The Nature Conservancy
Protecting nature. Preserving life.™

The Nature Conservancy in Oregon
821 SE 14th Avenue
Portland, OR 97214-2537

tel 503 802-8100
fax 503 802-8199
nature.org/oregon

Ochoco National Forest
c/o Mr. Shane Jeffries, Forest Supervisor
3160 NE Third Street
Prineville, Oregon 97754
SM.FS.EScreens21@usda.gov

October 13, 2020

RE: Forest Plans Amendment: Forest Management Direction for Large Diameter Trees in Eastern Oregon Environmental Analysis

Dear Mr. Jeffries,

The Nature Conservancy (TNC) is a global, science-based, non-partisan organization committed to conserving the lands and waters on which all life depends. In Oregon, TNC has more than 80,000 supporters, members in every county, and manages lands and waters across the state. TNC is also an active participant in collaborative forest management discussions, with staff based in communities across central and eastern Oregon providing science and technical support to inform ecological forest restoration.

TNC appreciates the U.S. Forest Service (USFS) Region 6 and the Pacific Northwest Research Station's efforts to improve the Eastside Screens. Collectively we have gained a great deal of insight on the ecological processes and functions of the frequent fire-adapted forests of Oregon over the 25+ years since the Eastside Screens were established. This body of research, much of it place-based within the National Forests managed under the Eastside Screens, provides additional scientific clarity on the important role that fire historically played in these systems, and describes the consequences of past management actions, such as historical logging and fire suppression, on forest structure, composition, pattern, process, and function. It also underscores the robust scientific agreement on how to effectively restore fire-dependent forest ecosystems to be resilient and resistant in the face of future natural disturbances, drought, and climate change. As a science-based organization, we encourage the use of the best-available science to guide policies and practices and we are encouraged that the USFS is evaluating barriers that have impeded our collective ability to effectively apply science to restore characteristic structures, species compositions, and patterns across the frequent fire-adapted forests in Oregon.

TNC's Interests

TNC firmly supports the original purpose of the Eastside Screens, namely *"to conserve those components of the landscape – old forest abundance, wildlife habitat in late and old structural stages – in relation to larger ecosystem management to protect habitat for certain species of*

wildlife and to promote the vigor and health of the forests." Over the past 25 years, the disturbance ecology of central and eastern Oregon mixed-conifer forests has been much better described (e.g., Heyerdahl et al. 2001, 2019; Johnston 2017; Johnston et al. 2018, Merschel et al. 2014, 2018; Hagmann et al. 2013, 2014). Today we clearly understand that the function of these systems was integrally linked to frequent fire, which created and sustained the old tree structures and old forest habitats that were critical to abundant and functioning wildlife populations. Consequently, TNC's forest restoration strategies focus on enhancing the resilience, resistance, and adaptive capacity of Oregon's frequent fire-adapted forest landscapes by increasing the quality, pace, and scale of ecologically based restoration and the reintroduction of beneficial, low intensity fire to protect, maintain, and recruit large, old, fire-tolerant early seral trees. This, we believe, will help sustain old trees, old forest abundance, and associated wildlife habitat.

The Eastside Screens were intended to protect large trees and late old structure (LOS) habitat, however as currently interpreted and applied in frequent fire-adapted forest types, these rules create unintentional barriers to effectively achieving this purpose. In particular, the application of a uniform 21-inch diameter limit, without attention to tree age, differences in species physiology and life history traits, or appropriate species composition for a given biophysical environments, has two unintended but important consequences on the efficacy of restoration treatments. First, it can and does lead to the removal of old but small (< 21-inch dbh) trees, which are important legacies of a historically fire-adapted landscape. And second, in frequent fire-adapted forest types it can lead to the retention of young but large (≥ 21-inch dbh) late seral tree species at densities inconsistent with historical species composition. These limitations make it difficult to address underlying changes in structure and species composition in these forests that have resulted from past management practices and continue to leave these forest types and extant old trees within them vulnerable to uncharacteristic disturbance and climate change.

