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Comments: Please accept the following questions and comments on the Science Synthesis document for revision of Northwest Forest Plans:

QUESTIONS:
Are any of the studies cited funded by sources other than the federal government, the College of Forestry, the Forest Service, the Bureau of Land Management, or timber corporations?

Where are the analyses of population monitoring for 311 individual Survey and Manage species?

Where are the comprehensive analyses of the longterm and cumulative effects of commercial logging on biodiversity in Northwest Forests?

Where are the spatial and quantitative satellite image analyses of soil displacement, compaction and degradation resulting from commercial logging and associated roadbuilding?

Where are the quantitative analyses of the degree of area affected by erosion, slumpage, and landslides resulting from harvest and roadbuilding?

Where are the analyses of the longterm and cumulative effects of repeated biomass removal and soil degradation on nutrient levels in Northwest Forests?

Where are the analyses of the impacts of commercial logging on lichen populations and the reduction in viable habitat for lobaria species and other nitrogen fixing lichens?

Where are the analyses of the reduction of available nitrogen in forest soils resulting from timber harvest?

Where are the studies on the lag effect from overharvesting in previous decades on Northern Spotted Owl populations?

Other than the brief analysis in Forsman and Swingle Oct 2016, are there comprehensive analyses on the fragmentation and loss of habitat for old growth dependent species? Do these analyses take into consideration the frequency of harvest on private lands?

Where is the cost vs. benefit analysis of adopting a "no net increase in roads" policy?

Where are the comprehensive quantitative analyses on the loss of woody debris in our forests and in riparian zones and the impact of that loss on populations of prey species for spotted owls?

Where are the analyses of the disruption in food chains for predators from the loss of habitat resulting from both commercial logging and woody debris removal?

From pg. 117:
All management (including restoration activities and lack of activities) involve ecological tradeoffs.

Where are the analyses of the ecological tradeoffs from the lack of management?

Where are the economic analyses of the cost vs. benefits from the lack of management?

Where are the economic analyses of the cost vs. benefits of continuing to implement the NWFP without revision?

Where are the quantitative analyses of differences in moisture content and temperature between intact forest ecosystems, thinned stands, and clearcuts?

SYNTHESIS CRITIQUE:

NOTE: All quotations from the synthesis are in italics.

Initially I found the synthesis informative and impartial. The studies cited are certainly highly credible and impartial. But upon continued examination I detected a bias that became stronger and more obvious later in the process. The evidence of this bias is the preponderance of studies cited on fire regimes, the relative lack of studies on species impacts, and the near complete absence of studies on the destructive and cumulative impacts of commercial logging across the landscape.

First, the authors admit that stand age classifications (the basis for most NEPA analyses of timber sales), which are often based on basal area averages, are inconsistently applied.

page 30: For example, re-analysis of data from Spies and Franklin (1991) the old-growth forests in southern western Cascades of Oregon indicated that stand ages (age of the oldest Douglas-firs in the stand)

pg. 47:First, FIA (FS Inventory and Analysis) stand age underestimates the age range of trees in plots and under samples old trees, which of course would be common in forests subject to low severity fire regimes.

The authors go out of their way to discredit Baker (2012) and his assessment of historical conditions on pg 51, yet admit by pg 62 and 63 that their own assumptions are speculative.

Pg 51 :Consequently, the 2012 Baker paper cannot be used as evidence that forest density has not substantially increased since the 1900s-only that the increase may not be as large as most studies indicate.

pg 62 "Without supporting long-term paleoecologic data, short-sighted inferences about natural disturbance regimes and forest sensitivity are likely to be incorrect" (Whitlock et al 2008)

pg 63: Going forward, several authors have argued that given climate change, invasive species, and widespread landscape change, using historical conditions or ranges of variation as a narrow goal or target for conservation and restoration can be unrealistic, impossible or even incongruent with conservation goals (Palmer et al. 2005, Millar et al. 2007). This is especially true if the goals include threatened and endangered species with very specific habitat needs that may not be compatible with historical landscape dynamics or have become dependent on the habitats of the novel landscapes. However, it is self-evident that knowledge of historical forest dynamics is essential for conservation and restoration of native (historical) vegetative communities and associated wildlife species even under climate change.

Despite these admissions of uncertainty, ten pages later the authors have concluded that logging is needed in reserves:

pg 73: In most cases, including the NWFP standards and guidelines, biodiversity reserves permit and encourage restoration activities that further the species and ecosystem goals of the reserved area. For example, the NWFP indicated that restoration activities within reserves were needed for both moist and dry forests (USDA 1994): in

plantations in wetter and drier forests, and in older unlogged forests in fire-frequent regimes where forest structure and composition has been altered by fire exclusion andnorelogging of older trees.

