square mile. This is a good start to fix some of the past harm caused by excessive roads and move towards a healthier watershed that has greater potential to support Upper Columbia River spring Chinook salmon, Upper Columbia steelhead, and Columbia River bull trout (all listed as endangered under the ESA). However, it is important to note that 1.8 miles/square mile is still insufficient to support "strong" populations of native fish, let alone meet recovery goals. On page 3-99 of the EA, road density of 1-2.5 miles/square mile still is in the "at risk" category. On page 3-100 of the EA, the road density appears to be calculated from the known Forest Service system roads but does not include the closed roads, unauthorized roads, user built roads, and even trails – all of which are compacted surfaces that can have the same detrimental impacts. Simply including closed roads, road density increases to 4.3 miles per square mile (EA, p. 3-109). And riparian road density is also poor.

Another critical component of aquatic health is access to habitat. This is even more important as climate change leads to increased stream temperatures. Salmonids and bull trout need access to colder areas and healthier habitat. This is why it is also critical that Forest Service remove barriers, primarily culverts, that may block up to 42 miles of potential habitat for fish. We support the UWPP's proposed actions to improve aquatic conditions by reducing road/stream crossings from 328 to 292, increase access to potential habitat, decommission roads, relocate harmful roads or trails and improve road maintenance to reduce risks. These are all beneficial actions that have direct positive impacts to sensitive aquatic species and water quality. We encourage the Okanogan-Wenatchee National Forest to implement these road improvement activities as soon as possible so that aquatic and fishery systems can begin to heal.

We appreciate the in-depth analysis and scientific assessment incorporated into this EA, particularly the information from Cramer Fish Sciences and InterFluve. There appears to be a deep understanding of what the aquatics challenges and needs are in this area. However, the proposed actions, though moving in a positive direction, still seem to fall short of what is truly needed: "moderate beneficial effect on riparian road density", "minor beneficial effect on stream crossing density", "minor beneficial effect on road drainage network" (EA, p. 3-116). Large scale projects such as these do not occur every year, so we encourage the Forest Service to revisit some of the proposed road actions to see what additional work could be incorporated to truly improve aquatic conditions. When species are ESA listed as "endangered", such as the salmon and bull trout in this area, they do not have the time to wait decades for habitat improvements.

The Forest Service must take further action to greatly decrease the number of road miles in the project area to attain road densities that permit healthy, functioning watersheds. Even after full project implementation, there will still be a need for millions of dollars invested in deferred maintenance and annual maintenance just in the project area. It's imperative that the Forest Service continue to identify key roads (specifically recreation roads) for key investments as well as unneeded roads that can be removed from the system so that it can truly become economically sustainable.

2. **The Forest Service must still identify the Minimum Road System for this area.**

As you know, in 2001 the Forest Service promulgated the Roads Rule (referred to as "subpart A") 66 Fed. Reg. 3206 (Jan. 12, 2001); 36 C.F.R. part 212, subpart A. The Roads Rule created two important obligations for the agency. One obligation is to identify unneeded roads to prioritize for decommissioning or to be considered for other uses. 36 C.F.R. § 212.5(b)(2). The other obligation is to identify the Minimum Road System (MRS) needed for safe and efficient travel and for the protection, management, and use of National Forest system lands. Id. § 212.5(b)(1). The MRS is the road system, determined by the Forest Service, needed to:

- Meet resource and other management objectives adopted in the relevant land and resource management plan,
- Meet applicable statutory and regulatory requirements,
- Reflect long-term funding expectations, and
- Ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.

The goal of subpart A is "to maintain an appropriately sized and environmentally sustainable road system that is responsive to ecological, economic, and social concerns." The Forest Service's Washington Office has issued a series of directive memoranda that outline how the agency expects forests to comply with subpart A. We are pleased to see that a project area specific Travel Analysis Process was completed that analyzed all types of roads: forest system, non-system, temporary, public and unauthorized (EA, p.3-177). The resulting report identified 343 miles of authorized and unauthorized roads in the project area of which more then a quarter are closed and 22 miles are unauthorized. The project proposes removing 64.6 miles of road from the Forest Services' infrastructure liability – half of these roads are already closed and inaccessible. However, a closed road can also harm wildlife and aquatic species, which is one of the reasons we support the decommissioning actions. We were not able to find the actual Travel Analysis Report for this project area so we are unable to assess whether the analysis incorporated all of the criteria of the roads rule. It is evident that "long-term funding expectations" were not incorporated. The 2015 Travel Analysis Report that was completed for the entire Okanogan-Wenatchee National Forest noted: "Our local estimate, (using regional unit rates and not including the national burden rate) indicates that the Okanogan Wenatchee NF would still require about $10.2 million per year to keep the current road system fully maintained to standard….on average, the Okanogan-Wenatchee N.F. only receives about $1.8 million dollars per year." (using national rates, approximately $158 million would be needed to bring the roads up to standard and $17 million per year to maintain). Does the reduction in road miles proposed here move the forest closer to being in-line with their maintenance burden?

