

# Supplementary Material: The potential of high resolution (5 m) RapidEye optical data to map above ground biomass over Tanzania

Lorena Hojas Gascón, Guido Ceccherini, Francisco Javier García Haro, Valerio Avitabile and Hugh Eva

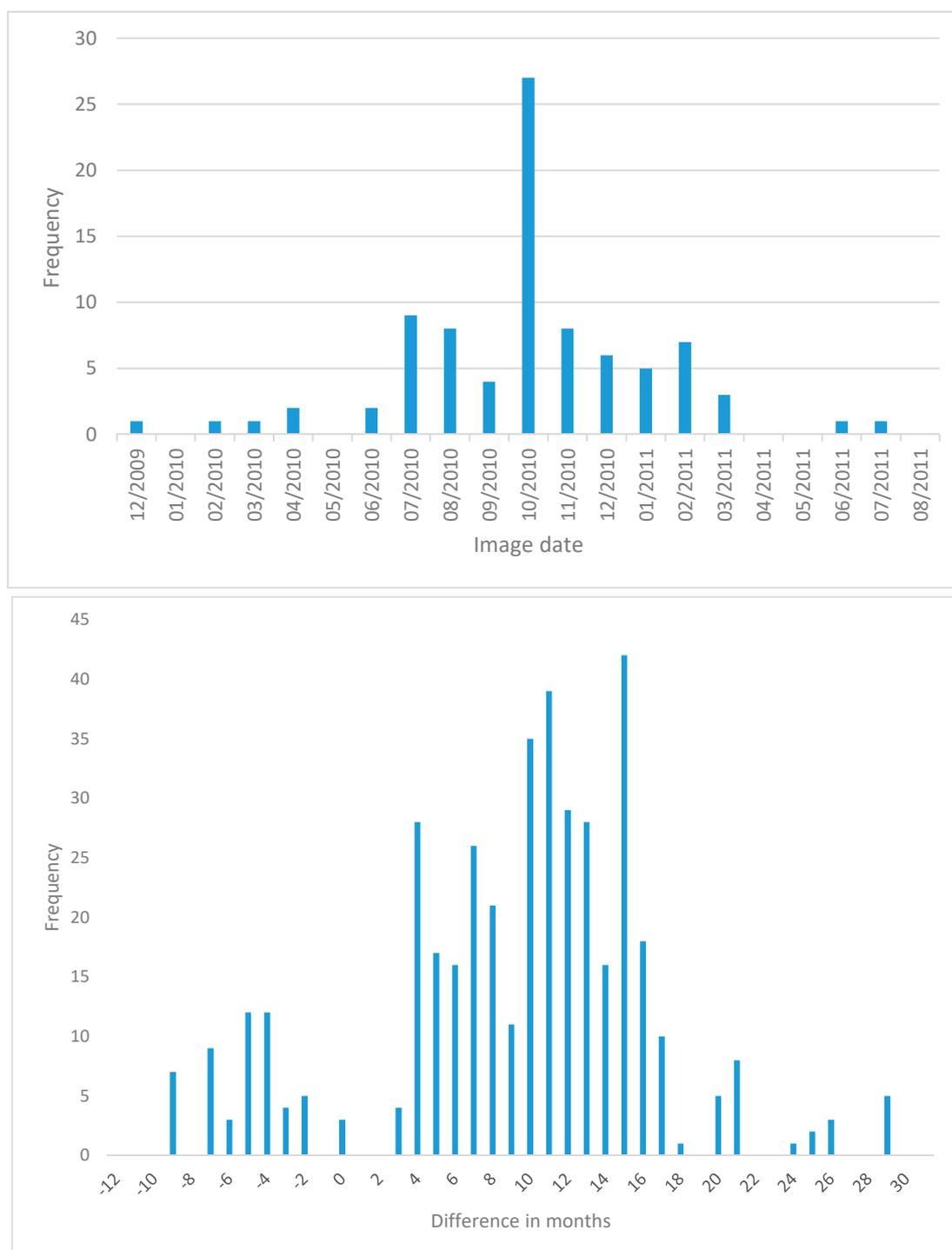


Figure S1. Acquisition dates of the RapidEye images (top) and the differences in months between field plots and associated image (bottom).