Another illogical sequence begins on page 94:

pg 94: The ecological implications of these changes in older forests as a result of fire suppression are regional in scope but are not well understood (beyond potential effects on fire behavior) (Skinner et al. in press, Dunn 2015). One hypothesis is that some late successional conditions (e.g. spatial heterogeneity, diameter diversity and development of large diameter trees) are no longer developing at the same rate because lower severity fire would have thinned the older stands, creating gaps, initiating new shade tolerant cohorts and accelerating growth of surviving canopy trees (Weisberg 2004)

pg. 95 There is little or no management experience or published studies about restoring fire processes and structural diversity in older forests within the mixed-severity fire regimes in the Pacific Northwest.

Despite the admission that "implications...are not well understood" the authors conclude that logging is the solution on pg 95:

pg 95 Logical choices for restoration actions for older forests and landscapes in the mixed severity fire regime would contain a mix of more wildfire management, thinning operations, and prescribed fire. Using managed wildfire to promote ecological benefits specifically in remote areas, with steep, complex topography. Such fires will promote a high diversity of fire effects under moderate weather including patches of low and of high severity fires (Miller et al. 2012, Skinner et al. in press). In areas near human populations and near non-federal forest lands, managed wildfire is a less desirable option. Here, restoration efforts may be more focused on thinning treatments in younger forests in combination with prescribed fires (Dodson et al. 2008). In stands older than 80 years in LSRs where thinning may be limited under current standard.

And on pg 97:

pg 97 Theoretically, restoration thinning (with prescribed fire) could have a similar impact in older natural stands that have become dense from fire suppression, but this has not been implemented due to current NWFP standards and guides that limit restoration activities in LSRs in westside forests to stands under 80 years old. The theory behind ecological forestry is supported by scientific understanding and rooted in established concepts in silviculture and ecology (Batavia and Nelson 2016).

That's odd: Franklin and Johnson's paper was published before Batavia and Nelson, so how can it be "rooted in established concepts" of a paper that came out years later?

Continuing to rationalize ramped up harvests on pg 101:

pg 101 Flexible tree size criteria for thinning are needed to remove relatively large shade tolerant and fire intolerant trees that have developed in the last century of fire exclusion.

And on pg 111:

Pg 111 While the general patterns of disturbance regimes are known, there is often considerable uncertainty about them at subregional and landscapes scales. The tendency is to extrapolate from a few fire history studies to entire regions. Research is needed to help fill in the gaps in our knowledge especially as they relate to the ecology and function of moderate frequency mixed severity regimes and how they vary across the NWFP area and within landscapes. . We know much about the structure of old growth forests from studies of contemporary older forests but lack stand structure definitions related to old growth forests that standards and guides, prescribed fire could be used alone with the goal of promoting habitat diversity developed in the mixed severity

and low severity regimes. Our current monitoring efforts (e.g. definitions and indices) use reference conditions for old growth that are based on forests that have been altered by fire exclusion and do not take into account structures associated with historical disturbance regimes. Research is needed to develop old forest definitions and landscape-scale targets based on either historical ranges of variation or desired levels of resilience given fire and future climate change.

It's interesting how the authors insert the necessity for harvest into scientific research, as if timber sales were integral in the process:

Pg 112 The ecological tradeoffs associated with variable density thinning (i.e. restoration thinning) to restore or create ecological diversity in forest plantations are not well understood at stand or landscape scales and are known only from relatively short term studies. Long-term research is needed to understand how ecosystems and the biota respond to these management actions and to learn more about the possible ecological costs and benefits of these actions in stands older than 80 years that might have undesirable densities or uniformity of trees. Similarly, long-term effects of post-fire management are warrant further study at large and long scales.

The rationale for harvest continues in the owl chapter, which, despite the continued decline in owl populations, is notably diffuse and inconclusive:

pg 27 Recent research on disturbance effects on spotted owls indicates that disturbances such as mixed-severity fires that generate heterogeneity at landscape and stand scales are not necessarily adverse, provided that adequate nesting and roosting structural conditions remain after the disturbance (Clark et al. 2013, Comfort et al. 2016)

pg 42 From a management perspective it is important to understand the stress response of spotted owls related to management activities like prescribed fire, road construction, various logging systems, and the timing of these activities. Additional research will be important to understand key stressors for spotted owls and inform seasonal restrictions on activities that may increase stress levels.