It is also not clear from the EA that a MRS has been determined for this area. While the EA refers to the Travel Analysis Process several times and notes that it is to be used "to inform decisions related to . . . identification of the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands," EA at 3-176, it does not describe what the MRS for the project area would be.

If in fact the Forest Service has not identified an MRS for the project area, please provide in the final EA and Decision Notice an explanation for the failure to identify an MRS. The express language of the rule is clear: "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." 36 C.F.R. § 212.5(b)(1). Further, "[i]n determining the minimum road system, the responsible official must incorporate a science-based roads analysis." *Id.* Finally, the agency's own regulations define that minimum road system as "the road system determined to be needed to," inter alia, reflect long-term funding expectations and ensure minimization of adverse environmental impacts. *Id.* Simply because the definition of a minimum road system requires the Forest Service to consider numerous factors does not mean the agency gets a pass on disclosing and determining those factors for this particular project, at this point in time. Possible future changes to regulations, funding, and potential impacts do not, in any way, allow for the agency to avoid identifying the minimum road system.

3. The Forest Service Must Prepare an EIS for the UWPP.

NEPA requires federal agencies to prepare a comprehensive environmental impact statement (EIS) before undertaking "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). The Ninth Circuit agrees:

> We have held that an EIS *must* be prepared if 'substantial questions are raised as to whether a project ... *may* cause significant degradation to some human environmental factor.' To trigger this requirement a 'plaintiff need not show that significant effects *will in fact occur*,' [but instead] raising 'substantial questions whether a project may have a significant effect' is sufficient.

Idaho Sporting Cong. v. Thomas, 137 F.3d 1146, 1149-50 (9th Cir. 1998) (citations omitted) (emphasis original). *See also Ocean Advocates v. U.S. Army Corps of Eng'rs*, 402 F.3d 846, 864-65 (9th Cir. 2005)

("To trigger this [EIS] requirement a plaintiff need not show that significant effects will in fact occur, but raising substantial questions whether a project may have a significant effect is sufficient." (internal quotations, citations, and alterations omitted)).

If an agency "decides not to prepare an EIS, 'it must put forth a convincing statement of reasons' that explains why the project will impact the environment no more than insignificantly. This account proves crucial to evaluating whether the [agency] took the requisite 'hard look.'" *Ocean Advoc.*, 402 F.3d at 864.

Here, the Forest Service must prepare an EIS because the UWPP– an attempt to fundamentally alter forest structure across tens of thousands of acres – is clearly a major federal action that will significantly impact the human environment. Indeed, the project's purpose is to work significant changes to the forest environment. Because of the high likelihood of significant impacts to the environment the Forest Service must prepare an environmental impact statement to analyze the affects of the UWPP on the human environment.

4. The Stated Purpose and Need For The Terrestrial Treatments Are Based on Assumptions and Not Supported By Science.

NEPA directs federal agencies to "briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." 40 C.F.R. § 1502.13. Here, the Forest Service states that the purpose of the project is to

- Address conditions that have departed from the historical range of variability to reduce the risk of wildfire and other disturbances to protect lives, communities, and ecological values.
- Promote better outcomes for a broad spectrum of ecological, social, and community resources and values in a manner that recognizes and responds to the important role of natural fire and helps mitigate risk in the wildland-urban interface (WUI) while providing for sustainable user access.
- Protect and restore watershed conditions that maintain uplands, late-successional habitat and large and old trees, riparian and instream habitat, and water quality and quantity for the benefit of communities and native fish and wildlife.
- Design and implement treatments to support the recovery of threatened, endangered, and sensitive species.