TNC's primary interests in reexamination of the 21-inch standard are to achieve the following:

- Establish better protections for old trees regardless of species or size;
- Effectively address threats to extant old trees and old forest to reduce their vulnerability to mortality from increased competition, unnaturally severe disturbance, drought, and climate change;
- Address declines in population viability for wildlife species associated with large- and old-tree forest habitats, particularly late-open forests at lower elevations, which are greatly reduced compared to historical conditions;
- Allow restoration treatments that shift frequent fire-adapted forests toward their historical range of variability (HRV) in terms of tree species composition, structure, and spatial pattern;
- Improve the effectiveness of restoration treatments in early and mid-seral forests aimed at developing resilient, resistant old trees and old forest on the landscape in the face of a changing climate;
- Clarify the ecological rationale and sideboards for removing young but large late seral trees from frequent fire-adapted forest types, and;
- Increase the potential for growth and recruitment of future very large (> 30-inch dbh) and very old (> 250 years) fire-tolerant trees.

Below we share specific comments and recommendations we believe would better achieve these goals and improve the proposed amendment. TNC hopes these concerns can be addressed before a final decision is made:

1. The amendment needs a more robust, science-based purpose and need for change;
2. The proposed amendment needs to explicitly incorporate historical species composition;
3. The analysis and associated methods show little benefit to old trees and old forests at relevant scales;
4. The analysis does not appropriately consider implementation of the revised 1995 Eastside Screens as amended;
5. The guidelines in the proposed action do not have a clearly articulated desired outcome or purpose, and;
6. The proposed adaptive management approach would not drive the continual evaluation and improvement of restoration treatments.

Comments and Recommendations for the Preliminary Environmental Assessment

1. The amendment needs a more robust, science-based purpose and need for change

The proposed amendment, purpose and need for action, and assessment of the current Eastside Screens would benefit from a detailed description early in the document of the disturbance ecology of frequent fire-adapted forests and the historical management paradigms that have contributed to current stand, forest, and landscape-scale conditions. For example, while logging of remnant old trees and subsequent loss of remaining late and old habitat was the paramount concern when the Eastside Screens were originally adopted, the current principal drivers of continued decline in the oldest and largest trees and habitat are increased drought severity and duration (Young et al. 2017; Voekler et al. 2019), increased wildfire severity (Reilly et al. 2017; Haugo et al. 2019), and increased mortality from insects and disease (Hicke et al. 2016; Kolb et al. 2016), directly tied to historical management practices, fire exclusion, and the impacts of a changing climate (Hessburg et al. 2016).

Although these elements are addressed at various places within the document, expanding and clarifying this important context would: 1) provide a more robust ecological rationale for restoring multi-age, late-open forest structure and reestablishing the underlying natural processes consistent with the disturbance ecology of frequent fire-adapted systems; 2) better highlight the vulnerability of old trees and old forest in the face of future climate driven disturbances; 3) make explicit the frequent fire forest environments where the proposed amendment applies since the need for change is not uniform across all forest types in central and eastern Oregon, and; 4) set clearer sideboards for the need to remove some young but large late seral trees from frequent fire-adapted forest types.

Recommendation:
The EA needs a clear articulation of the underlying disturbance ecology of frequent fire-adapted forest types, current stand, forest, and landscape-scale conditions, and the current and historical drivers that have led to the continued decline of old trees over the past 25 years to support and clarify the purpose and need for change.

2. The proposed amendment needs to explicitly incorporate historical species composition

History is not a perfect analog for the future, and yet restoration treatments that intend to enhance resilience, resistance, and adaptive capacity of frequent fire-adapted forests should be informed by HRV (Higgs et al. 2014). None of the action alternatives account for historical species composition, set explicit species composition goals based on HRV, or adjust those goals according to forest type. This "one size fits all" approach diminishes the robust body of science on historical forest conditions and the role of species composition in supporting resilience and resistance to a wide range of natural disturbances and stressors (Hessburg et al. 2015, 2016). As such, it does little to bolster the strong scientific rationale for any revision and runs the risk of overlooking important differences at the site, biophysical environment, and regional scale in terms of species composition goals that could impede the attainment of the desired outcomes.

While the proposed action alternative specifies that "*Management activities should consider species composition and spatial arrangement within stands and across the landscape [EA 2.2, pg. 11],"* the suggested revision doesn't clearly connect this decision to HRV for a particular forest type and biophysical environment. The analysis implies that the proposed revisions would only effect dry and moist forests when it suggests "*No difference between any alternative is expected*" in wet, cold, or other forest [EA 3.1.6.3.1.6, pg. 40]. However, the current Eastside Screens apply to ***all*** forest types and there is no specific language in any of the alternatives that would explicitly limit or tailor their application by forest types. Although the proposed action alternative is clearly designed to address encroachment of large but young shade-tolerant species in frequent fire-adapted forest types, it is important to explicitly state that the intention is not to apply the same species and size preferences across all forest types and biophysical environments.

