# Supplementary

## Satellite imagery used in the study

The satellite imagery used in the analysis are listed in Table S1. Sentinel images were derived from Copernicus open access hub by ESA. Landsat-8 derived NDVI time series and STRM DEM were accessed through Google Earth Engine.

Table S1. Satellite imagery and ancillary geospatial dataset used.

| Product | Orbit | Date | Images | Bands | Resol. | Pass direct |
|---|---|---|---|---|---|---|
| Sentinel-1A | 57 | 30.8.2017 | 850E, 0411, C9AB | VH,VV | 10 | Asc |
| Sentinel-1A | 57 | 11.9.2017 | 3B49,BEDB,ECC7 | VH,VV | 10 | Asc |
| Sentinel-1B | 79 | 19.9.2017 | 759B,8EBF, E07B | VH,VV | 10 | Desc |
| Sentinel-1A | 57 | 23.9.2017 | 3696,DB8C, 3726 | VH,VV | 10 | Asc |
| Sentinel-1B | 79 | 7.9.2017 | FEA9, A794, 59E9 | VH,VV | 10 | Desc |
| Sentinel-1A | 130 | 4.9.2017 | 90D6, 5EEA, 1AB6, 04C6 | VH,VV | 10 | Asc |
| Sentinel-1A | 130 | 16.9.2017 | AD7B, C54D, 3282, 36A3 | VH,VV | 10 | Asc |
| Sentinel-1A | 130 | 28.9.2017 | BBE1, 2D43, 343A, FFCF | VH,VV | 10 | Asc |
| Sentinel-1 | 28 | 28.8.2018 | 3DE3, D38B | VH,VV | 10 | Asc |
| Sentinel-1 | 28 | 9.9.2017 | C23E, 4A17 | VH,VV | 10 | Asc |
| Sentinel-1 | 28 | 21.9.2017 | E947, 3CD8 | VH,VV | 10 | Asc |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sentinel-2A | 92 | 16.9.2017 | 37LBL, 37MBM, 37MBN, 37MBP, 37MCQ, 37MBQ, 36MZV, 36MZT, 36LZR, 36MZS, 36MYS, 36LYR | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2B | 49 | 18.10.2017 | 37MCQ | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 49 | 6.1.2017 | 37MDQ | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 49 | 26.1.2017 | 37MDQ, 37MDS | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2B | 49 | 27.12.2017 | 37MCR | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 49 | 23.9.2017 | 37MDS | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 49 | 15.7.2017 | 37MCM | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 92 | 28.7.2017 | 37LBL | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2B | 49 | 25.2.2018 | 37MDQ | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2B | 92 | 18.2.2018 | 37MCR, 37MCS | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 92 | 13.2.2018 | 37MCR | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 49 | 21.1.2018 | 37MCR | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2B | 49 | 16.1.2018 | 37MCR | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 92 | 23.7.2018 | 37LBL | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2B | 92 | 27.8.2018 | 37LBL | B2-B8A, B11-B12 | 10,20 | Desc |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sentinel-2A | 49 | 20.7.2016 | 37MDR, 37MDQ, 37MCP, 37MCM, 37LBL | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 92 | 23.7.2016 | 37MCP, 37MZS | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 49 | 30.7.2016 | 37MDR, 37MCP, 37MCN, 37MCM, 37LBL, 37MBM | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 49 | 10.8.2016 | 37MDR, 37MCP | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 92 | 22.8.2016 | 36LYR | B2-B8A, B11-B12 | 10,20 | Desc |
| Sentinel-2A | 92 | 2.8.2016 | 36MZS | B2-B8A, B11-B12 | 10,20 | Desc |
| Landsat-8OLI | | 11.4.2013-31.3.2019 | | NDVI | 30 | |
| SRTM DEM | | Feb 2000 | | DEM, SLOPE, ASPECT | 30 | |

# Training data collection

3000 Training samples were randomly distributed to the landscape constrained by the area of EAM blocks (Platts et al. 2011) and stratified based on tree coverage percentage (50–70; 70–100) (Sexton et al. 2013) and aspect derived from global SRTM DEM (Jarvis et al. 2008) (North, East, South, West) to cover the variance within the natural forests in the reference samples. We used 500m minimum distance between the samples to avoid the effect of spatial autocorrelation. The distribution of the samples per strata is shown in Table 2 and Fig.1.