EA at 1-10. The Forest Service states it needs to:

- Create and maintain successional pathways that provide the amount and spatial arrangement of forest conditions that increase resilience to natural disturbance and sustainability.
- Improve habitat conditions within Late Successional Reserves while reducing risk of stand-replacing fires.

- Maintain, enhance, or accelerate the development of large and old trees and increase proportion of old forest structure.
- Conserve the existing spotted owl and old forest habitat, and identify and implement vegetation treatments to develop additional habitat in the most sustainable landscape location.
- Support biodiversity by restoring, enhancing, and/or maintaining unique habitats including aspen, white bark pine, meadows, and huckleberry fields.
- Reduce impacts from fire and return fire as a natural element of the landscape.
- Reduce risk of fire on National Forest System lands in the Wildland Urban Interface (WUI).

EA at 1-10-1-13. These statements are flawed because they are based on unsupported assumptions (see infra) and lack adequate support.

Climate Change & Historical References

The Forest Service states that

> [t]he legacy of logging in the early to mid-twentieth century, followed by a sudden drop in logging activity and increased fire suppression, has led to major changes on the landscape, including a lack of large old trees and areas of poor forest health and high risk of uncharacteristic wildfire (within dry forests of the lower reaches) and insect and disease infestations. The past practices and increased fire suppression have altered the size, composition, and connectivity of forest stands. Many stands have grown into dense, multi-layered forest canopies where there is a lack of large and old trees, areas of poor forest health, high risk of wildfire, and high risk of insect and disease infestations.

EA at 1-10. The Forest Service continues:

> Past logging and fire suppression have resulted in an overabundance of what is called "young forest multi-story" forest structural class. These stands have also grown into dense, multi-layered forest canopies, creating conditions that are at high risk of insect and disease outbreaks and uncharacteristically severe fires. The abundance of young multi-layered forest represents a significant departure from historical reference conditions and places the area at high risk for fire and insect/disease outbreaks. This threat of high-intensity wildfire puts ecological values, human lives, and communities at risk.

EA at 1-10-1-11. The Forest Service asserts the proposed commercial and non-commercial timber harvest and thinning activities would restore the project area nearer to historic conditions. The proposed terrestrial actions would

> • At the landscape level, shift the current overabundance of young multilayered stands to include more open-forest conditions by removing smaller trees (ladder fuels) while retaining large-diameter trees.
> • Create a landscape with intact ecological processes, patterns, and functions and forest vegetation that is resilient to climate change.
> • Shift across the landscape key components of the species composition, structure, and pattern of forest vegetation closer to the historical and estimated future range of variability.
> • Maintain early-successional habitat throughout the landscape at the appropriate proportions, patch size, and distribution.
> • Create forest stand structure, species, and genetic composition appropriate for the specific site and landscape conditions.
> • Reduce fuel loadings where needed to allow fire to function as a natural process on the landscape at intensities within the historical range of variability.
> • Shift late-successional habitat species composition and structure to improve LSR functions and values within the planning area.
> • Align fire regimes within late-successional habitat closer to historical conditions, including more frequent, low-intensity fires and less frequent stand-replacing events.
> • Create conditions within late successional and old-growth forests that support plant and animal life associated with late-successional and old-growth–related species, including the NSO.
> • Support Northern Spotted Owl (NSO) recovery, as described in the 2011 Revised Northern Spotted Owl Recovery Plan.
> Increase the presence of large old trees and snags across the landscape to levels within the historical and estimated future range of variability.
> • Encourage the development of large old trees and snags where needed to support viable populations of snag-dependent species.
> • Maintain and protect large and old trees across the planning area.
> • Reduce tree densities and shift forest stand structure, species composition, and landscape pattern to reduce insects and disease risks and damage to endemic levels.
> • Prioritize retention of habitat within the highest priority NSO activity centers.
> • Retain or restore higher-priority NSO habitats, defined as older, multilayered structurally complex forests characterized as having large-diameter trees, high amounts of canopy cover, and decadence components such as broken-topped live trees, mistletoe, cavities, large snags, and fallen trees.

