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# *Interactive comment on* "The relative contributions of forest growth and areal expansion to forest biomass carbon sinks in China" *by* P. Li et al.

**P. Li et al.**

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It would be useful if the authors could clarify in the methods whether their estimates are aboveground biomass only or whether the expansion factors include root biomass. Although the title makes it clear that the estimates are limited to forest biomass C, in a few places the authors leave the impression that they discuss the entire forest carbon sink. Somewhere in methods and/or discussion an additional sentence would be useful to make it clear that dead wood, litter and soil C stock changes are not evaluated. Thus, actual carbon sinks are probably larger than those reported for forest biomass alone.

Reply: Thanks for your nice comments. As you pointed out, the method description



was been simplified in this MS, which might bring some trouble in understanding the concept of "forest biomass". (1)The data using to calculate the BEF contained the total weight of leaf, branch, twig, stem and root from the field measurements, thus the forest biomass used in this study represented the total biomass for each type of forest, equaling to the sum of above- and blow- ground living biomass. In this MS, all the declaration referred to "forest biomass" means the "living stand forest biomass", so the biomass of dead wood, litter or soil C stock was not evaluated. (2)Following your suggestions, we will add a more detailed method description in the revised MS further and state the concept of "forest biomass" more clearly.

P9598-27: "have faced long-term deforestation pressure, especially from commercial logging (e.g. timber extraction) and land-use change (e.g., farming)". You need to be very clear here as to whether the commercial logging follows a land-use change, in which case it is deforestation, or whether regeneration follows, in which case this is not deforestation or land-use change. International definitions are very clear that logging followed by reforestation is not deforestation.

Reply: Yes! In this part, we initially want to introduce the excessive logging pressure faced by China's natural forest, but didn't make it clearly. As you have commented, commercial logging (e.g. timber extraction) followed by reforestation is not deforestation, however, excessive logging might be one of the main reason resulting in a forest decline. Thanks for your insightful comment!

P9599-5: "areal contraction was responsible for all of the C loss in the late 1990s" –this should probably read : : : was responsible for the NET carbon loss – because this is all you evaluate here and gross carbon losses will be higher than the observed net losses. To state "all C losses" implies gross C losses and you have not evaluated these here and you just stated that industrial harvesting also contributed to carbon losses.

Reply: Thanks for your correction! In this paper, the carbon loss means a minus change in forest biomass carbon pool during the study period, which indeed only contained the

evaluated value. The statement has been changed in the revised MS. We also thanks for all your other nice comments and suggestions, all the corrections have been done in the revised MS.

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Interactive comment on Biogeosciences Discuss., 12, 9587, 2015.