

## **Stakeholder and Tribal Input**

### **Input on literature for systematic review (SR)**

In the fall of 2018, department staff completed an extensive search for papers to include in the literature review titled “Siskiyou Streamside Protections Review: A Systematic Review on Stream Temperature, Shade, and Desired Future Condition.” We then assessed whether or not each paper should be included in this review, based on criteria outlined in the review’s protocol<sup>1</sup>. Every inclusion/exclusion assessment for each paper was documented in a spreadsheet.

In the fall of 2018, the department solicited input from stakeholders and tribes on this spreadsheet. We asked them to address these two questions:

- Did we correctly apply the criteria for including and excluding papers from the systematic review?
- Do you have papers that we have not yet considered for the systematic review?

The department also contacted authors of potentially-relevant studies to request their sending papers from these studies.

The department received 16 responses from forest industry, conservation groups, academia, Oregon Department of Environmental Quality (DEQ), Oregon Department of Fish and Wildlife (ODFW), Bureau of Land Management (BLM), watershed councils, Oregon Department of Forestry (ODF) stewardship foresters, local landowners, and the general public.

They suggested considering 41 papers, all of which were considered for inclusion in the review. Five of these papers passed all inclusion criteria and were thus included in the review. None of the responses found that we misapplied the inclusion criteria.

The comments focused on several themes, many of which appeared in the same response. Ten respondents suggested to consider particular papers in the review. Three responses proffered opinions on what the policy outcome should be for the larger review process (all three wanted more restrictive streamside protections). Five respondents wanted the scope of the SR to be different (e.g., include large wood, larger geographic provenance for papers). Finally, five responses said ODF staff did a good job with the search and inclusion process.

### **Input on SR report**

We received 12 sets of comments on the SR report from forest industry, conservation groups, tribal representative, academia, DEQ, ODFW, Environmental Protection Agency (EPA), and the general public.

Some responses were a paragraph or two in an email, some edited the document, and some used a spreadsheet to provide comments on particular sections of the report. Major comment themes from interested parties, along with the associated responses from staff, are provided below.

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<sup>1</sup> See Table 5 of the protocol (Appendix D of Attachment 5).

## **Themes of input on both literature inclusion list, and SR report**

This section categorizes input from stakeholders and tribes on both the inclusion of literature in the SR, and the SR report. The number of responses related to each theme are listed, followed by the associated ODF response to that input.

The reader is cautioned that these “number of responses” values are not necessarily representative of opinions of the greater public, stakeholders, or tribes. The values reflect only the number of responses we received from the larger group of interested parties that were contacted. Note that when a party provided similar feedback on both the inclusion list and the SR report, it is only counted once. From a request for input on the SR report sent to over 100 potentially-interested parties, we received 13 responses.

**Theme:** This review includes too few studies. It requires additional data analysis, field studies (with Forest Practices Act (FPA) prescriptions), long-term monitoring, or change of review scope.

**Number of responses:** 7

***Oregon Department of Forestry (ODF) Response:*** Staff conducted the SR based on direction from the Board, which considered time and staff capacity tradeoffs presented at the March 2018 BOF meeting. The scope of this SR is also based on a previous Board decision to not extrapolate RipStream (and hence studies from similar landscapes) to the Siskiyou (November 2015). The Board has the discretion to direct the department to do additional work. This additional work may be data analysis, field studies, long-term monitoring, or change in scope for the next phase of the review. The Private Forests Division will set the direction for the Monitoring Unit’s work, prioritizing projects as time and resources allow. If additional work products are chosen, the staff capacity guide discussed in the 2016 Monitoring Strategy will be used to evaluate what workload can be accommodated. The 2016 Monitoring Strategy is available upon request.

**Theme:** Explain how effects modifiers were considered in results (e.g., previous harvesting).

**Number of responses:** 6

***ODF Response:*** Effects modifiers were documented for each study included in the review, however, the protocol stated that a rigorous analysis of these modifiers is beyond the scope of the SR.

**Theme:** Bankfull width, depth of stream should be reported.

**Number of responses:** 3

***ODF Response:*** Not all papers reported on metrics of stream channel geometry. Additionally, while these effects modifiers play a role in the impact of changes in shade on stream temperature, the FPA does not have rules for different stream channel geometries. ODF staff

have added a table (Table 4, Attachment 5) to the SR report on what information can be found in the included papers.

**Theme:** Provide implications of results and direct conclusions.

**Number of responses:** 3

**ODF Response:** ODF staff conclusions and recommendations can be found in Attachment 1 of the Board materials for the June 5<sup>th</sup> 2019 meeting.