> • Maintain connectivity of NSO dispersal habitat across the landscape.
> • Implement shaded fuel breaks to protect NSO habitat.
> • Reduce conifer encroachment into special habitats.
> • Increase special habitats, including aspen, white bark pine, meadows, and huckleberry fields and associated plant and wildlife species and communities where needed and appropriate.
> • Enhance huckleberry production by strategically placing openings across the area where this shrub is present.
> • Reduce fuel levels to allow fire to function as a natural process on the landscape at intensities within the historical range of variability.
> • Shift stand structures and composition to allow more frequent, low-intensity fires and lower probability of major stand-replacing events, particularly within dry forest zones.
> • Retain the largest and most fire-tolerant tree species and increase patch sizes.
> • Develop shaded fuel breaks along ridgelines, system roads, and pre-existing firelines.
> • Creating landscape-level conditions where the potential for fire spread and intensity is within the historical range of variability.

EA at 1-11-1-13. From this long list of needs it is clear that the Forest Service believes it must act to improve forest resiliency to such factors as fire, insects, and diseases. However, in trying to attain conditions closer to the historic norm, and increase resilience to fire, insects and disease, the Forest Service has neglected to account for the fact that climate change is fundamentally altering the agency's assumptions about the efficacy of the proposed actions.

Recent science supports the need to look beyond historical references to inform proposed actions: "in a time of pervasive and intensifying change, the implicit assumption that the future will reflect the past is a questionable basis for land management (Falk 2017)." Coop et al., 2020. While it is useful to understand how vegetative conditions have departed from those in the past, the Forest Service cannot rely on them to define management actions, or reasonably expect the action alternatives will result in restoring ecological processes. Given changing climate conditions, the Forest Service should have emphasized reference conditions based on current and future ranges of variability, and less on historic departures. Further, the agency needed to shift its management approach to incorporate the likelihood that no matter what vegetation treatments it implements, there will be future forest wildfire-triggered conversions to other vegetation types. As such, the Forest Service cannot rely on the success of resistance strategies, as Coop 2020 demonstrates:

> Contemporary forest management policies, mandates, and science generally fall within the paradigm of resisting conversion, through on-the-ground tactics such as fuel reduction or tree planting. Given anticipated disturbance trajectories and climate change, science syntheses and critical evaluations of such resistance approaches are needed because of their increasing relevance in mitigating future wildfire severity (Stephens et al. 2013, Prichard et al. 2017) and managing for carbon storage (Hurteau et al. 2019b). Managers seeking to wisely invest resources and strategically resist change need

> to understand the efficacy and durability of these resistance strategies in a changing climate. Managers also require new scientific knowledge to inform alternative approaches including accepting or directing conversion, developing a portfolio of new approaches and conducting experimental adaptation, and to even allow and learn from adaptation failures.

Coop et al., 2020.
Equally important to acknowledging the limitations of resistance strategies is the fact that other pertinent scientific findings show warming and drying trends are having a major impact on forests, resulting in tree die-off even without wildfire or insect infestation. See, e.g., Parmesan, C. 2006; Breshears et al. 2005; Allen et al. 2010, 2015; Anderegg et al. 2012; Williams et al. 2013; Overpeck 2013; Funk et al. 2014; Millar and Stephenson 2015; Luo and Chen 2015 ("Our results suggest that the consequences of climate change on tree mortality are more profound than previously thought"); Gauthier et al. 2015; Ault et al. 2016 ("business-as-usual emissions of greenhouse gases will drive regional warming and drying, regardless of large precipitation uncertainties"); Vose et al. 2016 ("In essence, a survivable drought of the past can become an intolerable drought under a warming climate").

The Forest Service has proposed commercial and non-commercial treatments, including logging and thinning, on up to 37,000 acres of forest. Draft EA at 3-3. These treatments, according to the Forest Service, are to "[a]ddress conditions that have departed from the historical range of variability to reduce the risk of wildfire and other disturbances to protect lives, communities, and ecological values." Draft EA at 1-10. The agency asserts that the proposed activities would "[r]educe tree densities and shift forest stand structure, species composition, and landscape pattern to reduce insects and disease risks and damage to endemic levels." *Id.* Treatments would [r]educe fuel levels to allow fire to function as a natural process on the landscape at intensities within the historical range of variability." *Id.* at 1-13. According to the Service, the UWPP would "increase the presence of large old trees and snags across the landscape to levels within the historical and estimated future range of variability." *Id.* at 1-12. Given the fallacies of using historic conditions as a reference for desired conditions coupled with the uncertainty of those treatments to maintain or restore ecological integrity in the context of climate change and likely forest conversion scenarios, the Forest Service needed to reevaluate its assumptions about timber harvests and thinning, especially in regards to restocking success and species composition. Significant controversy exists as to the need for such treatments given the improper use and reliance on historic conditions. In fact, there is a high likelihood, based on the aforementioned studies, that commercially logged areas will not regenerate and will instead result in conversion to different vegetative groups. NEPA mandates that the agency address this controversy and the science that contradicts agency assumptions in an EIS.

