

## ***Interactive comment on “Do species traits determine patterns of wood production in Amazonian forests?” by T. R. Baker et al.***

**T. R. Baker et al.**

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Our manuscript assesses the role of functional composition in determining patterns of wood productivity in Amazonia. Reviewer one raises two general issues regarding the appropriateness of the spatial scale of the study and the analytical techniques that we employ. At this stage, we briefly comment on these issues.

The focus of our study is on understanding the relative importance of functional traits for driving variation in wood productivity at a regional scale in Amazonian forests. In contrast, reviewer one suggests that examining the relationships between traits and wood productivity within, rather than across, regions would be more appropriate. As discussed in the manuscript, we agree that it is important to consider the effect of scale on trait/ecosystem function relationships, but there is no a priori reason why studies should focus on any particular scale. For example, studies at a regional-scale are very

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important for understanding how biodiversity should be represented in forest dynamics models that aim to predict regional-scale patterns of carbon cycling.

Secondly, in this study we test the hypothesis that regional variation in functional composition determines regional-scale patterns in wood productivity by generating predictions of wood productivity solely on the basis of the growth rates and abundance of the different functional groups. The hypothesis is then assessed by a standard comparison of model outputs with observed data. In contrast, reviewer one suggests two alternative approaches to address the linkages between functional traits and ecosystem function. However, the existence of alternative methods does not invalidate the approach we take here. In particular, our modelling approach avoids the assumption required in interpreting the results of regression-based methods that significant positive correlations imply causation. Most importantly, the method we use here allows us to answer our key question: whether observed differences in the regional pattern of wood productivity can be modeled simply on the basis of variation in functional composition.

Overall, we would appreciate any expansion by reviewer one on the specific aspects of the results that s(he) finds "cryptic". Although we have taken an alternative approach to that which reviewer one might have employed, we do not think that this makes our approach or conclusions invalid.

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Interactive comment on Biogeosciences Discuss., 5, 3593, 2008.

**BGD**

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