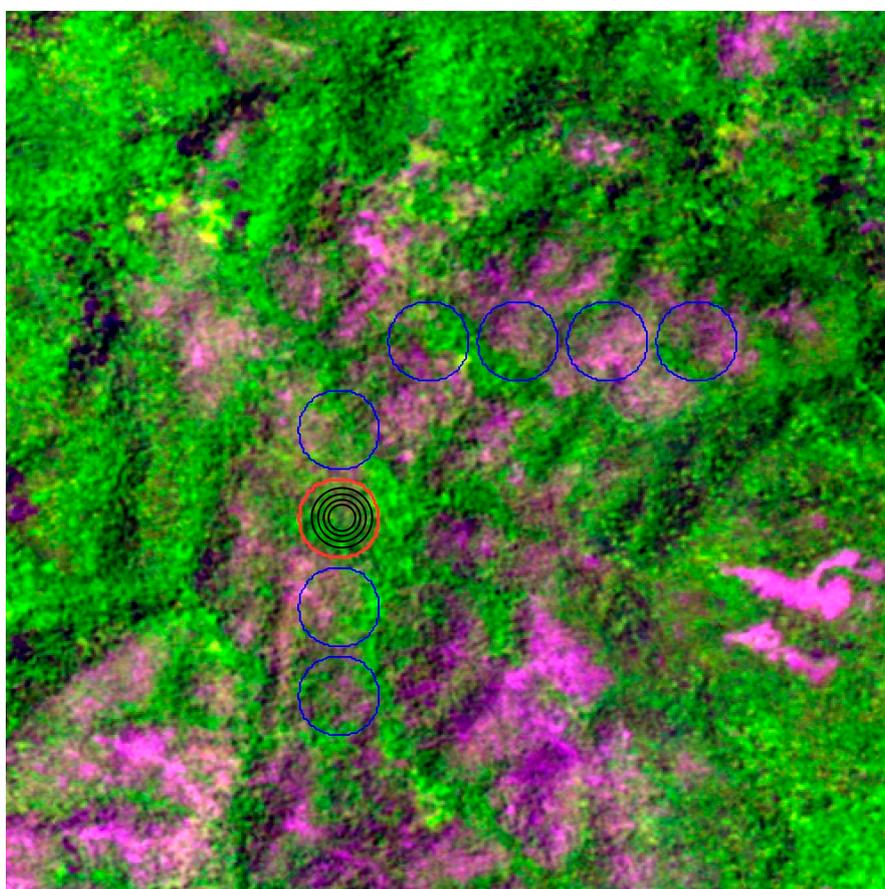
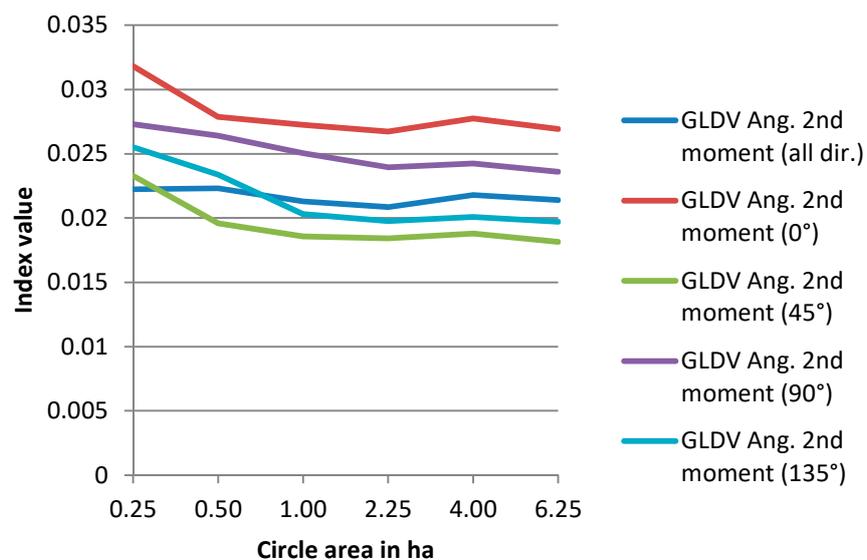


Figure S2. The impact on texture indices resulting from changing the mapping unit (top) by analysing increasing circles over the RapidEye data (bottom) where the red circle shows the different areas used.