In addition to the questionable success of the Forest Service's pursuit of resistance strategies underlying its proposed actions, the agency must also reconsider numerous assumptions in the EA. In fact, many of the agency's assumptions run contrary to the most recent science regarding the impact of logging on wildfire behavior, resilience of the forest to large-scale disturbances, and ability to provide quality wildlife habitat. Many of the following scientific studies call into question the Forest Service's assumption that its proposed actions will achieve the stated purpose and need.

Assumptions about logging and wildfire

The Forest Service believes that increased tree mortality from insect and disease infestations have also increased wildfire risks. It claims that past logging and wildfire suppression have caused "a lack of large old trees and areas of poor forest health and high risk of uncharacteristic wildfire . . . and insect and disease infestations." *Id.* at 1-10. According to the Forest Service, absent the actions proposed here, stands of trees in the project area "would continue to suffer from competition and crowding putting them more at risk for high-intensity fire and insects or disease." *Id.* at 3-15. The agency says that commercial logging and thinning would "reduce the risk of large-scale habitat loss from severe wildfires insect outbreaks, and to restore the structure and composition of the landscape improve stand health and resiliency to insect and disease attack." *Id.* But without support, this is merely an unfounded assumption. The Forest Service must therefore demonstrate how vegetation treatments will successfully achieve the desired condition in light of persistent climate change driven drought.

Ultimately, the agency's assumptions that reducing tree densities and fuel loadings will result in less intense fire behavior are not borne out in the real world. Powell, H. 2019 ("what fire scientists call a forest's 'fuel load' is not the main cause of large, unstoppable fires; it's climate factors such as temperature, humidity, and especially wind. But weather is ephemeral and invisible, while thick underbrush is easy to see and photograph").

Science shows that fuel treatments have a modest effect on fire behavior, and that fuel reduction does not necessarily suppress fire. Lydersen, et al., 2014 (explaining that reducing fuels does not consistently prevent large forest fires, and seldom significantly reduces the outcome of large fires). Studies from the Forest Service's own Rocky Mountain Research Station refute the Forest Service's assumptions that logging will result in less intense fire behavior. Calkin, D.E., et al., 2014 (explaining, "[p]aradoxically, using wildfire suppression to eliminate large and damaging wildfires ensures the inevitable occurrence of these fires").

Large fires are driven by several conditions that completely overwhelm fuels. Meyer, G and Pierce, J. 2007. Because weather is often the greatest driving factor of a forest fire, and because the strength and direction of the wildfire is often determined by topography, fuels reduction projects cannot guarantee fires of less severity. Rhodes, J. 2007, Carey, H. and M. Schumann, 2003.

Logging to address fire is undermined by the fact that land managers have shown little ability to target treatments where fires later occur. Barnett, K. et al, 2016, Rhodes, J. and Baker, W. 2008 (finding that fuel treatments have a mean probability of 2-8% of encountering moderate- or high-severity fire during the assumed 20-year period of reduced fuels). Analysis of the likelihood of fire is central to estimating likely risks, costs and benefits incurred with the treatment or non-treatment of fuels. If fire does not affect treated areas while fuels are reduced, treatment impacts are not counterbalanced by benefits from reduction in fire impacts. Results from Rhodes and Baker 2008 indicate that "even if fuel treatments were very effective when encountering fire of any severity, treatments will rarely encounter fire, and thus are unlikely to substantially reduce effects of high-severity fire."

Fuel treatments could even make fire worse—exacerbating the problems the Forest Service is claiming to address with this project. Fuel reduction may actually exacerbate fire severity in some cases as such projects leave behind combustible slash, open the forest canopy to create more ground-level biomass, and increase solar radiation which dries out the understory. Graham, R.T., et al, 2012, Martinson, E. J. and P. N. Omi, 2013 (finding that in about a third of cases reviewed mechanical fuel reductions increased fire spread).

