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## ***Interactive comment on “After trees die: quantities and determinants of necromass across Amazonia” by K.-J. Chao et al.***

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The merits of this paper are that it presents (1) new information about the amount of coarse woody debris in upland forests of northern Amazonia, and (2) a new procedure for scaling CWD across all Amazonian terra firma forests.

The weakness of the paper is that the relationships between the new field data and environmental variables are different from the relationships between published data and environmental variables, yet this difference is never explicitly stated despite the fact that both relationships are evaluated. The contradictory relationships lead to confusion. For example, line 13 of the abstract states that necromass is greater in forests with low stem mortality rates, but lines 15-17 state that necromass is positively related to mortality mass input (or, presumably, stem mortality rates). The same contradiction

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occurs on page 1988 (line 1 vs. lines 12-13) and, again, in the conclusions (page 1993, lines 1-7). Is necromass greater or smaller in forests with low stem mortality rates?

The answer is crucial for mapping CWD, particularly because the authors (sometimes) reject the notion that aboveground living biomass is a good predictor of CWD.

A further concern is that the calculation of annual mass mortality seems arbitrary. On page 1985, lines 18-21, annual mass mortality input is defined as the sum of dead tree biomass, divided by the census interval, where short interval census data (i.e., 4 years) are used to represent recent mortality events. Why 4 years? Why not 1 year, or 10 years? The arbitrary choice of 4 years seems critical to the conclusion that coarse woody debris is better predicted by mortality inputs and decompositions rates (i.e., forest dynamics) than by standing biomass (pages 1989 and 1990), which is rejected as a variable for predicting CWD.

Or is it? In the conclusions, aboveground biomass and CWD seem to be positively related, after all, in that they both decrease along the east-to-west gradient across Amazonia.

It may be that aboveground biomass is not the best predictor of CWD, but neither is it clear from this analysis that any other variable, or group of variables, is better.

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Interactive comment on Biogeosciences Discuss., 6, 1979, 2009.

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