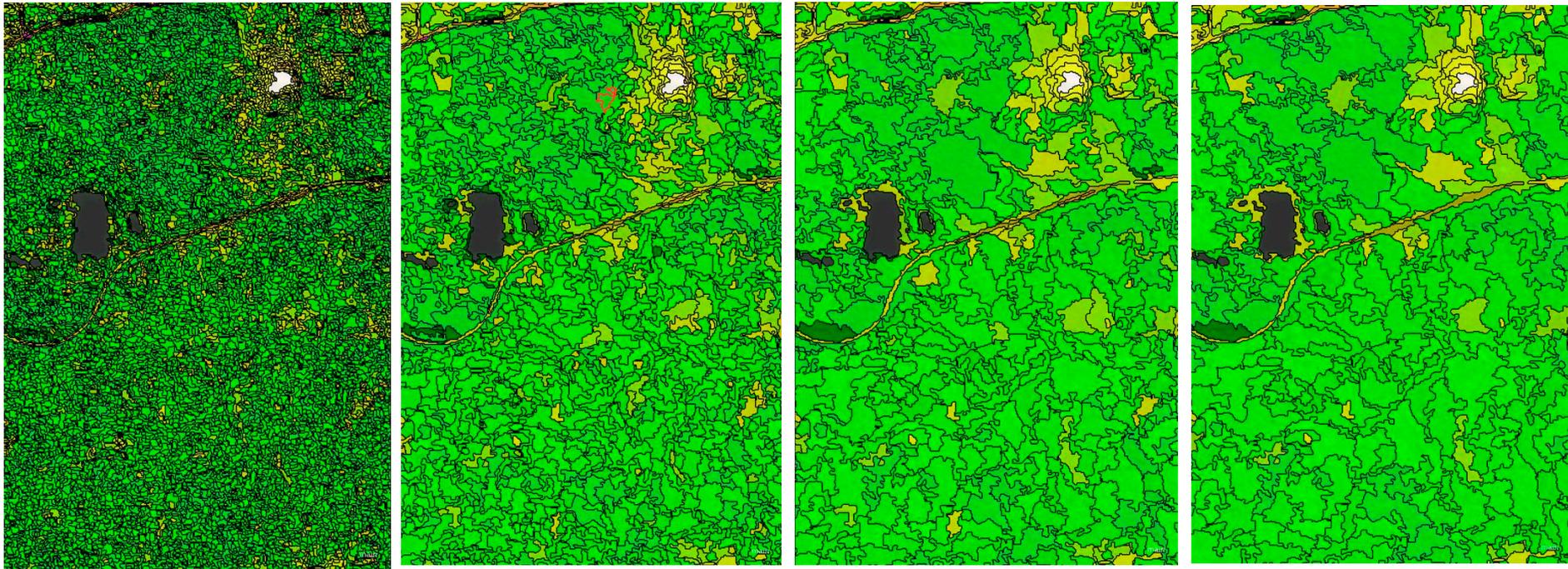
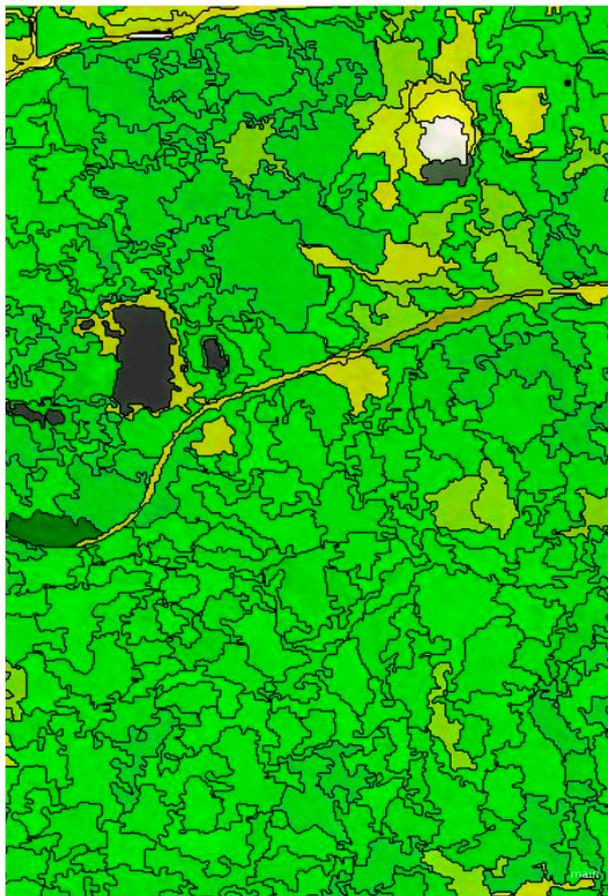


Figure S3. The application of successive shape factors to RapidEye data; From left to right SF=20, 60, 100, 124; The resulting number of objects falls from 59198 to 8059 to 3190 to 2217 objects as the MMU of 1 ha is approached through the iteration.



