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Comment

## ***Interactive comment on “Effects of land management on large trees and carbon stocks” by P. E. Kauppi et al.***

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Comments to Referee 2

We thank Referee #2 for the positive first paragraph and for the valuable suggestions. The total area of forests of the five study regions is 122 million ha in comparison to the World forest area of over 3 billion ha. Therefore, we cannot extrapolate the results to the global level. However, in the five study region noting the interesting exception of northern Finland the cohort of largest trees has made a major contribution to carbon sequestration of the ecosystem. We added text, where we estimate the carbon sink of large trees is of the same magnitude as that of the forest soil in four study regions. In

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general, we welcome new research on the quantitative role of the large tree cohorts in other forest areas of the world. For example, it is possible that largest trees are well protected against wild fires and may survive ground fires. This we cannot analyse in these five regions, where large forest fires have been almost non existent. We acknowledge the notion on time horizon of the largest trees in relation to the time perspective of forest management. In fact the cohort thresholds, which we applied are insufficient for an analysis of the largest and oldest trees. A stem DBH of 30-50 cm can be achieved in 50 years in favorable conditions both in Finland and in the United States. The very largest trees like giant redwoods are several meters in stem diameter, and such trees take many hundreds of years to grow. Unfortunately, such trees are very rare in forests and cannot be assessed reliably base on the standard methods of national forest inventory. The addendum suggest changing the figure layout. As we received similar comments from Referee 1, we have prepared new Figures, which hopefully are much better than the ones in the earlier version. Thank you for this comment.

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Interactive comment on Biogeosciences Discuss., 11, 2735, 2014.

**BGD**

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