**Theme:** Geographic scope should be expanded.

**Number of responses:** 3

**ODF Response:** Multiple comments from the draft Protocol review phase requested that the SR be expanded to a larger geographic scope. However, the Board made a policy decision in November 2015 to not extend the SSBT rule change and the associated monitoring in the rest of western Oregon to the Siskiyou. The Siskiyou geographic region (or region, OAR 629-635-0220) was not included in the SSBT rule change because of concerns about extrapolating results of the ODF Riparian Function and Stream Temperature (RipStream) study, which had no sites in the Siskiyou region. ODF staff aligned with this decision when outlining the scope of the SR for the Siskiyou Streamside Protections Review. The Board may request a new scope or other forms of study for the next phase of the review.

**Theme:** Climate change should be a central facet of this review.

**Number of responses:** 3

**ODF Response:** Climate change has been identified as an emerging issue for the Board to review under the “Role of Forests in Carbon Policy and Adaptation Strategies for Climate Change” work plan item. However, it is out of scope of this review. This topic was discussed at the April 2019 Board meeting and will be discussed further at the July 2019 Board meeting. The outcome of this discussion may inform future FPA effectiveness reviews.

**Theme:** Analyze shade and temperature together. Analyze the decreases in shade/canopy cover from pre- to post-harvest instead of comparing post-harvest shade/canopy cover with range from mature streamside stands.

**Number of responses:** 2

**ODF Response:** Shade and canopy cover are components of DFC. In order to determine effectiveness of rules, ODF staff refer back to the language in the FPA goals for DFC (“to grow

*and retain vegetation so that, over time, average conditions across the landscape become similar to those of mature streamside stands...”).* As outlined in the SR protocol, the objectives for determining effectiveness, to reflect the FPA language, are to 1) assess the range of the streamside stand conditions of mature forests in the Siskiyou region; 2a) analyze the degree to which managed forests have, and if not now then likely will have, characteristics similar to those of mature streamside stands; and 2b) analyze the degree to which managed forests have, and will have, streamside seedlings/saplings species composition and age structure similar to those of mature streamside stands. Therefore, comparisons between pre- and post-harvest shade and canopy cover is not enough to determine effectiveness of DFC.

**Theme:** The systematic review construct is overly narrow and rigid.

**Number of responses:** 2

**ODF Response:** The systematic review format allows for detailed documentation of methods and extraction of data for transparency and rigor in order to avoid reviewer bias in literature inclusion and interpretation. This documentation and transparency facilitates stakeholder feedback at defined points along the process. In contrast, conventional literature reviews do not provide a rigorous method for what papers to include or how to address them, and thereby allow for much professional interpretation (which, in turn, allows for opaque author bias to influence the literature review outcomes).

**Theme:** In the SR report on page 35, the following statement is included in the Data Gaps and Limitations section: “No papers assessed the Numeric Criterion (NC) in the context of commercial harvest (thinning or clearcut), just thinning from below and prescribed fire, and thus at best are like a pre-commercial thin rather than timber harvest.” This indicates that there is likely more shade loss and temperature increase under the FPA.

**Number of responses:** 2

**ODF Response:** The Thin treatment from the Riparian Fuels Treatment Study being referred to in the above statement may be categorized as less restrictive than FPA standards because thinning was allowed to occur directly adjacent to the stream without a no-cut buffer. There is not enough information to assume that more or less shade loss and temperature increase would occur under the FPA. There may be more shade under the FPA due to its no-cut buffer. On the other hand, there may be less shade under the FPA in situations of a clearcut with a hard-edged buffer if that edge is close enough to the stream.

**Theme:** The Board should make a finding of degradation of resources for water quality, and increase stream buffer widths.

**Number of responses:** 2

**ODF Response:** The Siskiyou Streamside Protections Review, as directed by the Board, is a review of the effectiveness of FPA rules specifically regarding stream temperature and desired future condition (DFC) of streamside stands, not a broad review of water quality. The Board will evaluate the findings of the SR report with the contextual information provided from GIS data, DEQ and ODFW information. After the Board determines whether or not the rules are sufficient, or more information is needed for each topic of stream temperature and desired future condition, they may subsequently direct the department to do additional work.

**Theme:** Some land managers and states have wider stream buffers than required by the FPA, and those were undoubtedly based on science.