We question the wisdom of attempting to control wildfire instead of learning to adapt to fire. See Powell 2019 (noting that severe fires are inevitable and unstoppable). See also Schoennagel, T., et al., 2017 ("[o]ur key message is that wildfire policy and management require a new paradigm that hinges on the critical need to adapt to inevitably more fire in the West in the coming decades"). The Forest Service recognizes that past logging and thinning practices may have actually increased risk of intense fire behavior on this landscape. But instead of learning from these past mistakes, here the Forest Service is committing to the same mistakes by proposing to continue to log the landscape.

We question the need to reduce wildfire, a natural forest process. While some may view wildfires as tragic and the aftermath as a destruction zone, natural ecology shows otherwise. See Powell 2019 (explaining how a young burned forest is an essential natural process and "nature's best-kept secret," providing new habitat for a plethora of birds, abundant wildflowers, insects, mushrooms, etc.). Impacts from climate change, including changing weather patterns and drought, are the driving factors for wildfires. *Id.* Instead of relying on logging to manage the forest, the Forest Service must focus on how it needs to change its practices to adapt to the changing climate.

The best available science brings into question many of the Forest Service's underlying assumptions here about the efficacy of vegetation treatments in reducing the effects from what can be characterized as a natural response to changing climate conditions. *See* Hart, S.J., et al., 2015 (finding that although mountain pine beetle infestation and fire activity both independently increased with warming, the annual area burned in the western United States has not increased in direct response to bark beetle activity); *see also* Hart, S.J., and D.L. Preston. 2020 (finding "[t]he overriding influence of weather and pre-outbreak fuel conditions on daily fire activity . . . suggest that efforts to reduce the risk of extreme fire activity should focus on societal adaptation to future warming and extreme weather"); *see also* Black, S. H., et al., 2010 (finding, inter alia, that thinning is not likely to alleviate future large-scale epidemics of bark beetle); *see also* Six, D.L., et al., 2018 (study that found during mountain pine beetle outbreaks, beetle choice may result in strong selection for trees with greater resistance to attack, and therefore retaining survivors after outbreaks—as opposed to logging them—to act as primary seed sources could act to promote adaptation); *see also* Six, D.L. et al., 2014 (noting "[s]tudies conducted during outbreaks indicate that thinning can fail to protect stands").

Ultimately, science provides only weak support for logging as a way to improve forest resilience to large-scale disturbances such as high severity crown fire and insects, and numerous studies question this approach or have found it to be ineffective. In addition, all mechanized fuel treatments guarantee damage to ecosystem components, including soils, aquatics, and vegetation; they also have the potential to spread exotic plants and pathogens.

Assumptions about logging and wildlife habitat

The Forest Service asserts that "[h]abitat for big game and federally protected species can benefit from . . . improving the amount and quality of available forage, prey habitat and security." EA at 5. Specifically, "[t]imber harvest on big game winter range would improve growing conditions for existing forage plants due to the increase in available light and reduced competition for site resources. These effects would be most pronounced where timber harvest creates openings in the forest canopy." *Id.* at 50. We question the agency's assumptions that the proposed actions will improve the diversity and resilience of forest vegetative communities and associated wildlife habitat.

Recent ecological research has shown that fire is an integral component to the function and biodiversity of many plant and animal communities, and that the organisms within those communities have adapted to withstand, and even benefit from, both low and high severity fire. Bond, et. al, 2012. Ecologists now conclude that fire-mediated age-class diversity is essential to the full complement of native biodiversity and fosters ecological resilience and integrity. Hanson, C. et.al, 2015. In conifer forests of North America, higher-severity fire patches create a type of habitat known as complex early seral forest that supports levels of native biodiversity, species richness, and wildlife abundance that are generally comparable to, or even higher than, those in unburned old forest. *Id.*

At bottom, we question the Forest Service's reliance on vegetation management to improve the diversity and resilience of the forest and wildlife habitat. Science shows that natural processes like fire are vital for recruitment of down wood into the ecosystem, create a diversity of wildlife habitat, and naturally thin forests. Hanson, C., 2010. The Forest Service's attempts to mimic natural processes have failed in the past, and, as we have seen in recent decades, are likely to continue to fail. Instead of proposing intensive management, the Forest Service should let natural processes take their course. What's more, fires, including large fires, are a natural and ecologically necessary part of forests. M.A. Moritz, et al., 2014. Fires restore and rejuvenate forests by stimulating vegetation regeneration, promoting landscape diversity in terms of vegetation type, and providing habitat and food for fire-dependent insects and wildlife. *Id.* Given that fire activity is increasing, and in light of effects from climate change, the Forest Service should consider approaches for managing insects, disease, and fire that do not include active management —specifically, logging— and consider a more sustainable coexistence approach.

