
Supplemental Information:

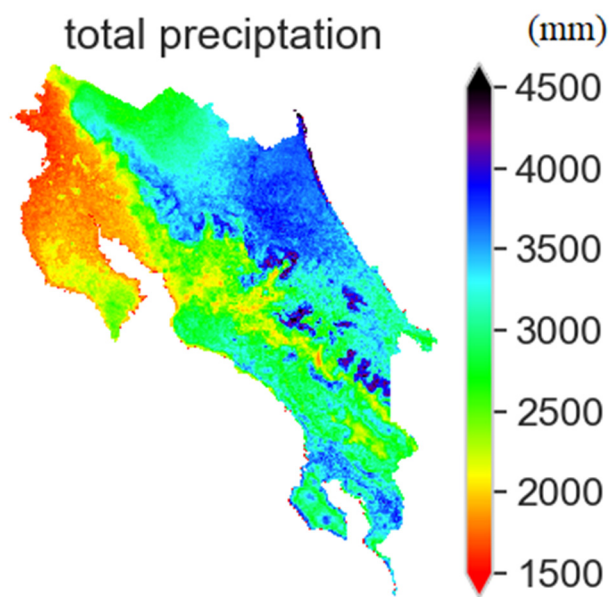


Figure S1: Spatial pattern of total precipitation (mm) in Costa Rica from January to December using WorldClim version 2.1 monthly precipitation data. Monthly precipitation data are the average for the years 1970-2000.