**Number of responses:** 1

**ODF Response:** ODF conducted a rigorous search for, and screening of, scientific papers to review. This included searching electronic databases, web pages of relevant associations and organizations, and a public input phase requesting recommended literature. It is possible that unpublished reports exist that we did not find using these search methods. We agree that science plays a critical role in most natural resource decision making processes. Decision making processes are also influenced by the differing management objectives, policy frameworks, and decision making criteria across land managers and states. In combination, it is not surprising to see variation in stream buffer decision outcomes across the landscape.

**Theme:** Peer review should be a requirement of papers included in the review.

**Number of responses:** 1

**ODF Response:** ODF chose not to impose this particular limitation for inclusion. There are many papers (e.g., government monitoring studies) that provide valuable, highly relevant information for this review that are not formally peer-reviewed as commonly connoted for a peer-reviewed journal article.

**Theme:** Provide geology and soil information for each study. “Accounting for geologic and soils settings of the studied stream reaches are also important, as soils and streams associated with ultramafic rock units tend to have very low hardwood density and height compared to other rock types; thus streams in ultramafics tend to be much more highly dependent on conifers of all sizes... for stream shade.”

**Number of responses:** 1

**ODF Response:** We do not have detailed information on geology and soils for all studies in the Siskiyou and Klamath Mountain regions. However, the scope was limited to the EPA level III ecoregion (78) that encompasses both of these regions. EPA ecoregions are “areas of similarity in the mosaic of biotic, abiotic, terrestrial, and aquatic ecosystem components... include geology,

landforms, soils, vegetation, climate, land use, wildlife, and hydrology”  
(<https://www.epa.gov/eco-research/ecoregions>; accessed 4/8/2019).

ODF staff agree with the reviewer that the Siskiyou region’s presence of ultramafic rock may result in different riparian vegetation and shade than other regions and therefore may require further study.

**Theme:** Port-Orford cedar root rot may explain the low numbers of Port-Orford cedar in figures showing tree density and seedlings abundance and the absence of Port-Orford in post-mature stand data.

**Number of responses:** 1

**ODF Response:** Port-Orford root disease (*Phytophthora lateralis*) is a tree disease of concern in the western portion of the Siskiyou region. Port-Orford species distributions generally extend from the coast to part way into the western half of the Siskiyou region. It is possible that some of the studies included in the SR were outside the range of this tree species or, as the reviewer commented, may have been detrimentally effected by Port-Orford root disease. The objectives of the SR were not to determine effects of this disease on current day presence of Port-Orford cedars in streamside stands of the Siskiyou region. The Board may request further information on this topic if they deem it important for determining whether the FPA rules are sufficient in achieving DFC in the region.

**Theme:** Explain how tree species richness is relevant to achieving DFC.

**Number of responses:** 1

**ODF Response:** The FPA, when referring to goals for DFC, the rule states “Oregon has high diversity of tree species growing along waters of the state...<sup>2</sup>”. Tree species richness is one of the metrics found in the literature to describe mature streamside stands and the goal of DFC is to achieve conditions similar to that of mature streamside stands. Therefore, assessing tree species richness, as one of many measures of diversity, among streamside stands measured in the studies included in the SR report is one of the ways we may ascertain whether or not streamside stands managed per the FPA are similar to mature streamside stands.

**Theme:** Hinds Walnut is a rare riparian species in this region and was not identified in any of the studies. Please increase awareness and encourage conservation of this species.

**Number of responses:** 1

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<sup>2</sup> OAR 629-642-0000(2)

**ODF Response:** Hinds Walnut (*Juglans hindsii*) may not have been reported in the studies included in the SR because it is an uncommon tree species. We appreciate the reviewer bringing this culturally significant tree species to our attention and have forwarded the comments to Siskiyou region OSU extension staff and ODF staff.

**Theme:** There are no data on hardwood stands and their age that can be incorporated in the range of mature streamside stand conditions.

**Number of responses:** 1

**ODF Response:** The riparian rules acknowledge that some stands may be hardwood dominated and may become mature at an earlier age. The FPA does not describe what constitutes the DFC for a hardwood riparian stand other than to say it is a mature condition and that it may occur at a younger age than a conifer stand.

**Theme:** For the purposes of Siskiyou Streamside Protections Review, the Natural Conditions Criteria are a necessary and relevant factor for streamside temperature.

**Number of responses:** 1

**ODF Response:** “On Aug. 8, 2013, EPA disapproved a key provision of Oregon’s temperature standard, the “natural conditions criterion.” EPA’s action was ordered by the Oregon Federal District Court on April 10, 2013 based on an earlier ruling in February 2012. Oregon DEQ can no longer use the natural conditions criterion to account for warmer temperatures in Oregon’s rivers, lakes and streams.”<sup>3</sup> The Oregon Department of Environmental Quality (DEQ) is in the process of addressing this issue.

