Declaration of Richard H. Waring
September 10, 2009

1. I am an ecosystem scientist with expertise in forestry and a number of related fields. A copy of my curriculum vitae is attached to this declaration. I provide this declaration to explain scientific and technical deficiencies in the Final Environmental Impact Statement for the proposed "Farley Vegetation Management Project" prepared by the U.S. Forest Service and published in June 2009.

2. On June 2nd and 3rd, 2009, I toured some of the Farley sale sites with Karen Coulter, field coordinator for the Blue Mountains Biodiversity Project, and observed the forest composition including standing dead and fallen trees, advanced regeneration of trees, as well as the herbaceous vegetation. Trees planned to be thinned were marked for cutting, allowing me to assess expected changes in stand structure and composition.

3. Based on the best available science, I believe that the proposed project may temporarily reduce damage from wildfires on 5% of the watershed. For the project to be effective at reducing fire risk or insect outbreak, the land managers would need to engage in much heavier thinning and remove between 50-75% of the stand volume and basal area. Far more trees would need to be removed for the remaining trees to be protected against insect outbreaks in the mixed conifer and subalpine zone (Larsson et al. 1983; Waring and Pitman 1985, Coops et al. 2009). The Forest Service does not disclose any scientific support for its claim that the project design will actually reduce the risk of insect outbreaks in these forests.

4. A prescription involving heavier thinning, however, often results in increased tree damage and mortality from windthrow (Veblen et al. 1991). The small diameter lodgepole pine stands found in the mid- to higher-elevation subalpine fir are not good candidates for thinning because trees of the size that currently exist at the higher elevations within the Farley project area lack sufficient resources (phloem tissue) under the bark to support development of bark beetle larvae (Waring and Pitman 1985). In other words, many of the mature trees growing in dense stands within the mid- to higher-elevations of the Farley project area are not currently at risk of injury from bark beetle attack.

5. The cool, moist, upper elevation forests of lodgepole pine, Engelmann spruce, western larch and subalpine fir are normally not highly flammable (Schoennagel et al. 2007), even following outbreaks of bark beetles (see review by Romme et al. 2006). Larch and lodgepole pine establish on bare soil following a stand replacement fire; Englemann spruce and subalpine fir seed in on duff once shade is provided. Ponderosa pine is not a major component because it is subject to snow breakage (Waring 1969). The Forest Service does not disclose any scientific support for its plan to increase "resiliency" in these forests. The best available science actually runs counter to the statements in the project document.

6. The problem with this proposed project is that once these upper elevation moist forests are thinned, more radiation will penetrate to the forest floor and dry the litter on the ground. This solar radiation will result in increased fire hazard. While less tree cover may reduce water use, it will also encourage the growth of understory vegetation which will contribute more fine fuels which burn quicker and hotter than do the leaves or needles shed slowly from dying trees (Veblen et al. 2000).

7. Burning slash in concentrated piles results in very high combustion temperatures and loss of nutrients (particularly nitrogen) and soil organic matter than would the case from a natural stand replacement fire (Jurgensen et al.1997). The Forest Service states that its goal is to avoid the detrimental effects of a wildfire, yet the Forest Service does not disclose or compare the effects of wildfire on nutrients and soil to the effects of pile burning on nutrients and soil.

8. With respect to climate change and the purpose of the Farley project, the Forest Service proposes to return (restore) the forest to its historic range of variability. However, the Forest Service does not disclose or consider the mounting climatic evidence that runs counter to using a vegetation classification scheme which references conditions from the 1880s. From a scientific standpoint, this reference point is questionable if, as the Forest Service recognizes, the climate is changing drastically (see FEIS at 210). In fact, since the 1950s, the mean temperature in northeastern Oregon has risen at twice the rate averaged for the state (i.e., 4º F versus 2º F in 50 years, see attached Figure 1).

9. As Mr. David Powell, the District Silviculturalist recognizes (Powell 2000), once the natural range in climatic variation for a species is exceeded the distribution of that species is likely to change. By 2030 and beyond, continued reduction in snowpack combined with a hotter and drier summer in northeastern Oregon are predicted to reduce the range of some conifer species such as western larch and Engelmann spruce to the extent they may be nearly absent (Rehfeldt et al. 2006, Fig.2).

10. In the responses to comments from the public, the Forest Service states "[r]estoration is not part of the purpose and need for this project and is outside the scope of this analysis." Yet the Forest Service justifies the project, in part, as a means to restore a proportional balance to the vegetation in reference to that recorded in surveys during the 1880s when lodgepole pine and subalpine fir forests were much less extensive. This inconsistency in logic is particularly troubling and unacceptable given that the area is not set aside for logging. Rather, the Forest Plan has designated these lands to serve as protective refuges for fish.

11. The Forest Service acknowledges that some carbon would be released by human activities associated with the proposed plan, and claims that the releases will be less than if there were a large-scale wildfire. The Forest Service goes on to infer that sustainably managed forests can store more carbon over time than unmanaged forests because of their overall higher growth rates (FEIS at 211). For comparable acreages, the last statement is incorrect.

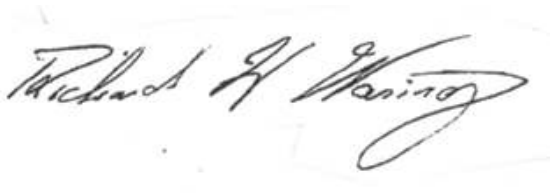
12. Most of the aboveground biomass in a forest is in tree boles. As studies in the Biscuit Fire in southwestern Oregon have shown, the boles of large diameter trees are rarely consumed by fire, and even when dead, generally less than 12% of the biomass is consumed (Campbell et al. 2007). In managed forests, the slash must be disposed of to reduce the fire hazard. While doing so, much of the surface litter will be consumed, just as in a wildfire.

13. Thinning a forest generally results in higher soil temperatures than is the case following a wildfire where dead and dying trees are left standing. As a result, soil organic matter is converted more rapidly to carbon dioxide following disturbance by logging than by wildfire. A full accounting shows that harvesting trees results in more carbon lost over time than a no-action policy following a wildfire (Mitchell et al. 2009).

14. The Environmental Impact Statement does not consider the ramifications of management practices on areas not directly involved, such as the protected riparian zone and adjacent wilderness area (Agee 1998, Collins and Stephens 2007). Nor does it scale up the implications of needing to repeat the proposed operations at intervals, and, whether the remaining 95% of the watershed is to be treated or allowed to incur wildfires, insect outbreaks, and serve as a refuge for flora and fauna under a continually drying climate. Without this information, the Forest Service has not presented a scientifically supported plan that may be effective at accomplishing the stated purpose and need.

15. In sum, the Environmental Impacts Statement, as written, contains major gaps in terms of providing science in support of its claims and the document fails to take into account the longer-term implications of the proposed management options, particularly in reference to the entire watershed. Climatic conditions are changing and these changes are predicted to accelerate. This makes using historical conditions a questionable benchmark. The present plan lacks an assessment of the effects of selective thinning, whole tree harvesting, and slash disposal on nutrient availability and carbon sequestration in comparison to natural disturbances.

Respectfully,



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