Table S2. Training sample distribution based on tree cover and aspect. Area of each strata in brackets.

| Tree cover | East (45-135) | South (135-225) | West (225-315) | North (315-360, 0-45) | Total |
|---|---|---|---|---|---|
| 50-70 | 418 (16.9%) | 442 (19.4%) | 450 (17.9%) | 316 (11.5%) | 1626 (65.8%) |
| 70-100 | 248 (10.2%) | 329 (9.6%) | 250 (7.8 %) | 249 (6.6%) | 1076 (34.2%) |
| Total | 666 | 771 | 700 | 565 | 2702 |

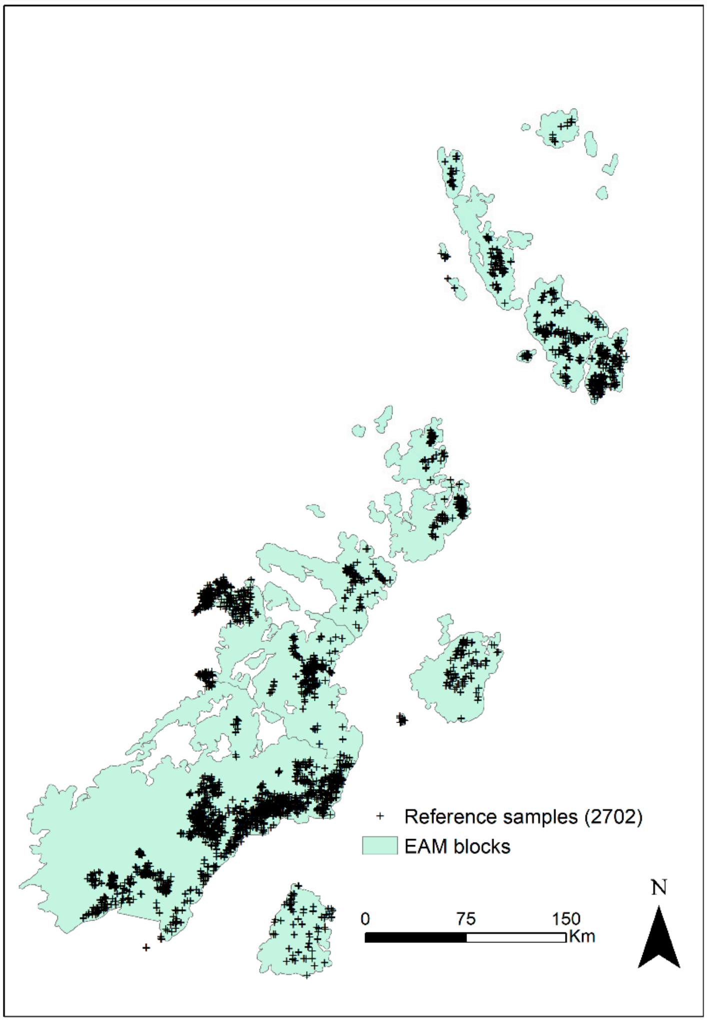


Figure S1. Spatial distribution of the training samples.

# Validation samples for accuracy assessment

An independent accuracy assessment is recommended to use even though RF is an ensemble approach (Millard and Richardson 2015). The number of samples for independent accuracy assessment was calculated based on the equation given by Olofsson et al. (2014):

$$n=[(\Sigma w_i s_i)/S(\hat{O})]^2 \qquad (1)$$

where $w_i$ is the mapped proportion of a stratum and $s_i$ is the standard deviation of the stratum and $S(\hat{O})$ is the standard error of the estimated overall accuracy.

We specified the target overall accuracies for native forest and other vegetation for CCEF model 0.8 and 0.7, respectively. The thresholds were set referring to previous tropical forest mapping accuracies in Africa (Hansen et al. 2008, Gessner et al. 2015) and to the knowledge that mapping the natural forests in the EAM is challenging due to the varying types of other forested covers such as woodlands and plantations. Thus, although we have only two classes (natural forest/other vegetation) we expect misclassifications within the CCEF model. The standard error was set to 0.01 for high confidence. The three forest cover layers (CCEF model, Eastern Arc Forest Baseline (FBD 2006) and Forest Fragments of Eastern Arc (Newmark and McNeally 2018) were stacked as one forest layer and the number of samples was calculated based on the coverage of the stacked forest layer. These settings result in total 1950 samples for the whole area but for the small blocks (Taita, North Pare and Malundwe) we increased the number of samples to 50 resulting in total 2076 samples. The samples were distributed to each block according to the CCEF model coverage per block (Table S3, Fig. S2).