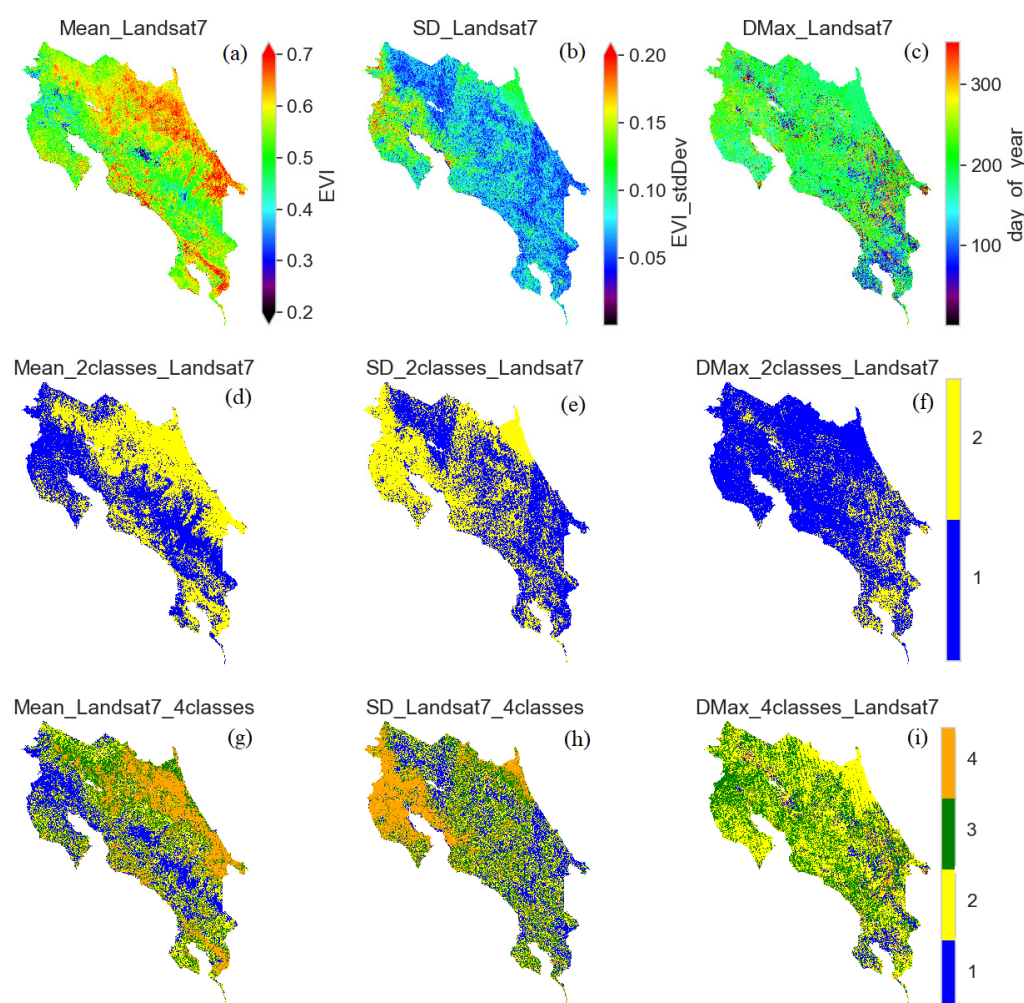


Figure S2: Spatial patterns of ecosystem functional attributes (EFAs) using Landsat (a: mean; b: standard deviation and c: date of maximum EVI) at the national scale in Costa Rica; two classes of mean (d), standard deviation (e) and date of maximum EVI (f) when using two bins; four classes of mean (g), standard deviation(h) and date of maximum EVI (i) when using four bins.

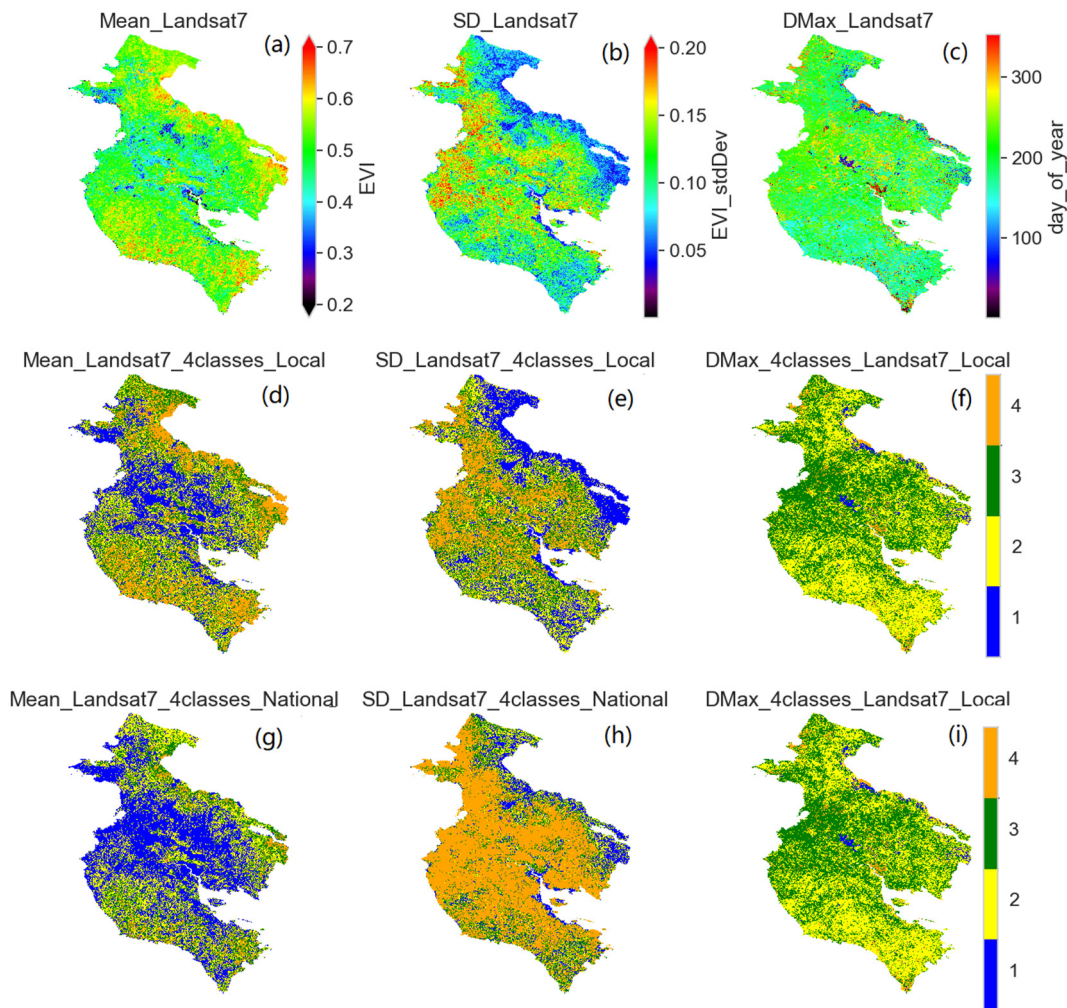


Figure S3: Spatial patterns of ecosystem functional attributes using Landsat (a: mean; b: standard deviation and c: date of maximum EVI) for the Nicoya Peninsula; two classes of mean (d), standard deviation (e) and date of maximum EVI (f) when using four bins derived from local data (Nicoya Peninsula); four classes of mean (g), standard deviation (h) and date of maximum EVI (i) when using four bins derived from national data (Costa Rica).

