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Interactive comment on "Technical Note: Linking climate change and downed woody debris decomposition across forests of the eastern United States" *by* M. B. Russell et al.

Anonymous Referee #1

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General comments

This short ms describes a simulation experiment using U.S. Forest Inventory and Analysis data, to examine how residence time of downed woody debris (DWD) might change in the future under various climate and forest type scenarios. This is a very limited analysis, but potentially useful, given the importance of DWD for wildlife, management, carbon cycling, etc. The ms is well written and topic appropriate for Biogeosciences.

I have three general concerns. First, the authors' methods and conclusions seem to be seriously called into question by the just-published Bradford et al., "Climate fails to

predict wood decomposition at regional scales" in Nature Climate Change (see DOI below). I'm sure the authors will want to cite/discuss/compare with this publication, which finds that only with aggregated data (as here) does climate control DWD decomposition. This seems to have obvious implications for Russell et al.'s assumption that temperature is the primary mechanism controlling future DWD decomposition.

Second, a number of the methodological details need to be clarified. See below.

Third, I'm not sure this is novel, significant, or sophisticated enough for publication in Biogeosciences. To say that residence time of DWD will probably decrease in a warmer climate. . .probably true, but I don't know if this fairly simplistic analysis really makes that case.

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Specific comments

1. Page 9014, lines 1-4: poor grammar, reword

2. P. 9015, l. 19-20: by definition, no?

3. P. 9015, l. 29: why is transient responses quoted?

4. Equation 1: Vol is initial volume?

5. P. 9018, l. 17: what is a cumulative link mixed model?

6. P. 9020, l. 19-21: what about Bradford et al. just published, 10.1038/CLIMATE2251 ?

7. Figure 2: maybe not the best way to display these data; most of the plots are empty space

Interactive comment on Biogeosciences Discuss., 11, 9013, 2014.