5. **The Forest Service failed to properly disclose the specific environmental consequences of its proposed actions and alternatives.**

Proper site-specific analysis is crucial to NEPA's goal of ensuring informed and science-based decision-making. "An EIS must reasonably set forth sufficient information to enable the decisionmaker to consider the environmental factors and make a reasoned decision." *Alaska Ctr. for Env't v. Armbrister*, 131 F.3d 1285, 1289 (9th Cir. 1997) (internal quotation removed). This requirement is met if the EIS "contains a reasonably thorough discussion of the significant aspects of the probable environmental consequences." *WildEarth Guardians v. Mont. Snowmobile Ass'n*, 790 F.3d 920, 924 (9th Cir. 2015). In order to comply with NEPA, the Forest Service must adequately assess and disclose numerous impacts, including impacts from forest roads and motorized use, logging, climate change, and impacts to wildlife. Here, the Forest Service sidesteps its obligation to assess and disclose specific impacts, and relies on the application of condition-based effects analysis. Rather than provide analysis of specific impacts, the EA contains statements about what would be done and what is intended to be accomplished. An example of this is the following:

> The fine-scale arrangement of trees within stands would be determined by site conditions and generally include proportions of the stand as individuals, different sized clumps, and openings, or

> ICOs (Churchill et al. 2016). The ICO method is a form of variable density thinning that recognizes that fire-influenced forests of the west are not uniformly spaced; rather, they develop variable spatial patterns.

EA at 3-17. Another example:

> Different strategies can be used when deciding on specific locations for treatments. Hessburg et al. (2015) recommends using topography as a guide to connect patches in order to mimic natural disturbance patterns. Making use of the inherent potential of a site can also be helpful. Data layers representing the Evapotranspiration and Moisture Deficit in Eastern Washington can be used to determine which trajectory is best for a given forest patch (Churchill et al., 2013). For this Project, the moisture deficit model was used in conjunction with ground-truthing to determine dry versus moist forest areas. Areas with high moisture deficit cannot support multi-storied conditions as well as areas where moisture is not limited. In these drier areas, the risk of crown-fire can be too high; therefore, a shift to stem exclusion open canopy or old forest single story may be more appropriate.

Id. These sorts of statements can be found throughout the Environmental Consequences sections of the EA's Environment Effects discussion.

The UWPP EA, with its condition-based analysis, impermissibly limited the specificity of environmental review. The EA identifies broad areas within which harvest, thinning and other treatments may occur, but it does not fully explain to the public how or where actual will affect localized habitats. To comply with NEPA, the Forest Service must provide more detailed information about the timing and location of UWPP terrestrial treatment so that both the decision-maker and the public can properly assess the ecological impacts of the project.

6. Conclusion

We are pleased the UWPP includes road removal and decommissioning and removal of barriers to fish passage, as these restoration activities will begin to heal the Upper Wenatchee watershed by increasing water quality and the amount of available aquatic habitat. The Forest Service must, however, meet its obligation under the Roads Rule to establish a minimum roads system for the Upper Wenatchee area.

The Forest Service has failed to provide scientific support for the efficacy and need for the UWPP's proposed terrestrial treatments. It also failed to analyze the specific impacts of the proposed logging, thinning and other vegetative treatments on the project area.

Thank you for the opportunity to participate in the public evaluation of the UWPP proposal.
If you have any questions about these comments, please contact us.

Sincerely,

Marlies Wierenga
Pacific NW Conservation Manager
mwierenga@wildearthguardians.org

Chris Krupp
Public Lands Guardian
ckrupp@wildearthguardians.org

Attachment

The Environmental Consequences of Forest Roads and Achieving a Sustainable Road System (March 2020). – This paper includes citations for the literature cited in sections 1 and 2.

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