

MEMORANDUM

To: Riparian Rule Technical Advisory Committee
Fr: Mary Scurlock, Rod Sando and Bob Van Dyk
Re: Defining “Well-distributed” for variable retention option
Dt: 4 April 2016

At our last meeting, Dana Kjos proposed a narrative definition of well-distributed:

“When actively managing the riparian area, the operator shall leave trees well-distributed, minimizing large gaps, favoring small openings in canopy cover, and leaving residual trees in a manner which promotes understory as well as diameter and crown growth while considering safety, operational limitations, and efficient harvest of adjacent stands.”

This memo reiterates input made at the meeting by Mary and Bob, and adds some further suggestions.

1. **Objective Measures of Well-Distributed are Necessary.** The proposed language is not sufficiently specific to enable consistent determinations of compliance with the “well-distributed” requirement for the minimum basal areas proposed by the Board in the outer portions of the riparian management area. Furthermore, it does not prohibit the creation of “large gaps” that are not pre-existing, seeking only to “minimize” them. We do not object to setting up the concept of limiting forest removal to create only “small openings.”

2. **Exceptions should require written plan approval.** This proposal’s language regarding *“considering safety, operational limitations, and efficient harvest of adjacent stands”* could carve out an exception from the well-distributed requirement any time an operator finds it to be inconvenient. Such an open-ended, self-approving exception could easily undermine the purpose of the requirement, which is presumably to limit the size of openings in managed portions of the riparian area. If an operator truly cannot meet the requirement due to safety hazards, then the no-cut option should be used. If an exception for safety is needed, then we suggest a written plan for alternate practices should be proposed and submitted for approval. (This is analogous to the process now where required retention cannot be met without leaving live trees “on the upland side of a road within the riparian management area” but a plan for alternate practice may be approved for less retention because the retained trees are found to provide “limited functional benefit” to the stream or that they “pose a safety hazard.” OAR 629-640-0200).

3. **Active Management in the Riparian Area must Advance DFC.** The only logical justification for riparian management that is consistent with the intent of the Oregon Forest Practices Act and its implementing rules is to require that such management promote achievement of the “desired future condition” (DFC). By rule, DFC for fish streams is a condition similar to that in a mature streamside stand. OAR 629-640-0000

(2).¹ Therefore, the definition of well-distributed the Board chooses must constrain riparian management to require thinning that is consistent with achievement of mature streamside stands.

We note that currently permissible active management in riparian areas, such as precommercial thinning, “shall contribute to and be consistent with enhancing the stands ability to meet the desired future condition.” OAR 629-640-0200 (10).

As we understand it, this means, at a minimum, that the retained basal area must be attained by:

- Largest tree retention. Retaining *the largest dominant and co-dominant trees per reach of stream wherever they may occur* within the managed portion of the RMA until the basal area is met. This means removing only those trees that occupy subordinate canopy positions;
- Average stand diameter (quadratic mean diameter of trees 11 inches and greater) should *increase* after thinning;
- The proportion of the stand in conifer should increase after thinning

To minimize effects on stream temperature, the rules should also:

- Establish a maximum size for harvest-created openings within the RMA or a maximum spacing between countable trees (11 inches and greater).

4. Site-Specific Stand Assessment Needed. Consistency with DFC may mean that more than the minimum basal area will need to be retained under the active management option under the new riparian rule, or that no riparian management at all should be permitted. We are concerned that the basal area floors put forward by the Board are simply too low to be consistent with attainment of DFC, even with the addition of the above metrics to require thinning from below. Proponents should be required to make their case.

A condition of the use of the active management option should be a written riparian management plan based on a detailed stand assessment that describes the stand prior to thinning. Plan approval must be based on a finding that management will protect desired conditions where they exist prior to thinning or that thinning will accelerate (“enhance”) attainment of these conditions based on current, best available science – not on unsubstantiated or outdated assumptions about the ecological benefits of riparian silviculture. (See Section 5 below). Compliance and validation monitoring of such plans should be a priority for ODF.

5. Attainment of DFC shouldn’t be just about growing large trees faster.

We make the recommendations above related to riparian management because they relate to the task given this Committee, but we do so with serious reservations derived from our

¹ We note that much of the rule language in OAR 629-640-0000 pertaining to how basal area retention

baseline belief that such management not only frustrates the Board's stated objective to meet the PCW but that it will also likely frustrate large wood and other riparian function goals.