Table S3. Validation sample distribution to the Easter Arc forest blocks.

| | TA | NP | SP | WU | EU | NG | NR | UL | MW | UK | RU | UD | MA | TOT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area (%) | 0.3 | 0.8 | 3.2 | 6.8 | 6.9 | 3.9 | 6.6 | 6.3 | 0.2 | 3.7 | 10.4 | 47.8 | 3.1 | 100 |
| Nat. Forest (CCEF) | 33 | 33 | 51 | 104 | 104 | 55 | 96 | 113 | 33 | 59 | 138 | 522 | 40 | 1378 |
| Other veget. (CCEF) | 17 | 17 | 26 | 52 | 52 | 35 | 48 | 57 | 17 | 30 | 70 | 265 | 21 | 698 |
| TOT | 50 | 50 | 77 | 156 | 156 | 90 | 144 | 170 | 50 | 89 | 208 | 787 | 61 | 2076 |

TA = Taita Hills NP = North Pare, SP = South Pare, WU = West Usambara, EU = East Usambara, NG = Nguu, NR = Nguru, UL = Uluguru, MW = Malundwe, UK= Ukaguru, RU = Rubeho, UD = Udzungwa, MA = Mahenge

49, 50, 77,148,179,99,167,148,

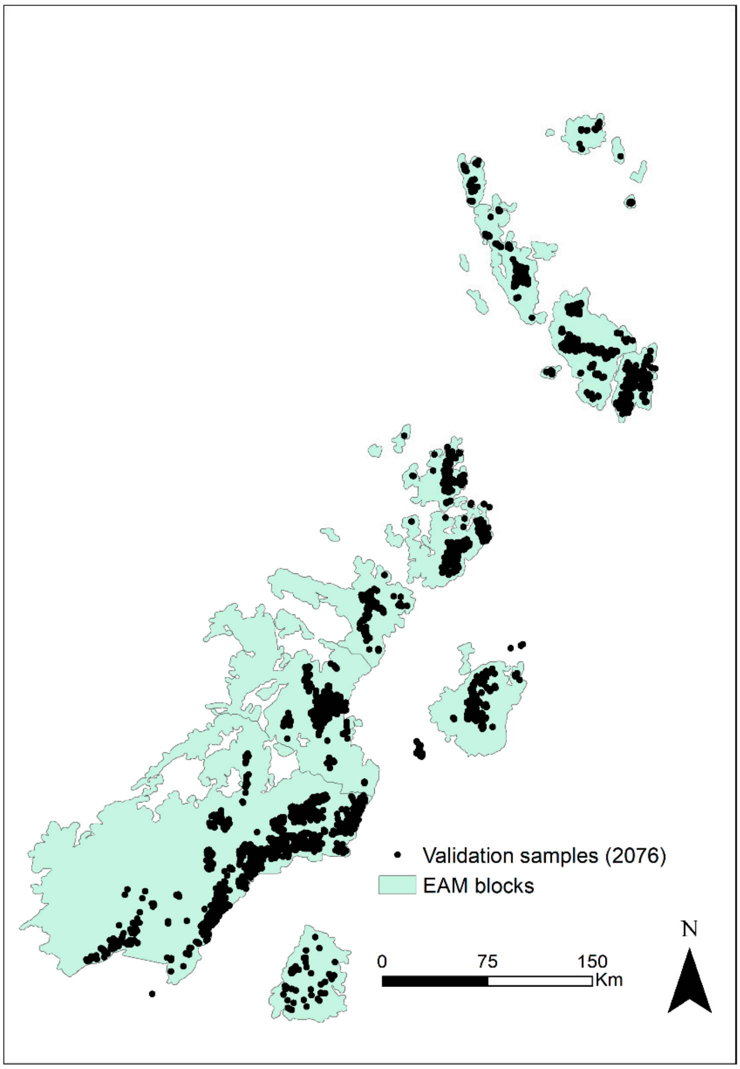


Figure S2. Spatial distribution of the validation samples.