**Figure S4.** In the final step all polygons less than 1 ha are dissolved and we arrive at 1395 objects.



Figure S5. Cross correlation results carried out so as to reduce the number of texture measures by removing ‘duplicate’ measures – i.e. those that are highly correlated – blue and red. Due to text sizes the names of the indices are reduced.

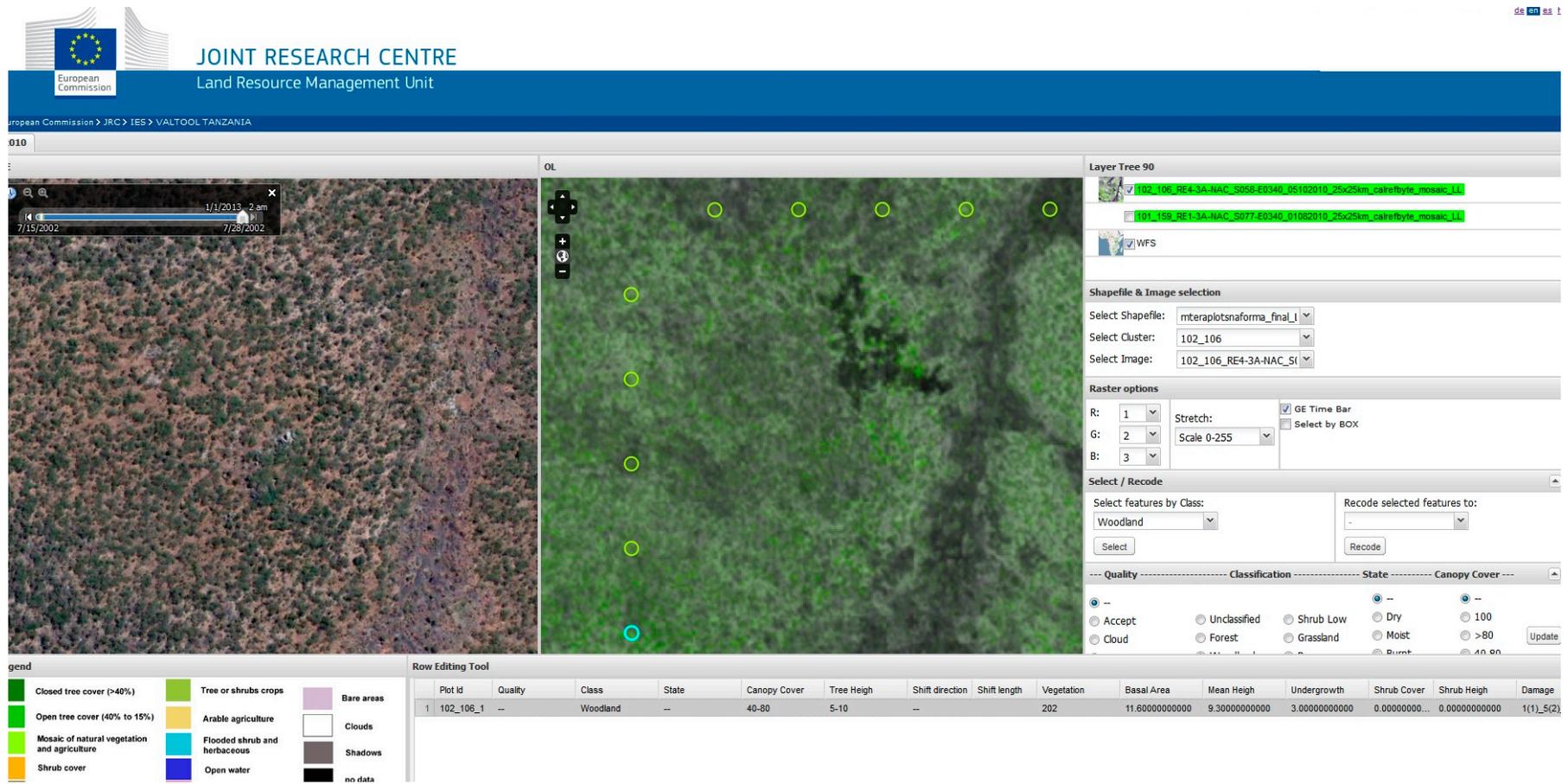