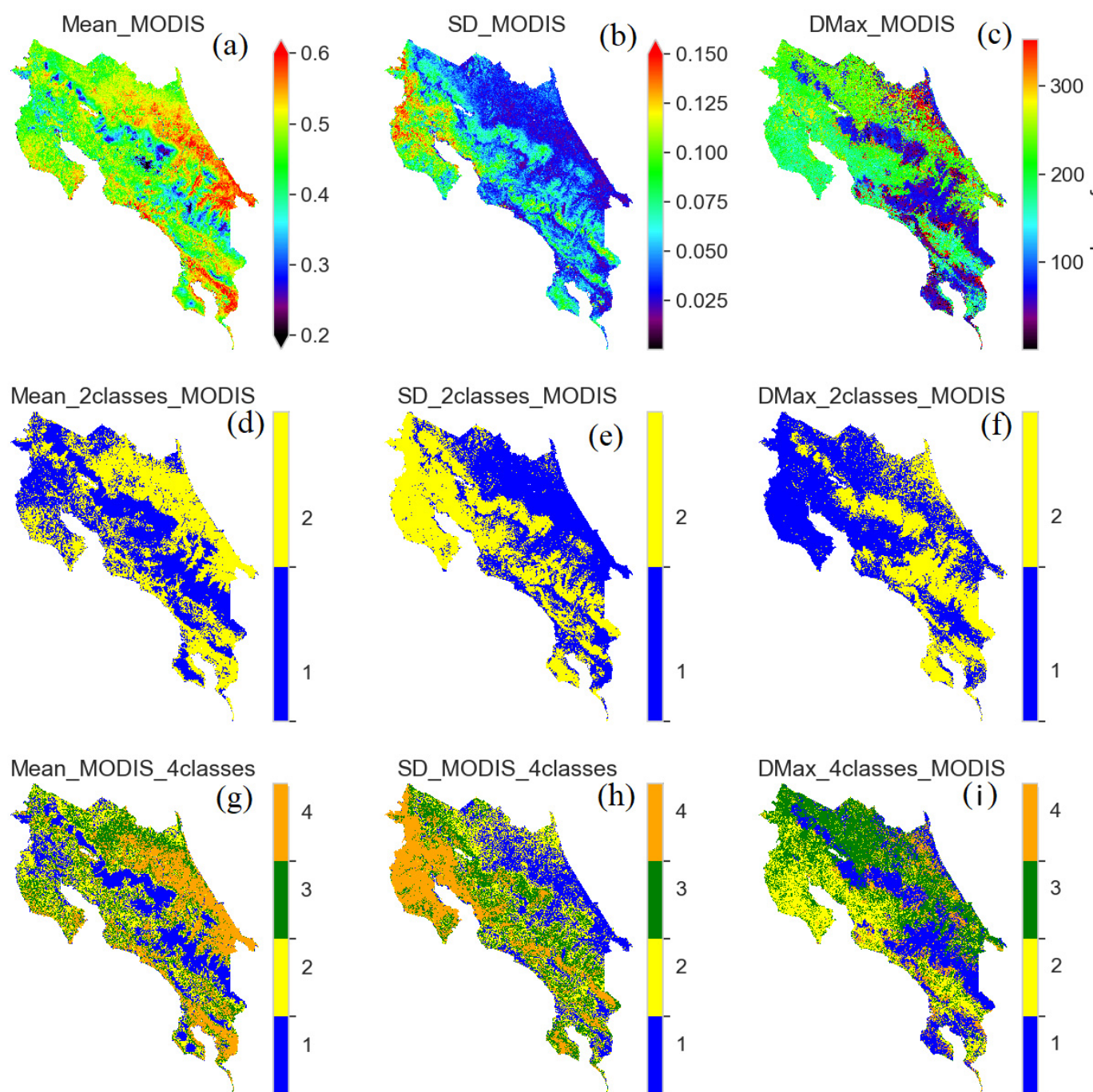


Figure S4: Spatial patterns of ecosystem functional attributes using MODIS (a: mean; b: standard deviation and c: date of maximum EVI) at national scale for Costa Rica; two classes of mean (d), standard deviation (e) and date of maximum EVI (f) when using two bins; four classes of mean (g), standard deviation(h) and date of maximum EVI (i) when using four bins.