# Tuning the Random forest model

The effect of Random forest model parameter tuning on model performance was tested on the best variable set. Once the mtry setting was 3, the TSS results remained above 0.62, except for few exceptions with low ntree settings (< 500). Although the number of trees had only minor effect on the model performance the model was more stable with a higher number of trees. Highest TSS (0.647) was achieved with 3000 trees and 17 variables per node. However, highest computationally feasible result (0.641) was reached with 500 trees and 6 variables per node.

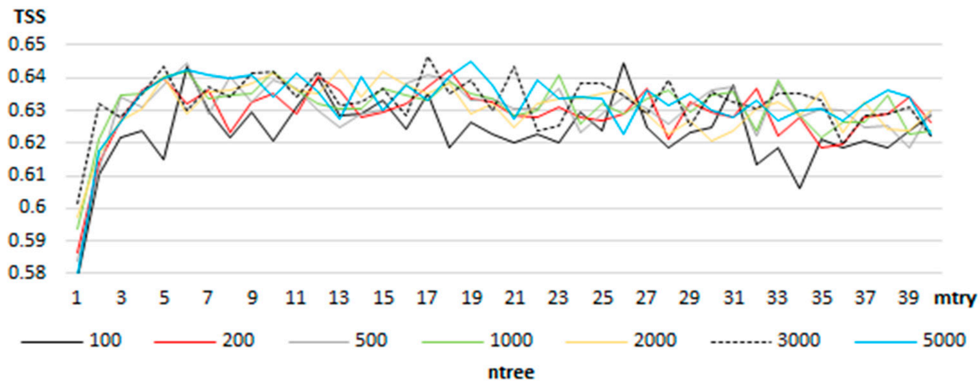


Figure S3. TSS values of all the tested mtry and ntree combinations using the best variable group selection.

# Accuracy assessment

The error matrices for each EAM mountain block, populated by the proportional class distribution are reported below in Tables S4-S16. The sample distribution is given in table S3.

Table S4. Error matrix of Taita populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories. EAM forest map by FBD (2006) does not cover Taita.

| | Taita | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.61 | 0.14 | 0.76 | 0.81 |
| CCEF other veg. | 0.10 | 0.14 | 0.24 | 0.58 |
| Total Prop. | 0.71 | 0.29 | 1.00 | |
| Producer acc. | 0.86 | 0.50 | | |
| | OA | 0.76 | | |
| | TSS | 0.36 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.63 | 0.12 | 0.76 | 0.84 |
| Newmark and McNeally other veg. | 0.12 | 0.12 | 0.24 | 0.50 |
| Total Prop. | 0.76 | 0.24 | 1.00 | |
| Producer acc. | 0.84 | 0.50 | | |
| | OA | 0.76 | | |
| | TSS | 0.34 | | |

Table S5. Error matrix of North Pare populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories

| | **North Pare** | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.44 | 0.22 | 0.7 | 0.7 |
| CCEF other veg. | 0.08 | 0.26 | 0.3 | 0.8 |
| Total Prop. | 0.52 | 0.48 | 1.0 | |
| Producer acc. | 0.85 | 0.54 | | |
| | OA | 0.70 | | |
| | TSS | 0.39 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.50 | 0.18 | 0.7 | 0.7 |
| FDB other veg. | 0.02 | 0.30 | 0.3 | 0.9 |
| Total Prop. | 0.52 | 0.48 | 1.0 | |
| Producer acc. | 0.96 | 0.63 | | |
| | OA | 0.80 | | |
| | TSS | 0.59 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.38 | 0.06 | 0.4 | 0.9 |
| Newmark and McNeally other veg. | 0.14 | 0.42 | 0.6 | 0.8 |
| Total Prop. | 0.52 | 0.48 | 1.0 | |
| Producer acc. | 0.73 | 0.88 | | |
| | OA | 0.80 | | |
| | TSS | 0.605769 | | |