Understanding of riparian forest functions has advanced considerably since 1994. As Pollock and Beechie (2014) concluded:

“The importance of large deadwood as habitat for many aquatic and terrestrial species has been extensively studied over the last three decades, yet there is little comprehensive understanding of how multiple aspects of forest structure contribute to maintaining biologically diverse aquatic, riparian, and upland ecosystems. Our analysis suggests that species rely on different sizes of the key structural attributes of large deadwood in streams, large deadwood on the forest floor, large snags, and large live trees. Different active and passive restoration treatments will have long-term effects on the abundance of these structural elements. For the forests we examined, passive management resulted in the most rapid development of deadwood 30-100 cm diameter, whereas heavy thinning most rapidly developed live trees >100 cm diameter. Other forest types in different climates may produce different results. In the example we provided, passive management created dense forests that produced large volumes of large diameter deadwood over extended time periods as over story tree densities slowly declined. In contrast, heavy thinning immediately created an open forest that allowed a low-density stand of large diameter overstory trees and an understory of shade-tolerant species to more rapidly develop. Because these size classes of live and deadwood support different biological components of forest ecosystems, tradeoffs in the abundance and production rates of different large diameter live and deadwood size classes should be considered when weighing different management options. Light or medium restoration thins may be an option that provides some increase in diameter growth of live trees, while minimizing production losses of large diameter deadwood. Large deadwood and large live trees are not the only structural attributes needed to maintain biologically diverse riparian ecosystems, but the decline of numerous species has been attributed to the lack of these features. Management strategies that seek to create a range of large live and dead tree densities across the landscape will help to hedge against uncertain outcomes related to unanticipated disturbances, unexpected species needs, and unknown errors in model assumptions. Over the long term, careful monitoring of active and passive treatments can determine if restored riparian ecosystems are being used by the targeted species. Such monitoring will help guide management toward developing biologically diverse riparian ecosystems.”²

² Pollock, Michael M. and Timothy J. Beechie, 2014. Does Riparian Forest Restoration Thinning Enhance Biodiversity? The Ecological Importance of Large Wood. Journal of the American Water Resources Association 50(3): 543-559 at 556

As research continues in this area, the circumstances where riparian forest thinning can be presumed to benefit any ecological function have become more the exception than the rule, so we will continue to urge the Board to tread very carefully in crafting policies that encourage commercial timber removal in RMAs that are far smaller than the functional riparian zone.

In the words of an experienced aquatic ecologist, Dr. Chris Frissell:

“There is only a perceived ecological benefit to riparian silviculture if one values a single very large tree over the 3 to 5 moderately large trees that would have naturally recruited as snags or wood debris had they not been logged and removed. I can find no basis for very large conifers being functionally more important for stream habitat and watershed and stream functions than are moderately large conifers, given the well-established pattern that thinning can sometimes increase diameter growth of leave trees, but not height growth. Only in the very largest streams and rivers might one find a clear basis for a functional advantage to fewer, larger diameter boles over more medium-diameter boles. With rare exceptions, three or more moderate-sized to medium large trees inexorably provide much better distributed and effective shade, wood recruitment, and sediment and nutrient retention functions to streams and riparian areas than would a single large tree that might replace them.

The whole premise that there is some ecological benefit to attainment of mature conifer stand conditions from thinning as compared to allowing natural forest succession in west-side Oregon forests is generally unsubstantiated. As a scientific matter, I find no support for the notion that silvicultural treatment is a necessary or even feasible means of enhancing the development of a mature successional forest state in west-side forests, especially at the high levels of thinning currently under discussion. It's an exercise in working backwards from false assumptions. The only benefit that should be claimed is a partial reduction of logging harms. Beyond the immediate stream warming effects, such thinning certainly drives riparian forest conditions into unnaturally debris-deprived conditions, or furthers the current state of debris deprivation that exists as a result of past logging practices, for many decades--that is, 80 years or more beyond the date of thinning treatment.”³

³C. Frissell, Personal Communication with Mary Scurlock April 4, 2016.