Consideration of species composition should be included in the Ecosystem Standard, which describes the process for conducting an HRV evaluation and guides implementation of the Wildlife Standard. Without explicit consideration of forest type and historical species composition, young but large late seral trees, which were historically less abundant across many of our frequent fire-adapted forest types, may continue to be retained at densities outside of HRV. This in turn limits our ability to overcome the ecological inertia in these forest types and achieve resilience, resistance, and climate adaptation goals.

Recommendation:
To provide clear guidance to managers, the EA should base species composition goals on HRV for each forest type. These goals should be more explicit and better integrated throughout the action alternatives and effects analysis. Species composition should be considered as an additional component of the Ecosystem Standard HRV evaluation to provide coherent guidance to managers.

3. The analysis and associated methods show little benefit to old trees and old forests at relevant scales

The stated goal of the proposed amendment reaffirms the principal goal of the original Eastside Screens to *"maintain the abundance and distribution of old forest structure."* The EA goes on to suggest that the need for adapting the 21-inch standard is to *"better conserve large and old trees*

and to adapt stands to future climate and disturbance regimes [EA 1.5, pg. 7]." And while the EA finds that over the last 25 years both open and closed LOS have increased, it also reports that "*Trees older than 150 years in age have decreased by approximately 8% between 2001 and 2017. Old trees have decreased in the project area by 5% over the last decade alone [EA 3.1.5.3, pg. 32]."* It goes on to describe that these trends are a result primarily of insect, disease, fire, and drought [EA 3.1.5.4, pg. 32-33].

Similar trends in tree mortality have been documented in other parts of dry, intermountain west (van Mantgem et al. 2009). In this case, the EA suggests that such trends in old tree mortality in the analysis area were developed using Forest Inventory and Analysis (FIA) data. While the FIA program tracks tree mortality for all trees in each plot, FIA methods only collect ages for limited number of trees per plot. Aged trees are selected to estimate stand age and site class, not to produce population estimates of tree age. A quick search of the public FIA database for eastern Oregon USFS lands found records for only ~850 trees over 150 years old, which is likely an insufficient sample to provide an accurate assessment of old tree mortality across the entire analysis area. We are unaware of (and the EA does not describe) a statistically valid method to use FIA to analyze or monitor old tree mortality.

We agree that any rapid decline in old trees, which are critical and irreplaceable (in the near-term) ecological and biological components of the landscape would be alarming. Assuming that the decline in old trees is accurate and driven primarily by large, landscape-scale disturbances, the current level of forest treatments (~34,000 acres/year) does little to change the trajectory in the face of vast frequent, fire-adapted forest restoration need (Haugo et al. 2015; DeMeo et al. 2018). Despite analyzing three times the current rate of treatment across the analysis area, we are concerned that no analyzed alternative is shown to make a significant difference in reducing old tree mortality or moving the landscape towards HRV in terms of late and old forest structure.

The modeling results (EA 3.1.6) rely primarily on sparse landscape-level data from FIA and Forest Vegetation Simulator (FVS) modeling to make assertions about the trends that would occur at the landscape-level when the management action would occur at the stand or project-level. While we recognize that the scope of the EA necessitates that the model outcomes be assessed across the entire analysis area, this fails to address the important implications of the proposed changes at the stand- and tree-neighborhood-scale. It is important to distinguish the outcomes and metrics that could be used to measure the project or stand-level restoration efficacy of each alternative, including the ability to reduce the severity of disturbance impacts and subsequent tree mortality (Hood et al. 2017; Young et al. 2020) and to increase individual tree vigor (Grulke et al. 2020; Tepley et al. 2020; Hood et al. 2017).

If the intended outcome of this amendment is to "*better protect old trees and better provide for resilience of forest stands,"* analyzed alternatives should be expected to have a net ***positive*** effect on the retention and recruitment of old trees and fire-resistant forest structure in order to be considered for action. However, analysis and modeling outputs suggest the opposite [EA 3.1.6]. For example, all alternatives are showing a continued shift toward shade-tolerant (e.g., fire-intolerant) species at the landscape scale even while selecting for retention of fire-tolerant species at the project scale [E.A. 3.1.6.1, pg. 35] and the Adaptive Management Alternative

suggests a significant decline in the number of old trees across the landscape relative to current management [EA 3.1.6.3.2.1, pg. 40].