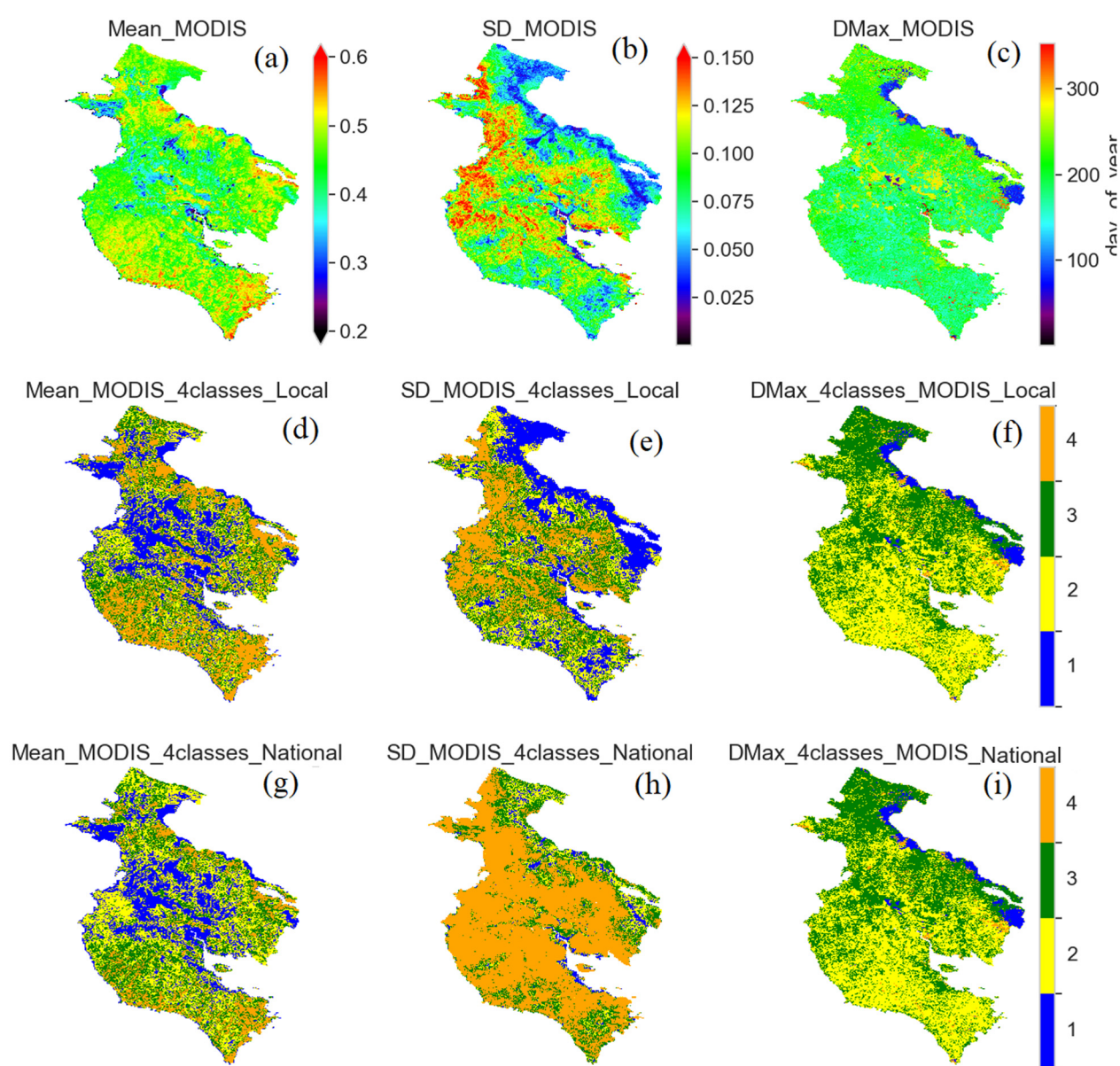


Figure S5: Spatial patterns of ecosystem functional attributes using MODIS (a: mean; b: standard deviation and c: date of maximum EVI) at the Nicoya Peninsula; two classes of mean (d), standard deviation (e) and date of maximum EVI (f) when using four bins derived from local data (Nicoya Peninsula); four classes of mean (g), standard deviation (h) and date of maximum EVI (i) when using four bins derived from national data (Costa Rica).