Table S6. Error matrix of South Pare populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories

| | South Pare | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.62 | 0.05 | 0.68 | 0.92 |
| CCEF other veg. | 0.03 | 0.30 | 0.32 | 0.92 |
| Total Prop. | 0.65 | 0.35 | 1.00 | |
| Producer acc. | 0.96 | 0.85 | | |
| | OA | 0.92 | | |
| | TSS | 0.81 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.57 | 0.10 | 0.68 | 0.85 |
| FDB other veg. | 0.27 | 0.05 | 0.32 | 0.16 |
| Total Prop. | 0.84 | 0.16 | 1.00 | |
| Producer acc. | 0.68 | 0.33 | | |
| | OA | 0.62 | | |
| | TSS | 0.01 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.58 | 0.09 | 0.68 | 0.87 |
| Newmark and McNeally other veg. | 0.13 | 0.19 | 0.32 | 0.60 |
| Total Prop. | 0.71 | 0.29 | 1.00 | |
| Producer acc. | 0.82 | 0.68 | | |
| | OA | 0.78 | | |
| | TSS | 0.50 | | |

Table S7. Error matrix of West Usambara populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories

| | **West usambara** | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.58 | 0.09 | 0.67 | 0.87 |
| CCEF other veg. | 0.08 | 0.26 | 0.33 | 0.77 |
| Total Prop. | 0.65 | 0.35 | 1.00 | |
| Producer acc. | 0.88 | 0.74 | 0.58 | 0.09 |
| | OA | 0.83 | 0.08 | 0.26 |
| | TSS | 0.62 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.54 | 0.23 | 0.78 | 0.70 |
| FDB other veg. | 0.11 | 0.12 | 0.22 | 0.51 |
| Total Prop. | 0.65 | 0.35 | 1.00 | |
| Producer acc. | 0.83 | 0.33 | | |
| | OA | 0.66 | | |
| | TSS | 0.17 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.58 | 0.17 | 0.76 | 0.77 |
| Newmark and McNeally other veg. | 0.07 | 0.17 | 0.24 | 0.71 |
| Total Prop. | 0.65 | 0.35 | 1.00 | |
| Producer acc. | 0.89 | 0.50 | 0.58 | 0.17 |
| | OA | 0.76 | 0.07 | 0.17 |
| | TSS | 0.39 | | |

Table S8. Error matrix of East Usambara populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories.

| | **East usambara** | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.46 | 0.03 | 0.49 | 0.95 |
| CCEF other veg. | 0.26 | 0.26 | 0.51 | 0.50 |
| Total Prop. | 0.72 | 0.28 | 1.00 | |
| Producer acc. | 0.64 | 0.91 | | |
| | OA | 0.72 | | |
| | TSS | 0.55 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.46 | 0.15 | 0.62 | 0.75 |
| FDB other veg. | 0.26 | 0.13 | 0.38 | 0.33 |
| Total Prop. | 0.72 | 0.28 | 1.00 | |
| Producer acc. | 0.64 | 0.45 | | |
| | OA | 0.59 | | |
| | TSS | 0.10 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.69 | 0.11 | 0.79 | 0.86 |
| Newmark and McNeally other veg. | 0.03 | 0.17 | 0.21 | 0.84 |
| Total Prop. | 0.72 | 0.28 | 1.00 | |
| Producer acc. | 0.96 | 0.61 | | |
| | OA | 0.86 | | |
| | TSS | 0.57 | | |

Table S9. Error matrix of Nguu populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories

| | **Nguu** | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.50 | 0.00 | 0.50 | 1.00 |
| CCEF other veg. | 0.11 | 0.39 | 0.50 | 0.78 |
| Total Prop. | 0.61 | 0.39 | 1.00 | |
| Producer acc. | 0.82 | 1.00 | | |
| | OA | 0.89 | | |
| | TSS | 0.82 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.58 | 0.28 | 0.86 | 0.68 |
| FDB other veg. | 0.03 | 0.11 | 0.14 | 0.77 |
| Total Prop. | 0.61 | 0.39 | 1.00 | |
| Producer acc. | 0.95 | 0.29 | | |
| | OA | 0.69 | | |
| | TSS | 0.23 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.56 | 0.17 | 0.72 | 0.77 |
| Newmark and McNeally other veg. | 0.06 | 0.22 | 0.28 | 0.80 |
| Total Prop. | 0.61 | 0.39 | 1.00 | |
| Producer acc. | 0.91 | 0.57 | | |
| | OA | 0.78 | | |
| | TSS | 0.48 | | |