Although benefits of the proposed changes may not be detectable at the landscape scale, there have been numerous projects across eastern Oregon in the last decade and 21 project-specific forest plan amendments undertaken since 2003 that addressed the 21-inch diameter standard. Outcomes from these projects could be used to evaluate current management as well as removal of large but young shade-tolerant trees to favor fire-resistant forest structure. Many of these amendments have been implemented with prescriptions similar to those in the proposed action alternative, and therefore could provide valuable data to analyze fine-scale effects of the action alternatives on resilience and resistance goals. Landscapes change slowly, however, this doesn't preclude us from evaluating and significantly improving conditions at the stand scale where amending the 21" rule will come into play.

Recommendations:
The EA should explain the methods used to produce estimates of old tree mortality and include an estimate of precision. Estimates of precision should be included with all values presented in the EA derived from FIA data to allow the decision maker to judge the strength of evidence presented.

Given the importance of stand- and within-stand spatial pattern of trees, particularly large and old trees, on a wide range of ecosystem processes and functions, the proposed amendment should include a stand-level effects analysis in the final EA.

4. The analysis does not appropriately consider implementation of the revised 1995 Eastside Screens as written

The analysis of the current management alternative uses a blanket 21-inch diameter limit, applying subpart d.2(a) to subpart d.1 of Scenario A of the 1995 revised Wildlife Standard, while all action alternatives apply subpart d.1 as written. This is consistent with how the 1995 revised interim management direction has been interpreted and applied but means there is no evaluation of the reasonable alternative of implementing the current Eastside Screens strictly as written. As it stands, the alternatives analyzed indicate very minimal differences, some of which are a result of implementing subpart d.1 of Scenario A as revised in 1995.

Recommendation:
The EA should include evaluation of an additional action alternative that implements the 1995 Wildlife Standard revised interim direction as written.

5. The guidelines in the proposed action do not have a clearly articulated desired outcome or purpose

The proposed action moves from a standard (the 21-inch rule) to a guideline. While compliance with a guideline can provide more management flexibility, a guideline, as stated in the USFS 2012 planning rule, is not optional or discretionary and must have a clearly defined purpose:

"A guideline is a constraint on project and activity decision making that allows for departure from its terms, so long as the purpose of the guideline is met. (§ 219.15(d)(3)). Guidelines are established to help achieve or maintain a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements." (36 CFR 219.7€(1)(iv)).

The USFS 2012 Planning Rule goes on to note that project activities:

"*…must be consistent with the applicable plan components. A project or activity approval document must describe how the project or activity is consistent with applicable plan components developed or revised in conformance with this part by meeting the following criteria* [*219.15(d)(3)":*

…

(2) Standards. The project or activity complies with applicable standards.

(3) Guidelines. The project or activity:

(i) Complies with applicable guidelines as set out in the plan; or

(ii) Is designed in a way that is as effective in achieving the purpose of the applicable guidelines (§ 219.7€(1)(iv))."

The guideline in the proposed action lacks this clearly defined purpose, making it impossible to judge if deviations from the guideline are *"effective in achieving the purpose."* The proposed action alternative specifies that "*Management activities should first prioritize old trees for retention and recruitment,"* and in instances where there are few or no old trees, the guideline is "*the largest trees should be retained."* However, this statement implies that in some situations not all old trees will be retained, which begs the question of how removal of old trees could ever align with the broader purpose of the Eastside Screens. Furthermore, given that this guideline would apply exclusively to the treatments outside LOS stands, it is likely that old trees either are not present or present only in very low densities, and therefore management activities should retain all extant old trees regardless of size.

The proposed action alternative gives priority next to the largest trees for retention, with "large" defined as *"grand fir, white fir, or Douglas-fir ≥ 30-inch dbh or trees of any other species ≥ 21-inch dbh [EA 2.2, pg. 10]."* Yet it is unclear how managers should assess and prioritize the largest tree when deciding between late and early seral species to achieve ecologically appropriate retention goals (see comment two above).

For example, under this guideline how would a manager assess and prioritize between a 20-inch ponderosa pine and a 29-inch grand fir? Or a 22-inch ponderosa pine and a 31-inch grand fir? This ambiguity illustrates that the purpose of the proposed guideline is not clearly articulated, particularly without coherent and consistent guidance for managers regarding species retention goals consistent with HRV, forest resilience, resistance, and adaptive capacity and the underlying disturbance ecology of each forest type and biophysical environment.

