

Interactive comment on “How do tree competition and stand dynamics lead to spatial patterns in monospecific mangroves?” by M. N. I. Khan et al.

Anonymous Referee #2

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Quantifying spatial pattern and disentangling processes underlying the spatial pattern is a major challenge in ecology. This paper, by combining field data and simulation, showed that biotic processes (such as competition) may govern the temporal changes in the spatial structure of monospecific mangroves. This is an important contribution in mangrove ecology because very little work has been conducted on this topic. The paper is well written and I like the paper. Having said that, I have the following minor comments that are aimed to improve readability and conceptual clarity.

Comments:

1. As it stands currently in title and texts, tree competition and stand dynamics seem two independent processes/events. However, tree competition is a part of stand dynamics, i.e., tree competition may influence stand dynamics. Thus, little clarification in

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this regard would help.

2.The authors asked (page 1688: paragraph: 15): what are the mechanisms of ecological processes (e.g., tree growth, competition, mortality and biomass etc.) involved during the stand development? I suggest rephrasing this question because while competition is an ecological process, others are demographic events that may be the results of processes. For example, growth and mortality may depend on competition and biomass may depend on competition and growth (in fact the authors mentioned this on page 1689: paragraph 15).

3.Throughout the manuscript, the term “temporal evolution” needs to be changed to “temporal change”.

4.To describe stand structure, the authors plotted CV against sampled area. In methods, please write in couple of sentences about the method. And in results, please elaborate it – for example what is the pattern for height and biomass separately. The authors presented that in Fig. 3 but a little bit of elaboration in the text may be useful.

5.It would be nice to indicate how you defined spatial relationship in quantifying K function (page 1691: paragraph: 10).

6. Finally, we know that similar processes can create different spatial pattern and different processes can also create similar spatial pattern. The authors explained the changes in spatial patterns in light of competition, however, a caution mark on correlated environmental factors or dispersal pattern (though the authors assumed the absence of environmental gradient) in the discussion would be useful.

Interactive comment on Biogeosciences Discuss., 10, 1685, 2013.