Table S10. Error matrix of Nguru populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories

| | **Nguru** | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.57 | 0.09 | 0.66 | 0.86 |
| CCEF other veg. | 0.07 | 0.27 | 0.34 | 0.79 |
| Total Prop. | 0.64 | 0.36 | 1.00 | |
| Producer acc. | 0.89 | 0.75 | | |
| | OA | 0.84 | | |
| | TSS | 0.63 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.56 | 0.23 | 0.79 | 0.71 |
| FDB other veg. | 0.08 | 0.13 | 0.21 | 0.62 |
| Total Prop. | 0.64 | 0.36 | 1.00 | |
| Producer acc. | 0.88 | 0.35 | | |
| | OA | 0.69 | | |
| | TSS | 0.23 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.62 | 0.25 | 0.87 | 0.71 |
| Newmark and McNeally other veg. | 0.02 | 0.11 | 0.13 | 0.84 |
| Total Prop. | 0.64 | 0.36 | 1.00 | |
| Producer acc. | 0.97 | 0.31 | | |
| | OA | 0.73 | | |
| | TSS | 0.28 | | |

Table S11. Error matrix of Uluguru populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories

| | **Uluguru** | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.63 | 0.11 | 0.75 | 0.85 |
| CCEF other veg. | 0.05 | 0.20 | 0.25 | 0.79 |
| Total Prop. | 0.69 | 0.31 | 1.00 | |
| Producer acc. | 0.92 | 0.63 | 0.63 | 0.11 |
| | OA | 0.83 | 0.05 | 0.20 |
| | TSS | 0.56 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.56 | 0.14 | 0.70 | 0.80 |
| FDB other veg. | 0.13 | 0.17 | 0.30 | 0.58 |
| Total Prop. | 0.69 | 0.31 | 1.00 | |
| Producer acc. | 0.82 | 0.56 | 0.56 | 0.14 |
| | OA | 0.74 | 0.13 | 0.17 |
| | TSS | 0.38 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.64 | 0.08 | 0.72 | 0.89 |
| Newmark and McNeally other veg. | 0.05 | 0.23 | 0.28 | 0.83 |
| Total Prop. | 0.69 | 0.31 | 1.00 | |
| Producer acc. | 0.93 | 0.75 | 0.64 | 0.08 |
| | OA | 0.87 | 0.05 | 0.23 |
| | TSS | 0.68 | | |

Table S12. Error matrix of Ukaguru populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories

| | **Ukaguru** | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.62 | 0.02 | 0.64 | 0.96 |
| CCEF other veg. | 0.04 | 0.31 | 0.36 | 0.88 |
| Total Prop. | 0.66 | 0.34 | 1.00 | |
| Producer acc. | 0.93 | 0.93 | | |
| | OA | 0.93 | | |
| | TSS | 0.87 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.52 | 0.26 | 0.78 | 0.67 |
| FDB other veg. | 0.15 | 0.08 | 0.22 | 0.35 |
| Total Prop. | 0.66 | 0.34 | 1.00 | |
| Producer acc. | 0.78 | 0.23 | | |
| | OA | 0.60 | | |
| | TSS | 0.01 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.60 | 0.13 | 0.73 | 0.82 |
| Newmark and McNeally other veg. | 0.07 | 0.20 | 0.27 | 0.75 |
| Total Prop. | 0.66 | 0.34 | 1.00 | |
| Producer acc. | 0.90 | 0.60 | | |
| | OA | 0.80 | | |
| | TSS | 0.50 | | |