Whoever wrote the following neglected to mention that habitat for "dense forest species" is at an all time low regardless of whether naturally occurring or the result of human influences and exists only in patches across a highly fragmented forest landscape. Old growth forests are not "altered forests", but the product of thousands of years of evolution, and the flawed assumption that dense old growth forests are less resilient to drought and fire is a product of timber industry propaganda.

From pg 78 Old growth chapter:
Assuming continued fire suppression (Calkin et al. 2015, Stephens and Ruth 2005), the forests of the reserves in mixed-severity and low-severity regimes will continue to change in ways that does not support the historical dynamics of these forest types. The diminishment of American Indian
influence has also contributed to lack of fire and change in forest structure and succession in some areas (Carloni 2005) (see Chapter 11) Thus fire-dependent forests getting squeezed into potentially novel states and dynamics by two forces: 1) succession toward historically unprecedented structure, composition and function; and 2) shift toward infrequent but higher severity fire regimes as a result of fire exclusion and changes in vegetation. Losses of old growth and owl habitat to high severity fire are the focus of the current monitoring reports and strategies, and succession toward dense forests with shade tolerant species (e.g. owl habitat) is typically considered a positive outcome relative to the goals of the NWFP. However, these altered forests are not a good outcome if the goal is to restore more frequent fire and more open fire resilient old-growth types and diverse early successional habitat. It depends in part on what the goals of the NWFP mean in terms of ecosystem and coarse filter measures-i.e. how much are the goals are about historical vegetation dynamics or creating more fire and drought resilient forests versus maintaining habitat for dense forest species (see chapter 3), that may be the result of human influences in some disturbance regimes. Frameworks such as the natural

range of variation or HRV and departure from those references (Haugo et al.)

As an indication of the entrenched mindset in the agency, in the introduction alone the words "manage" and "management" appear 161 times. "Conserve" and "conservation" appear only 20 times.

The following statement from the introduction is highly presumptuous and has no place in a science synthesis:

We now understand and appreciate the relationship between pattern and process in landscapes, the relationship of human activity to landscape pattern, process a change, and the effect of scale and disturbance on the landscape. Above all, we now understand and intentionally incorporate the biophysical and societal causes and consequences of landscape heterogeneity as part of a landscape management philosophy.

The authors go on in Chapter 2 to exhibit uncertainties that directly contradict this statement. The above statement assumes we know enough about ecosystems to manage them without unintended consequences. If a decision to log a particular area, we need to articulate the costs as well as the benefits. In far too many cases, the benefits are imaginary or fleeting (the erroneous assumption that logging can prevent catastrophic fires) and the negatives are ignored or glossed over.

If the 2012 planning rule requires reliance on the best available science, why does a science synthesis require a sales pitch? -

An important factor that shapes natural resource management outcomes is the degree of trust that exists between the public and land management agencies. A lack of trust in governing agencies is cited (see chapter 9) as a primary barrier in natural resource planning and can potentially lead to litigation or noncompliance. Furthermore, trust has been shown to be a key predictor in social acceptability of forest management actions. There are two basic kinds of trust: institutional trust (trust in agencies to represent and serve the public) and interpersonal trust (trust cultivated based on personal relationships). When social trust is improved, there is greater support for land manager policies. The assumption held by many is that trust can be built (and conflict reduced) through fair participation processes or transparent decision-making. Trust-building occurs when stakeholders engage in meaningful dialogue in a context of shared power and high levels of substantive knowledge. Collaborative processes represent opportunities to build iterative experiences and develop relationships among multilateral stakeholders and between stakeholders and public land management agencies.

CONCLUSION:
After a few hundred pages of oscillations between admitted uncertainty, speculative reasoning, and thinly supported conclusions that "restoration" and other forms of timber harvest are indicated, one comes to the real reason for abandoning the Northwest Forest Plan, after less than three decades of implementation: "introducing heterogeneity into dense forests resulting from fire exclusion and suppression". Since plantations and younger stands have been thinned for years under prescriptions that already introduce heterogeneity, that leaves only one purpose for this lengthy and convoluted process: "introducing heterogeneity" into mature and old growth stands, abandoning efforts to conserve habitat for spotted owls, and abandoning efforts to conserve resilience in older forests, by opening stands up to the drying effects of sun and wind. In other words, a return to the venerable "sustained yield" concept, in which all public forests are available for harvest, including old growth, and there are no true reserves off limit to commercial logging.

Thank you
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