

## ***Interactive comment on “Patterns in Woody Vegetation Structure across African Savannas” by Christoffer R. Axelsson and Niall P. Hanan***

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We thank Gemma Kitson for comments on the Methods section:

The last paragraph of the introduction seems to go into rather a lot of detail, and some of the things discussed in it could perhaps have been kept for the methods section.

Response: We have moved parts of the last paragraph in the Introduction to the Methods section.

The ‘initial unsupervised classification with manual assignment into woody, herbaceous, and bare cover classes’ is rather vague – it is not clear who was carrying out the classification or in what way they were unsupervised.

Response: Unsupervised classification is a type of classification technique. We believe

C1

most readers are familiar with this term.

It would be useful to include the number of sites that were initially considered for inclusion in the study and the number that were eliminated, perhaps before stating the final number of sites, to make it clearer that the value of 876 is after all sites not suitable for inclusion have been eliminated.

Response: There were actually several reasons for why we abandoned certain sites including: cloud cover, unknown processing problems in ENVI at specific sites, clear anthropogenic disturbances, low image quality, few green leaves on trees, and difficulty in separating trees from grasses. We felt that it was of minor importance to explain in detail how many sites were excluded due to each of these factors.

Some parts of the methods section lack justification for the decisions that were taken. For example, in line 132 the authors state that segments were not merged if the resulting crown size has a diameter greater than 40m, but there is no justification for why this particular value has been chosen, making it seem as if it is at random.

Response: We have changed the sentence on line 132 to clarify this.

In line 133, the authors state that they experimented with different methods before settling on the ones they actually used, but do not explain why they didn’t use the previous methods; without this justification, mentioning that alternative methods were decided against seems to provide no insight.

Response: We deleted the sentence on line 133.

It would be interesting to know how long the image classification process took, since the authors indicate that it was the most time-consuming part of the analysis – without knowing how long the analysis took in total this piece of information doesn’t tell the reader very much, although it is interesting to know.

Response: We deleted the sentence about it being the most time-consuming part of the analysis.

C2

An estimation of the accuracy of the methods would be useful, especially concerning the delineation of tree crowns. It is possible there might be a bias in the estimation of crown size across environmental gradients, meaning that the rate of falsely divided and falsely grouped crowns may be different at different values of environmental factors. If this is the case, even comparing across environmental gradients could be inaccurate. In line 150 the authors state that the generated crown layers 'look realistic from a visual inspection across all landscape types and different tree densities', but this is a very qualitative way of assessing the accuracy of the methods; a quantitative value of accuracy would be better.

Response: We have added an appendix with a quantitative accuracy analysis using field data from Kenya.

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