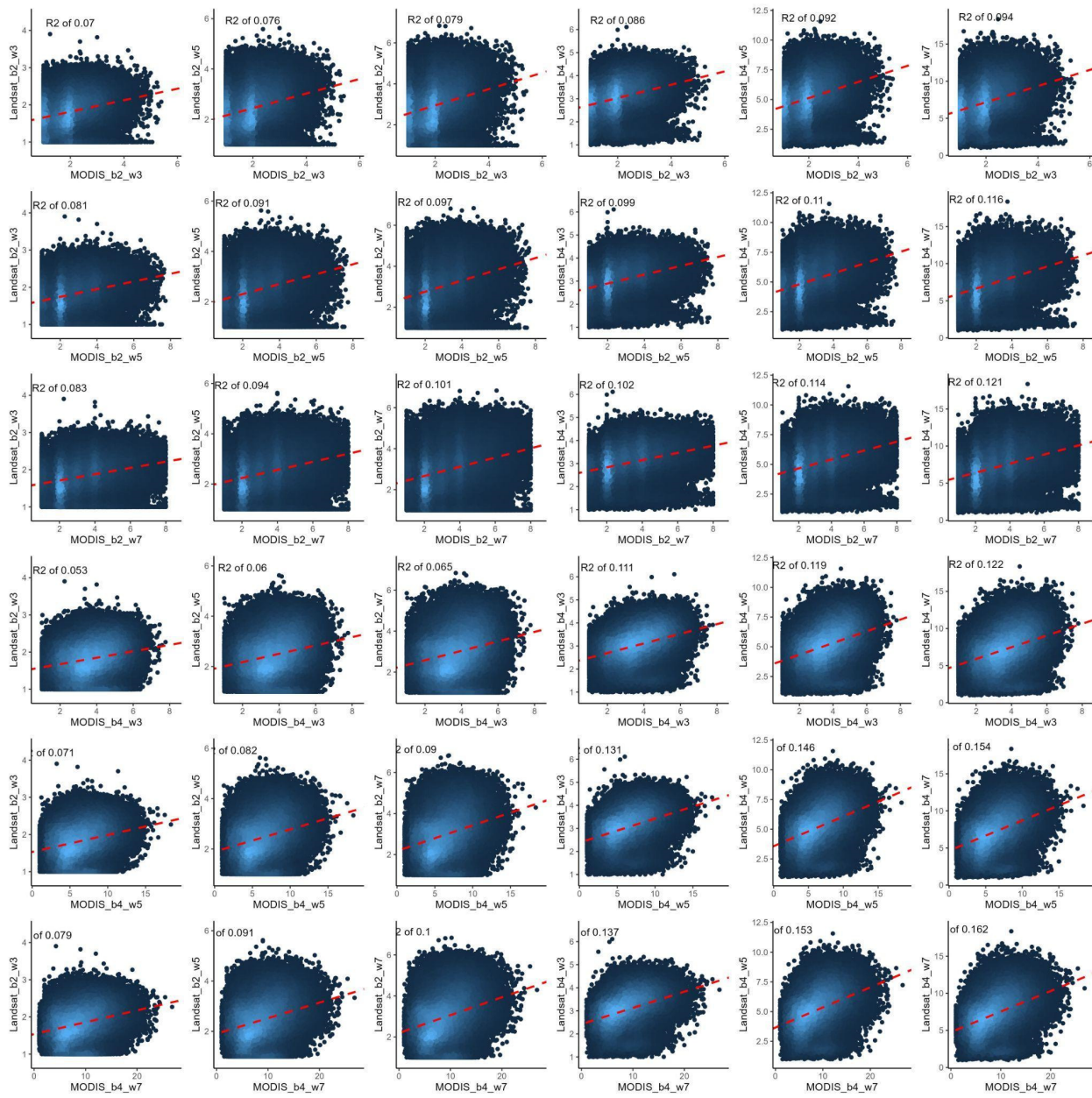


Figure S6: Full set of comparisons of EFD calculated using two different sensors (MODIS vs Landsat) to derive EFT in Costa Rica. Methods to derive EFT were based on dividing the functional variables into 2 (b2) vs. 4 (b4) bins, using different window sizes to count the number of functional types, either 3 by 3 (w3), 5 by 5 (w5), or 7 by 7 (w7) pixels.

