Biogeosciences Discuss., 10, C160–C162, 2013
www.biogeosciences-discuss.net/10/C160/2013/

Biogeosciences
Discussions

Interactive comment on "A meta-analysis on the impacts of partial cutting on forest structure and carbon storage" *by* D. Zhou et al.

E. Weng (Referee)

weng@princeton.edu

Received and published: 27 February 2013

In this paper, the authors synthesized the published data about the effects of partial cutting on forests and their recovery patterns across the globe. The data synthesized by the authors are valuable for evaluating forests' responses to partial cutting, a typical disturbance in forest management, and some patterns revealed in this study are really interesting, such as the different responses of radial growth rates for different forest types. (It's my second time to review this manuscript actually. I'm happy to see it has been substantially improved.)

But I still think the authors emphasized their analysis on the mean responses too much. The mean responses may mix the signals of those individual studies, which were clear in each of them in the original papers. For example, in the abstract, they said that "the

growth of DBH elevated by 112% after partial cutting, compared to the 10 uncut control, while stand BA and volume reduced immediately by 34% and 29%, respectively. On average, partial cutting reduced AGBC by 43 %, increased understory C storage by 392 %, but did not show significant effects on C storages on forest floor and in mineral soil". The mean values presented here are just a summary of what have been reported in literature that used in this synthesis. They don't have much information. So, I don't think much more knowledge was added with these statistics. From a meta-analysis research, one can find out some interesting general patterns. But it does not mean the general patterns can be represented by averaging all studies.

There are some interesting analyses in the lines 1∼11, page 794 about DBH growth rates vs. forest types/climatic zones and can be a case for the interesting patterns found in this study. But the Table 2, which showed these analyses, is not straightforward, though it is understandable and clear. It would be great if the authors can add one or two new figures showing how the forests respond to partial cutting differently and why. I'm also wondering if the forest types and climatic zones affect recovery time (since it is supposed that tropical forests should recover faster than temperate and boreal forest because of their high growth rates after partial cutting.) It's worth two more figures to show these patterns if there are any.

Minor concerns:

1. Line 9, Page 788: results shows –> results show 2. Line 14, page 788 and other places in this paper: the abbreviation of "Cutting intensity" (CI). It's fine. But I just feel a little bit uncomfortable with CI. It's too close to the "confidence interval". (It's just a suggestion. The authors can use "I", or "C" to represent "cutting intensity" and "Y" or "T" to represent "Recovery year".) 3. And, for most "CI" and "RY" in discussion, it would be easier for readers if using "cutting intensity" and "recovery years". 4. Lin3 25∼26, page 796: "the resilience of ecosystem structure". I think it's just a recovery, or growth of the trees here. Partial cutting is not a very severe disturbance usually, especially for plantation.

5. In figure 3 (page 813) the panel (Volume) is very similar with the panel (AGBC). It is consistent with my expectations since AGBC=pho*Volume and the wood density ‘pho” varies little for the same species with different ages. But in figure 2 (page 812), why the panel (Volume) the panel (AGBC) are so different?

Interactive comment on Biogeosciences Discuss., 10, 787, 2013.