Figure S6. The interface developed to review the plot data. The plots are seen on the middle panel overlaid on the RapidEye data. On the left panel high resolution images from GoogleEarth. The plot characteristics as collected by NAFORMA are displayed on the right.

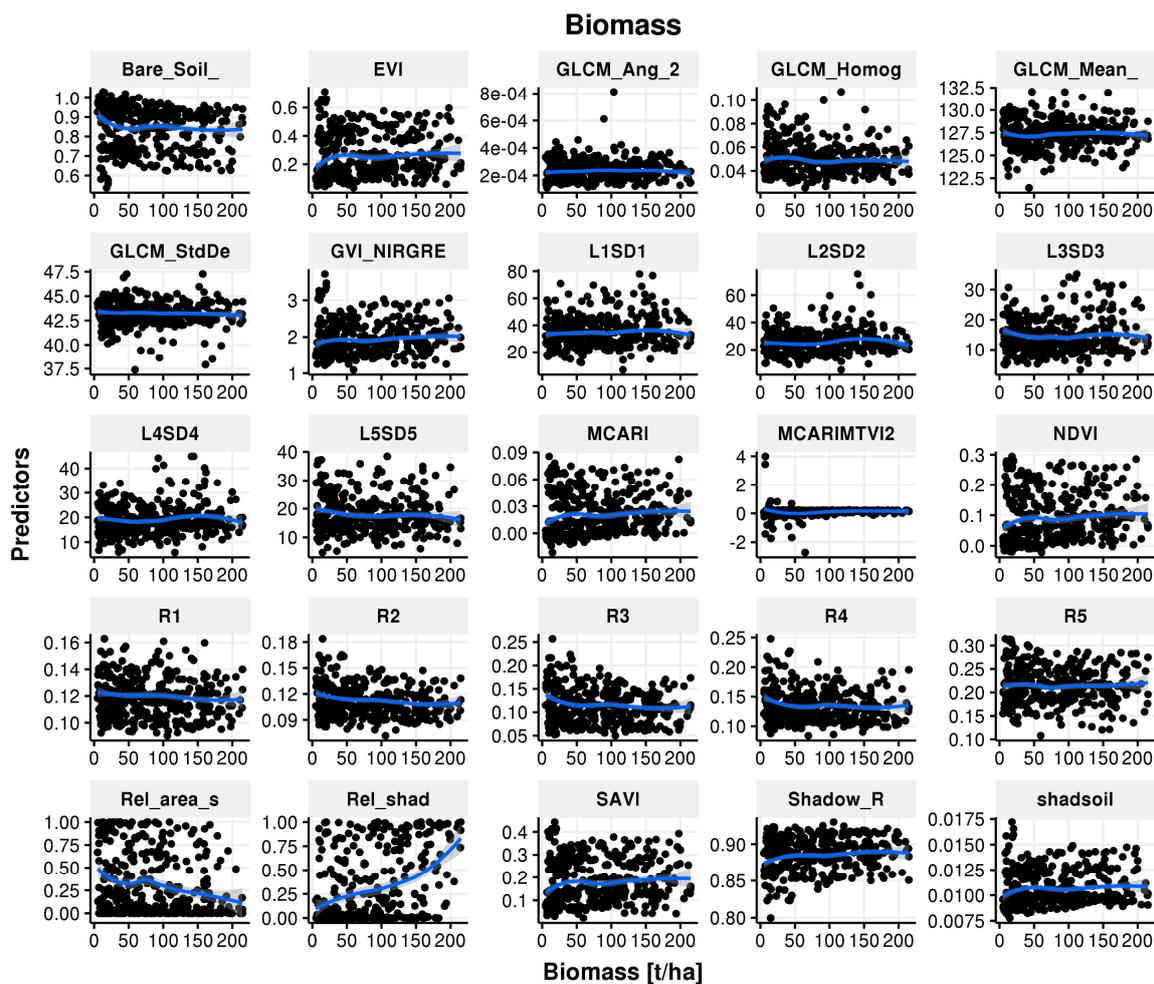


Figure S7. Scatterplot of each input variable versus AboveGround Biomass. Regression Line is in blue, while the 95% confidence interval is in grey.