Table S13. Error matrix of Rubeho populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories

| | **Rubeho** | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.60 | 0.07 | 0.67 | 0.90 |
| CCEF other veg. | 0.05 | 0.28 | 0.33 | 0.85 |
| Total Prop. | 0.65 | 0.35 | 1.00 | |
| Producer acc. | 0.92 | 0.81 | | |
| | OA | 0.88 | | |
| | TSS | 0.73 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.57 | 0.24 | 0.81 | 0.71 |
| FDB other veg. | 0.07 | 0.11 | 0.19 | 0.61 |
| Total Prop. | 0.65 | 0.35 | 1.00 | |
| Producer acc. | 0.89 | 0.32 | | |
| | OA | 0.69 | | |
| | TSS | 0.21 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.60 | 0.19 | 0.79 | 0.76 |
| Newmark and McNeally other veg. | 0.05 | 0.16 | 0.21 | 0.78 |
| Total Prop. | 0.65 | 0.35 | 1.00 | |
| Producer acc. | 0.93 | 0.45 | | |
| | OA | 0.76 | | |
| | TSS | 0.38 | | |

Table S14. Error matrix of Malundwe populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories

| | **Malundwe** | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.6 | 0.06 | 0.66 | 0.909091 |
| CCEF other veg. | 0.04 | 0.3 | 0.34 | 0.882353 |
| Total Prop. | 0.64 | 0.36 | 1 | |
| Producer acc. | 0.9375 | 0.833333 | | |
| | OA | 0.9 | | |
| | TSS | 0.770833 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.22 | 0.06 | 0.28 | 0.785714 |
| FDB other veg. | 0.42 | 0.3 | 0.72 | 0.416667 |
| Total Prop. | 0.64 | 0.36 | 1 | |
| Producer acc. | 0.34375 | 0.833333 | | |
| | OA | 0.52 | | |
| | TSS | 0.177083 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.5 | 0.28 | 0.78 | 0.641026 |
| Newmark and McNeally other veg. | 0.14 | 0.08 | 0.22 | 0.363636 |
| Total Prop. | 0.64 | 0.36 | 1 | |
| Producer acc. | 0.78125 | 0.222222 | | |
| | OA | 0.58 | | |
| | TSS | 0.003472 | | |

Table S15. Error matrix of Mahenge populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories

| | **Mahenge** | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.62 | 0.11 | 0.73 | 0.85 |
| CCEF other veg. | 0.11 | 0.16 | 0.27 | 0.58 |
| Total Prop. | 0.73 | 0.27 | 1.00 | |
| Producer acc. | 0.85 | 0.58 | | |
| | OA | 0.78 | | |
| | TSS | 0.43 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.09 | 0.64 | 0.73 | 0.12 |
| FDB other veg. | 0.00 | 0.27 | 0.27 | 1.00 |
| Total Prop. | 0.09 | 0.91 | 1.00 | |
| Producer acc. | 1.00 | 0.29 | | |
| | OA | 0.36 | | |
| | TSS | 0.29 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.13 | 0.60 | 0.73 | 0.18 |
| Newmark and McNeally other veg. | 0.13 | 0.13 | 0.27 | 0.50 |
| Total Prop. | 0.27 | 0.73 | 1.00 | |
| Producer acc. | 0.50 | 0.18 | | |
| | OA | 0.27 | | |
| | TSS | -0.32 | | |

Table S16. Error matrix of Udzungwa populated by the estimated proportion of area for each category. Rows represent map categories and columns represent reference categories

| | Udzungwa | | | |
|---|---|---|---|---|
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| CCEF NF | 0.45 | 0.10 | 0.56 | 0.82 |
| CCEF other veg. | 0.15 | 0.30 | 0.44 | 0.67 |
| Total Prop. | 0.60 | 0.40 | 1.00 | |
| Producer acc. | 0.76 | 0.75 | | |
| | OA | 0.75 | | |
| | TSS | 0.50 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| FBD NF | 0.35 | 0.15 | 0.49 | 0.70 |
| FDB other veg. | 0.25 | 0.25 | 0.51 | 0.50 |
| Total Prop. | 0.60 | 0.40 | 1.00 | |
| Producer acc. | 0.58 | 0.63 | | |
| | OA | 0.60 | | |
| | TSS | 0.21 | | |
| | | | | |
| | Ref NF | Ref other veg. | Total Prop. | User acc. |
| Newmark and McNeally NF | 0.53 | 0.27 | 0.79 | 0.66 |
| Newmark and McNeally other veg. | 0.07 | 0.13 | 0.21 | 0.64 |
| Total Prop. | 0.60 | 0.40 | 1.00 | |
| Producer acc. | 0.88 | 0.33 | | |
| | OA | 0.66 | | |
| | TSS | 0.21 | | |

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