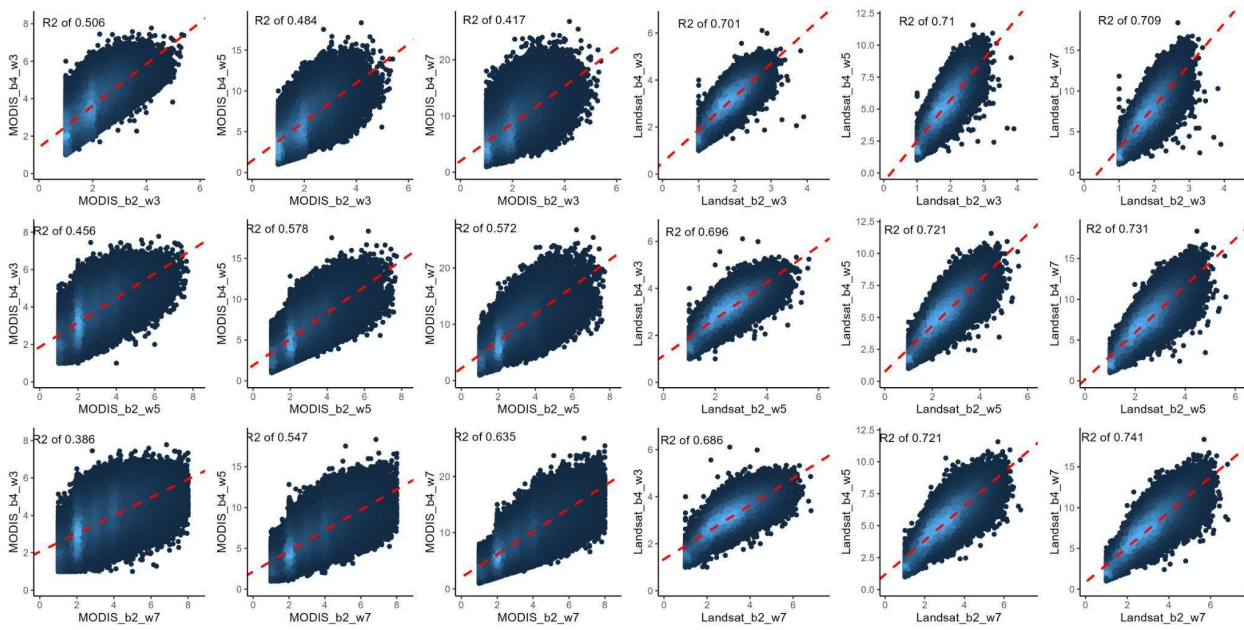


Figure S7: Full set of comparisons of EFD calculated using two different bins or breaks (b2 vs b4) to derive EFT in Costa Rica. Methods to derive EFT were based on two different sensors (MODIS vs Landsat), using different window sizes to count the number of functional types, either 3 by 3 (w3), 5 by 5 (w5), or 7 by 7 (w7) pixels.