### AboveGround Biomass, Predicted vs. Actual- by model - Training Dataset

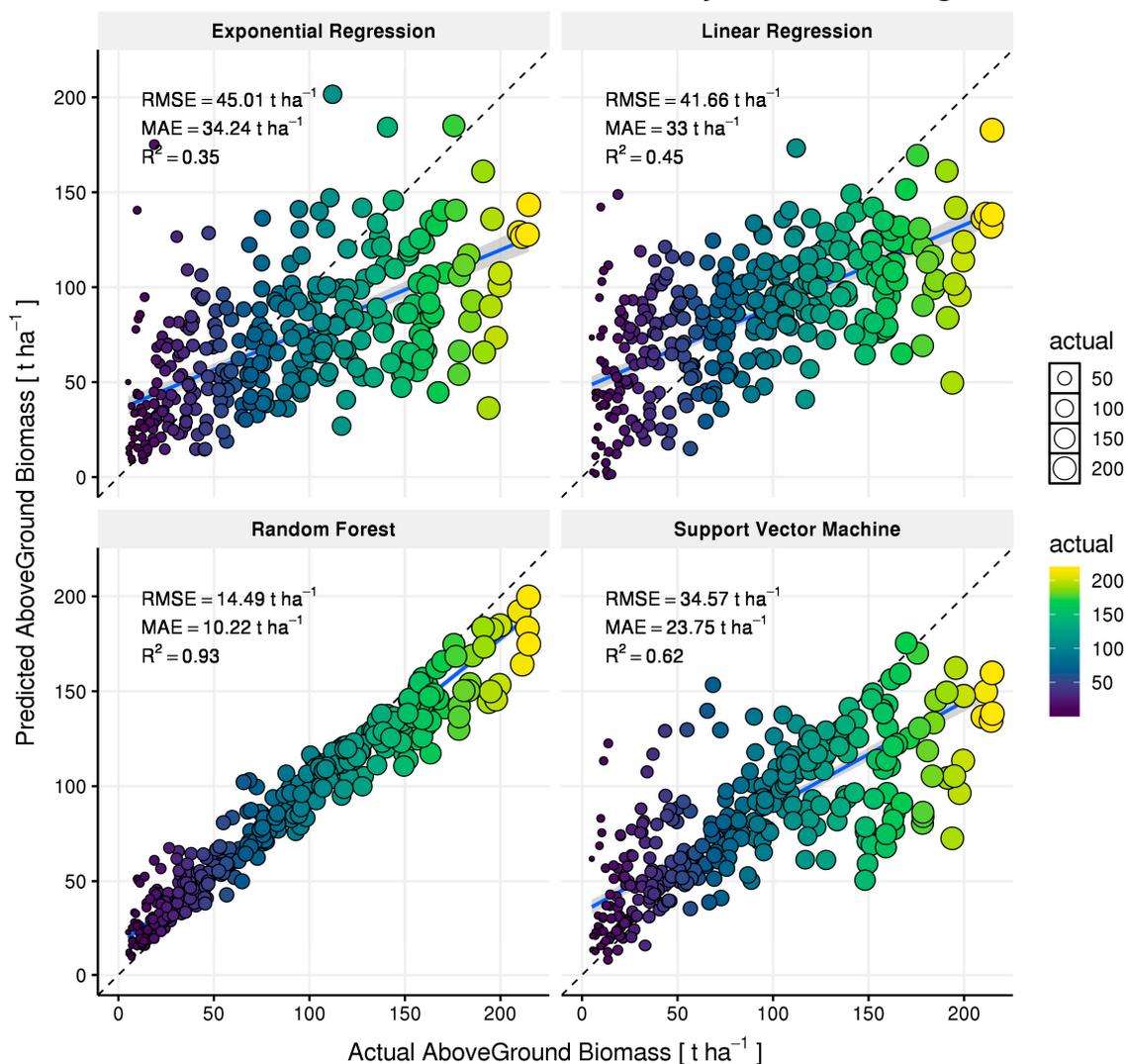


Figure S8. Scatterplot of Predicted vs. Modelled AGB in t ha<sup>-1</sup> for the four models using the training dataset. Both circle size and colour refer to the actual AGB. The blue line indicates the linear regression between actual and modelled data and the grey area is the 95% confidence level interval

