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RE: COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE MIDNIGHT RESTORATION PROJECT

I am Evan Frost, a professional terrestrial/forest ecologist with Wildwood Consulting LLC. For over 30 years, I have worked at the interface of conservation science and land management across many parts of the western U.S., including the Okanogan-Wenatchee National Forest. My primary areas of expertise are in western forest and fire ecology, science-based approaches to land management and biodiversity conservation. In my professional capacity as a consulting ecologist, I have been asked by the North Cascades Conservation Council to review the "*Draft Environmental Assessment for the Midnight Restoration Project*" located on the Okanogan-Wenatchee National Forest (dated April 2024; hereafter Draft EA), and comment on the ecological merits of the proposed action to manage forests in the Midnight project area. The statements below are based on my professional judgment and experience as a forest ecologist, my review of the relevant scientific literature on fire and western forest dynamics, my extensive first-hand experience in the Midnight project area, and my understanding of the potential impacts of proposed management actions.

From a forest ecology perspective, one of if not the most significant concern with regard to the design of the Midnight project's proposed action centers around the planned removal of large/old trees. The agency's own analyses, as well as others that have been conducted in eastern Washington and beyond, have consistently shown that the abundance of large/old trees and late-successional forest stands are much reduced relative to historic conditions, largely as a result of past logging. Given this and the project's stated goal to "move current vegetation toward desired reference conditions", I find that the Draft EA failed to provide a sound, evidence-based ecological rationale for why some unknown volume of existing large trees (>21" dbh) should be removed, as is planned as part of the proposed action.

While the proposed action plans to log trees >21" across several different land use allocations, this concern is most acute in Late-Successional Reserves (LSR) established by the Northwest Forest Plan. The management standards that govern LSR management are clear that the primary goal for these lands is to conserve and retain late-successional forest habitat wherever it occurs -- "[A]ctivities in older stands may be appropriate only if: (1) the proposed management activities will clearly result in greater assurance of long-term maintenance of habitat, (2) the activities are clearly needed to reduce risks, and (3) the activities will not prevent the Late-Successional Reserves from playing an effective role in the objectives for which they were established (1994 Northwest Forest Plan FSEIS Vol II p. B-74-75). Given this, the

Midnight EA fails to provide a sound ecological justification for why removing large/old trees -- which generally contribute very little to fire hazard and fire spread -- constitute a restorative action.

Despite agency claims to the contrary, mistletoe infection is not a legitimate ecological reason for removing large trees (particularly from LSR lands), since: 1) mistletoe brooms in large trees are known to provide important wildlife habitat, 2) the Forest Service presents no evidence that removing an unknown number of scattered large trees with mistletoe brooms from already infected stands will significantly reduce rates of future infection, and 3) planned underburning of treated stands will remove most of the small/young potential mistletoe host trees anyway. In effect, proposed silvicultural prescriptions cannot effectively remove mistletoe from already infected stands, nor should this be a goal since mistletoe brooms are known to play a number of important ecological roles in late-successional forests.

In addition to trees infected by mistletoe, the Draft EA states that trees >21" dbh may also be removed where current density exceeds some proposed threshold (either trees per acre, canopy cover and/or basal area targets). Yet the Forest Service provides no ecological basis for why these suggested thresholds and metrics are the most appropriate of those that could be adopted in order to achieve restoration goals. The EA states that trees 21-25" may also be removed from LSRs "where needed to meet ecologically based structural, compositional, or spatial pattern objectives" (page A-4). The practical effect of this language means that almost any large tree inside LSRs may be available for logging. Contrary to the actions proposed in the Midnight EA, broad scientific consensus already exists that large (>21" dbh) trees should be retained as part of all projects that have restoration, resiliency and fire risk reduction as primary goals in western dry forests (see quoted excerpts attached to this letter). The Midnight EA proposes to log large/old trees, but does not present any evidence that negates or runs counter to this established best available science.

Related to this issue, another specific concern is that this project will attempt to thin clumps of large/old trees to achieve some pre-determined silvicultural spacing and/or canopy cover targets. This type of treatment is problematic because clumps of large trees are known to play important ecological functions in dry western forests and are not an artifact of fire suppression. Removing large trees from clumps runs contrary to established restoration guidelines (for example, Franklin et al. 2013), and is generally not needed to accomplish fire hazard reduction or resiliency objectives. "Simply put, a solid empirical basis to justify thinning out clumps of old trees to prevent future mortality does not exist." (Franklin et al. 2013).

The primary issue here is that the Forest Service failed to consider or analyze the degree to which fire/fuels/restoration goals could be achieved without logging trees >21" dbh. It is quite possible that the benefits of retaining existing large trees outweighs the likely downsides and the minimal (if any) fire/fuel benefits that may be associated with their removal. But since the agency did not develop such an alternative or analyze and disclose the full range of potential tradeoffs, neither the public nor the decision-maker can make an informed evaluation of this issue. The agency did attempt to explain why an alternative with lower tree diameter limits was dropped from consideration, but the rationale presented -- that this would "decrease stand diversity" and "limit development of late-successional habitat" (Draft EA, p. 9) -- does not make any sense.

