

Question 7

1. We have developed Sustainable Forest Ecosystem Management Strategy #4 in an effort to provide important legacy structural components in stands across the forest landscape. We are currently considering three different ranges of values for hard down wood (decay classes 1 & 2) to be provided at the time of regeneration harvest: 50-300 cubic feet/acre, 300-600 cubic feet/acre, and 600-900 cubic feet/acre. Our assumption is that adequate amounts of down wood in decay classes 3-5 currently exist, and will be left, on the landscape. What are the biological costs or benefits associated with each of the proposed ranges? Would your assessment be different if you assume a less than adequate amount of down wood in decay classes 3-5? Would your assessment be different if you assume these ranges apply only to stands proposed to become complex types and no additional down wood would be retained in stands proposed to become non-complex types?

| Reviewer | Comments |
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| Bisson | I am not qualified to answer this question scientifically. |
| Emmingham | <p>Hard down wood targets: Size standards for material to qualify as down wood were missing from strategy #4. Perhaps State FPA standards are assumed. I am assuming that merchantable material will be used, because there will be lots of small material after regeneration harvest. I would assume that there are about 1 MBF per 200 cubic feet. I suggest that higher value for retention be given to larger material. As mentioned earlier, the strategy of retaining down wood should recognize the win-win nature of saving of low grade or cull material to satisfy down wood targets. Often, the wildlife value of cull material (e.g. hollow butt cuts) exceeds that of sound material and less commercial value is lost. There are many biological and other trade-offs. Obviously, it would be easier to provide the lower target levels with cull material in most harvested stands. In terms of benefits, a chat with Chris Maguire (Wildlife Biology, OSU, Dept of Forest Science Faculty) revealed that there appear to be no upper limits in wildlife benefits associated with more down wood. Also, the amount of value provided per unit of lost revenue is greatest at the lower target level. At some higher level, leaving retained material can provide a place for bark beetles to multiple. Also, season of cutting may affect the propensity of down trees to host bark beetles.</p> <p>Affect of amount in decay class 3-5: I am not sure how much, if any decay class 1-2 material can be substituted for decay class 3-5. They provide different functions. However, if decay class 3-5 is deficient now, inputting more class 1-2 material now will surely provide more class 3-5 in the future.</p> <p>Affect of providing down wood in complex vs. non-complex stands: A decision to save down wood only in complex stands would seem to have a negative effect on the connectivity of the landscape for some organisms (e.g.</p> |

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| | salamanders). I suggest using a strategy of saving FPA standards for the non-complex stands, and adding higher levels to the complex stands. |
| Gresswell | Down wood is critical to the persistence of many forest species, and the proposed levels do not seem excessive. Determining which (if any) of the proposed levels of hard down wood is adequate depends on (1) historic amounts of down wood, (2) current amounts of down wood, (3) local functions of the down wood, and (4) species pool. Because of past management actions, down wood has frequently been reduced below the historic levels. I can imagine problems associated with too little wood, but it is difficult to understand too much. If the intention of the plan is to meet the management goals for fish and wildlife, forest condition, and timber, then retaining down wood in all stand types to insure habitat continuity and connectivity would be prudent. |
| Irwin | <p>Selection of nest sites and foraging of Northern spotted owls in 1 study I supervised near Eugene appeared to be influenced by the volume of large woody debris, averaging about 280 cubic meters per hectare. That level exceeds the highest value described above. However, owl foraging occurred in “hotspots” that were 5 to 20 acres, so the entire landscape probably does not need such high densities. Therefore, I suggest that in areas where owls are known to occur it might be useful to plan a few small areas with large amounts of woody debris, preferably in concave topography near riparian zones where most foraging by owls occurs. Providing large woody debris in smaller amounts scattered across the landscape most likely would go a long way to promote other elements of biological diversity, as well as reservoirs of carbon storage. In some soil situations (such as sandstone derived soils?), it seems that it could be possible for an area to have too much coarse woody debris, owing to unfavorable carbon:nitrogen ratios that serve to constrain nitrogen uptake by plants and animals. In marine epi-sediments, the woody debris may prove to be more valuable. Possibly, a soil scientist could advise on this topic. A reference that may be useful: ... Irwin and Rock 2000 ...</p> <p>I don't know that there are reliable standards for downed wood in decay classes 3-5. It is likely that additional downed wood retention will increase the habitat value of non-complex types, by promoting landscape connectivity for small mammals and amphibians.</p> |
| Ohmann | I think you'll gain much better insight into these questions from the modeling analysis currently being conducted by Rebecca Kennedy and Tom Spies in Corvallis. Also, I understand that there are real data now available on current amounts of down wood on ESF, so the FMP can be based on these numbers rather than on assumptions. To address how well different ranges of down wood meet the needs of wildlife and provide other ecological functions, I |

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| | <p>again suggest referring to the data summaries in DecAID. But certainly the amounts of down wood provided in complex stands to meet management goals would need to be different if no wood were provided on non-complex stands. Information in DecAID on the landscape-level distribution of down wood amounts can provide some guidance in this regard. There is growing evidence on the ecological importance of including legacy dead wood in managed stands, and no evidence to indicate there is value in lowering amounts of dead wood.</p> |
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