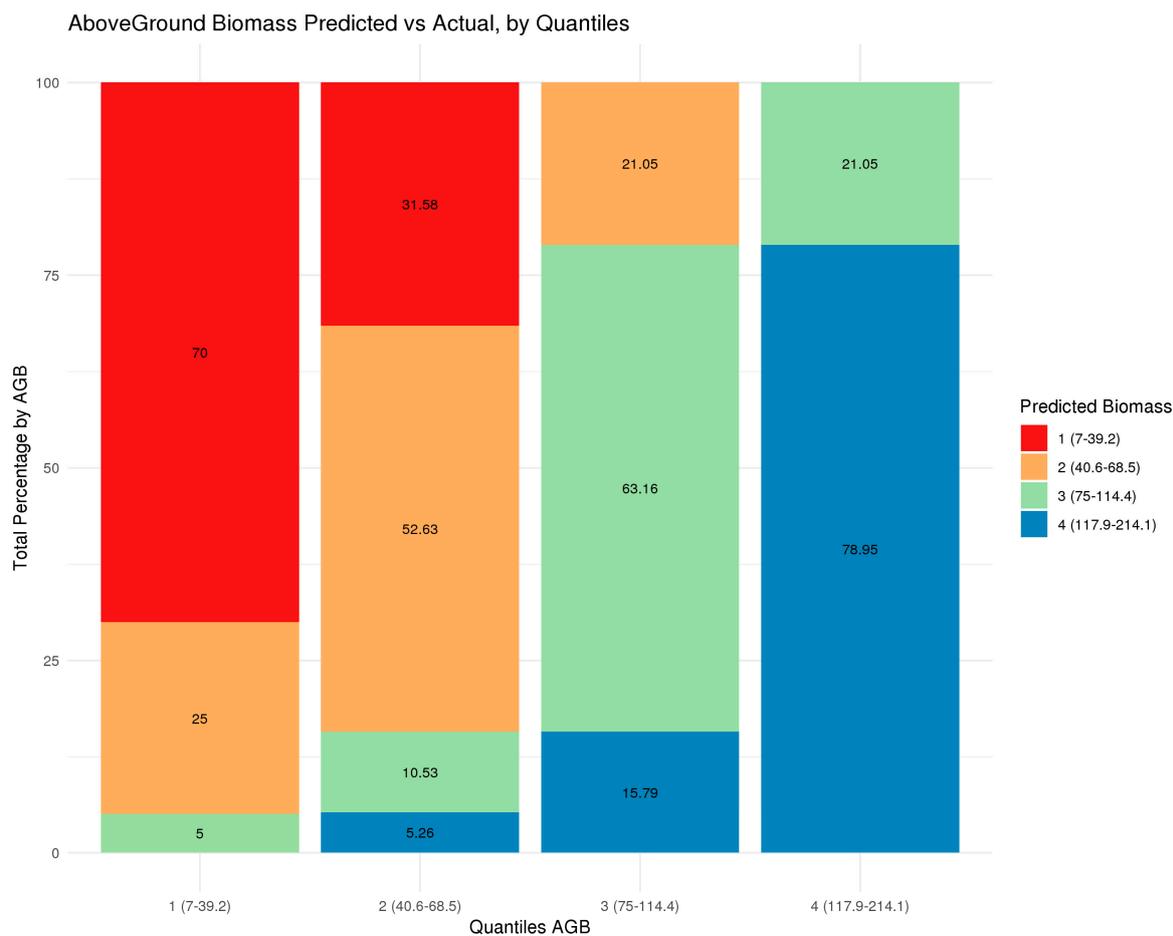


Figure S9: Random Forest model’s quality. Figure shows the result of arranging all scores or predicted values in sorted quantiles, from worst to best, and how the classification goes compared to the test set.

Specifically we have used 4 AGB quantiles using the validation subset. The x axis represents the 4 quantiles of AGB from NAFORMA plots. The y axis shows how much the random forest derived AGB falls in each quantiles.