In addition to the overarching issue described above, the following individual comments highlight other concerns regarding the design and analysis of the proposed action in the Midnight

Restoration Project Draft EA, followed by suggestions for how these deficiencies may be adequately addressed and/or remedied in any subsequent development or revision of this project:

- According to the Draft EA, "In all stands, no live or dead trees older than 150 years, as determined using external morphological characteristics, would be cut, except for hazard trees and as necessary for operations." However, the Forest Service does not explain how this requirement will practically be implemented in the field. Given the relatively low productivity of forests in parts of the Midnight project area, there is high potential for many trees >150 yrs old to be less than 21" dbh and may not exhibit the "old" morphological traits that are described in Van Pelt 2008. SUGGESTED REMEDY: The Forest Service should develop a protocol that will facilitate identification and retention of old (but smaller) ecologically valuable trees.

- Silvicultural prescriptions presented in the DEA and supporting documentation are vague, lack specificity and clear language about what the specific goals are in terms of species composition, structure, spatial patterning, etc. Without specifically describing with ecologically meaningful metrics what the current forest conditions are now and what they will be after various logging prescriptions, it's not possible to understand what the outcomes will likely be on the ground in different settings and under varying conditions. SUGGESTED REMEDY: Silvicultural prescriptions need to be described more clearly and in greater detail, including an analysis that depicts how various existing forest stand conditions will change as a result of various treatments.

- In keeping with the primary management requirement to maintain/restore old forest conditions in Late-Successional Reserves -- If large trees (>21" dbh) must be felled for safety or operational reasons, tree boles should be left on site or otherwise utilized for restoration purposes. It is well established that large coarse wood does not generally contribute to fire hazard or fire spread, plays key ecological roles in late-successional forest ecology and is often deficient relative to historic conditions. SUGGESTED REMEDY: Include clear language that large logs may only be removed from LSR lands after it can be demonstrated that coarse woody debris requirements in both aquatic and terrestrial settings have been met.

- According to the Draft EA -- "Areas designated as Forest Plan Old Growth [FPOG] would not be degraded and would still meet the Forest Plan definition. FPOG characteristics would be enhanced by protecting and promoting large and old trees through this prescription." 'Managing down to the minimum' according to some definition of old-growth adopted by the Forest Plan, as the proposed action intends, does not mean that logged old-growth stands will not be degraded. In fact, habitat values are likely to be diminished to some unknown extent due to loss of large trees, decrease in structural complexity, decadence, and canopy cover that is required for a number of at-risk species. SUGGESTED REMEDY: In order to claim that no loss/degradation of old-growth attributes will occur due to the proposed action, the Forest Service would need to present an analysis of how each of the primary old growth related attributes (canopy cover, complexity, decadence, abundance of large trees, etc) will change before and after logging.

- The Forest Service should plan for the likely / realistic outcome that a potentially significant percentage of large/old trees that are planned for retention will subsequently be lost due to mortality from mechanical damage, prescribed fire, blowdown and hazard tree removals. SUGGESTED REMEDY: In order to account for post-treatment losses of large trees, the proposed action should plan to retain additional numbers of the larger cohort of trees available so as to ensure that critical functions associated with large trees are sustained through time.

- Proposed helicopter logging units are likely to generate high levels of surface fuels from woody debris that remains on site after tree boles are removed. The Draft EA makes no mention of how activity fuel loads associated with logging would be mitigated in these units. Often, hazardous fuels abatement has not been conducted in helicopter logging units, which can dramatically increase fire hazard. SUGGESTED REMEDY: The Forest Service should not approve helicopter logging unless the proposed action includes a clear and explicit plan that will effectively remedy potential increases in activity fuels and fire hazard in stands subject to helicopter logging.

- I could find nowhere in the Draft EA any reference to acreage estimates for the amount of hand pile/burn, mechanical pile/burn and broadcast burning that are included as part of proposed action. A more detailed, site-specific breakdown of this important element of the project is needed. While the practice is often necessary immediately after logging, pile burning does not have the ecological benefits that are associated with broadcast or underburning. SUGGESTED REMEDY: The Forest Service should commit to specific acreages of prescribed underburning in the final decision, otherwise there is no assurance that this essential element of the project will in fact be implemented.

Without substantive changes to the proposed action and more detailed, site-specific analysis than what has thus far been presented in the Draft EA, it is my professional opinion as a consulting ecologist that the Forest Service cannot legitimately state that the Midnight Restoration Project will have "no significant effects on the quality of the human environment", which if found to be the case, would necessitate preparation of an Environmental Impact Statement.

Sincerely,

Evan Frost, M.Sc.