In places where old trees do not exist or exist at very low densities, it should be clearly stated that the desired outcome is to move stands towards HRV in terms of forest structure, species

composition, and spatial pattern while recruiting early seral tree species that were historically dominant in those biophysical settings. This will help ensure that in addition to retaining all old trees, restoration treatments facilitate the continued survival of old trees and promote persistence of resilient and resistant species in densities that are ecologically appropriate.

Recommendation:
The EA should clearly articulate the desired condition(s) or purpose to be achieved by all proposed guidelines.

6. The proposed adaptive management approach would not drive the continual evaluation and improvement of restoration treatments

The adaptive management approach is a key component of the proposed action alternative and is a critical element to establish social license and build trust, as well as assess the ecological efficacy of any action. However, we are concerned that the adaptive management approach outlined in the proposed action would not drive the continual evaluation and improvement of restoration treatments and their ecological effectiveness. The proposed action alternative states:

> *"If restoration treatments prove ineffective at conserving old trees relative to passive management of unmanaged stands, a dbh limit will be re-imposed. The dbh limit that would be imposed would prohibit harvest of grand fir, white fir and Douglas-fir trees ≥ 30 inches and prohibit the harvest of all other tree species ≥ 21 inches [EA 2.2, pg. 11]."*

In other words, if monitoring results suggest passive management (i.e., no treatment) is more effective than active management (i.e., treatment), this triggers the proposed adaptive management change and the guideline reverts back to a standard, but still allows for treatment. Changing the guideline described in the proposed action alternative to an explicit diameter-based standard without consideration of other important factors such as HRV-based species composition targets would not meaningfully change the implementation of restoration treatments, especially because harvests above the diameter thresholds specified in the guideline are likely to be an exception rather than the rule. More importantly, failure to meet the proposed threshold would suggest that it would be more effective to stop all treatments to improve outcomes for old trees rather than re-imposing an arbitrary diameter limit.

While the current focus of monitoring in the proposed amendment is conducted at the landscape scale, to build trust, the process must illustrate the prescription achieved the expected results. Monitoring at the stand level is the best place to illustrate how the guidelines will achieve the stated objectives. Furthermore, irrespective of the prescription the results of implementation could be significantly different under a guideline where silviculturists, timber sale administrators, and fuels managers have flexibility to achieve their desired outcomes.

The effectiveness monitoring described focuses too narrowly on comparing managed and unmanaged stands. The adaptive management approach must also compare effectiveness between treatments. As discussed above, the existing site-specific amendments to the 21-inch standard should be utilized to compare the efficacy of past management approaches to implementation of the proposed action.

We are also concerned by the limited details and questions that are laid out under the proposed monitoring framework [EA 2.2, pg. 11]. Specifically, there is no concrete proposal for monitoring design, methods, datasets, or funding to ensure meaningful data and results are available at the appropriate scale. The team should develop a detailed monitoring plan and make compliance with the plan a requirement within each Land and Resource Management Plan where the proposed amendment would be adopted.

Recommendations:
The EA should include a detailed monitoring plan which will allow mangers to assess the efficacy of restoration treatment compared to both unmanaged stands and alternative treatments.

The EA should focus also on stand-level monitoring to build social license and better understand treatment effects at the relevant scales. The EA should make compliance with this monitoring plan mandatory.

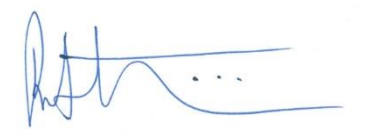
Conclusion

As stated at the outset, TNC firmly supports the primary purpose of the Eastside Screens, including the conservation, protection, and restoration of old trees and old forests and associated habitats. We are deeply committed to the application of the best-available science to better achieve ecological resilience and resistance goals. And the science is clear; we can and should be doing more to ensure extant old trees and old forests persist in these landscapes, and that future old trees and old forests will develop and thrive in the face of natural disturbances, drought, and climate change. Consequently, we are concerned by a number of issues with the proposed amendment that would impede the efficacy of a revision to the Eastside Screens, and with it our collective ability to protect current and future old trees and forests in central and eastern Oregon.

We are grateful for the opportunity to provide comments and hope the concerns and recommendations raised help improve the proposed amendment so the final EA reflects the urgency and importance of this issue and bolsters our ability to increase the quality, pace, and scale of ecologically based frequent fire-adapted forest restoration across the state and region.

Should you have any questions or need for clarification, please do not hesitate to reach out.

Respectfully,



Pete Caligiuri, Oregon Forest Program Director
The Nature Conservancy