**Theme:** There is no guidance on how to incorporate Quality and Relevance scores into findings and conclusions.

**Number of responses:** 1

**ODF Response:** ODF staff conclusions and recommendations can be found in Attachment 1 of the Board materials for the June 5<sup>th</sup> 2019 meeting, including a connection between Quality and Relevance Confidence Scores and the Decision Framework.

**Theme:** Explain how you would expect canopy cover and shade to differ from mid-channel to within the riparian stand.

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<sup>3</sup> Oregon Department of Environmental Quality. Water Quality Standards Division. August 8, 2013. *Temperature Standards: Natural Conditions Criterion*. Retrieved from <https://www.oregon.gov/deq/FilterDocs/TempStandardNatCond.pdf>.

**Number of responses: 1**

**ODF Response:** Canopy cover and shade were not meant to be compared between mid-channel and streamside stands (within riparian management area). ODF staff sought to identify the range of mid-channel shade/canopy cover from mature streamside stands and compare them with mid-channel shade/canopy cover in or adjacent to FPA-managed stands. Likewise, comparisons were sought between mature streamside stand shade/canopy cover and streamside shade/canopy cover of FPA-managed stands. Figure 5 of the SR report (In-stream and streamside mean % canopy cover and mean % shade, post-treatment) has been changed to better reflect these coarse comparisons. ODF staff make no inferences about differences between mid-channel shade/canopy cover and streamside shade/canopy cover as this was not the objective of the review.

**Theme:** There is no reporting on other functional outputs (large wood, etc.), TMDLs, fish status & trend, that are needed for deciding on sufficiency of rules.

**Number of responses: 2**

**ODF Response:** We agree that large wood is very important for streams. Large wood was one of the topics considered by the Board in March 2018 when they directed ODF to conduct the Siskiyou Streamside Protections Review. However, they explicitly excluded large wood in their direction to ODF so that ODF would have staff resources to work on other projects simultaneously. We may revisit the topic of large wood in the Siskiyou at a later date depending on Board direction.

The Board stated they would not make a determination on the effectiveness of forest practices to achieve goals for fish. They did not direct ODF to revisit the assumption that meeting FPA goals for water quality and the riparian desired future condition would result in outcomes beneficial to fish, so this theme is considered out of scope. Fish status and trend information was presented directly to the Board by Oregon Department of Fish and Wildlife at the March 2019 meeting and is part of the record for their decision making process.

TMDL information was presented directly to the Board by DEQ at the March 2019 meeting. ODF staff incorporated the TMDL process and its findings into this rule review process by including a summary of DEQ's presentation on this topic in the Board materials for the June 2019 meeting. The Board will review these materials to inform their decision at that meeting.

**Theme:** The contradictory/unintuitive data reported in Figure 3 could indicate the NC criteria do not properly reflect real background biological conditions. Minor and/or temporary exceedances of NC criteria do not indicate water quality has been compromised.

**Number of responses: 1**

**ODF Response:** Objective 1 of the SR was to assess whether stream temperatures within or adjacent to forest management met DEQ water quality temperature standards. An assessment on the accuracy or effectiveness of the NC criteria to meet its beneficial use (fish) is not within scope of this review.

**Theme:** It is inappropriate for decisions on FPA rule effectiveness to be based on studies that did not explicitly measure Oregon FPA rules.

**Number of responses:** 1

**ODF Response:** ODF staff will report to the Board on a summary of the findings from all included studies along with the number of sites and the quality/relevance confidence scores associated with the studies the findings comes from. This summary can be found in the decision support document (Attachment 1) which points out the weaknesses of the information available in the SR report. It is important to note that riparian stands managed with either greater or lesser retention or no-cut distance than that of the FPA provide insight on the effectiveness of the FPA by placing bounds on its likely performance.

**Theme:** A simple assessment of stands in a given unit is inappropriate for determining achievement of DFC if rule effectiveness should reflect the FPA language "...achieve DFC... over time.... across the landscape..."

**Number of responses:** 1

**ODF Response:** The decision support document (Attachment 1) points out the weaknesses of the information available from the SR report. There is no information to identify a trajectory of streamside stands for any metric and therefore staff cannot complete the SR Objectives 3a and 3b on whether streamside stands "likely will achieve" DFC.