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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 Susan Walsh for the comment:

The authors state: "Because of uncertainty in the accuracy of the woody properties derived from the delineated crowns, we do not focus on absolute numbers but on how they vary across environmental gradients." The study assumes that errors in the woody proportion estimation are either negligible or are the same across the environmental gradients and at the different African sites. What evidence is there for this? Tree crown morphology (roundness etc.) and remote sensing signal contributions (i.e., soil, understory and shadow) are unlikely to be the same across the African sites/gradients and so errors in the empirical crown delineation method are likely to be variable. Moreover, the tree crown delineation is applied to different satellite data (WorldView, GeoEye,

Quickbird).

Without a quantitative accuracy assessment of the tree crown delineation across the gradients/sites and among the data used this interesting study is incomplete and potentially flawed - the results may be controlled by crown delineation differences.

Response: The added appendix with field data from Kenya provides an estimate of the accuracy of the crown delineation methodology. As you say, there is a variation in terms of soil background, shadowing, tree morphology etc. across the different sites. The flexible classification approach, with manual handling of all sites, helped us adjust to each site individually and made sure that the final classified images appeared correct from a visual inspection. A fully automatic classification approach would not have achieved this due to variability in the mentioned factors.

It was not possible for us to use data from a single satellite due to limited availability. There is variation in the properties of the imagery, both due to different satellites and due to variation in solar and viewing angles. The orthorectification, resampling to 0.6 m ground resolution, and the flexible classification approach served to minimize the effect of varying image properties in the final classified results.

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