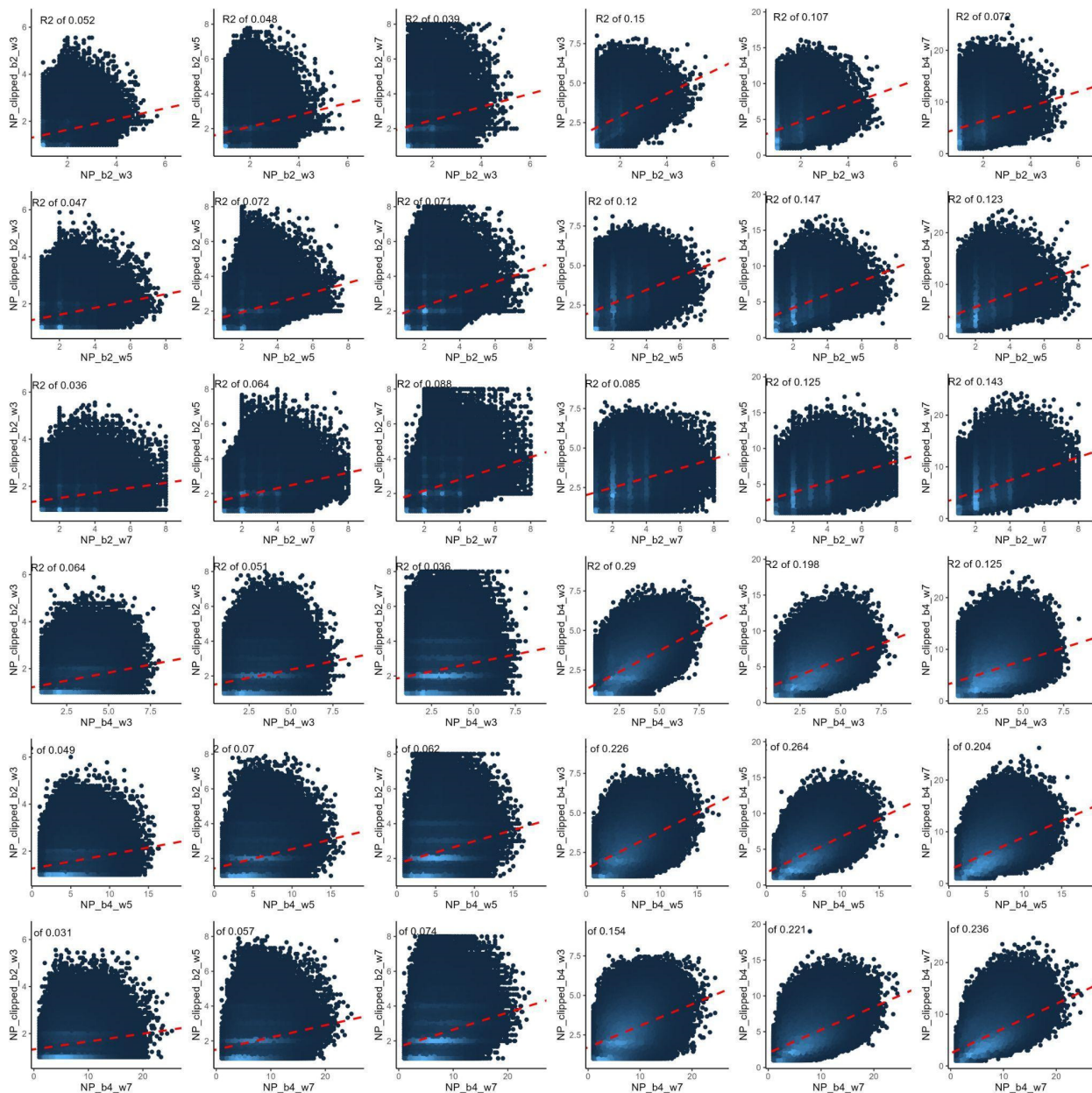


Figure S8: Full set of comparisons of Landsat-based EFD calculated at two different spatial extents (local vs national) to derive EFT at Nicoya Peninsula. Methods to derive EFT were based on dividing the functional variables into 2 (b2) vs. 4 (b4) bins, using different window sizes to count the number of functional types, either 3 by 3 (w3), 5 by 5 (w5), or 7 by 7 (w7) pixels.

Table S1: The Eigenvalues and Percent Variation Explained by all 12 principal components (PC) in Costa Rica. Results show us that the majority of variation is explained in the first three PCs.

PC (Principal Component)	EigenValues	Percent Variation
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		Explained
PC1	268251303.6	98.44%
PC2	3024923.207	1.11%
PC3	365842.5905	0.13%
PC4	343212.1193	0.13%
PC5	137296.0111	0.05%
PC6	92782.98874	0.03%
PC7	72517.94138	0.03%
PC8	58513.63601	0.02%
PC9	52161.88791	0.02%
PC10	46574.06777	0.02%
PC11	37229.8813	0.01%
PC12	25726.06873	0.01%