

Supplementary

Large-Scale Mapping of Tree-Community Composition as a Surrogate of Forest Degradation in Bornean Tropical Rain Forests

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Table S1. Description of the Landsat imagery data set used in this study, including sensor, path / row and acquisition date.

Name	Landsat Sensor	Worldwide Reference System (WRS)	Acquisition Date
Segaliud Lokan-Deramakot-Tangkulap	TM	Path117/Row56	Aug/11/2009*
Sapulut	OLI	Path117/Row57	Jun/03/2013, Jun/19/2013*
Roda Mas	OLI	Path118/Row59	Oct/16/2013, Feb/05/2014, Sep/17/2014, Mar/28/2015, May/31/2015*
Ratah	TM	Path117/Row60 Path118/Row60	Aug/11/2009 Feb/10/2010*

*Used as a base image

Table S2. Variance inflation factor (VIF) of the selected variable in the established multivariate regression models.

	VIF
SegaliudLokan-Deramakot-Tangkulap	
B7 _{TM}	1.428116
GLCM_mean_NDVI	1.725384
GLCM_correlation_B3 _{TM}	1.193337
GLCM_mean_B1 _{TM}	1.603258
GLCM_homogeneity_B4 _{TM}	1.108553
Sapulut	
B6 _{OLI}	1.659212
GLCM_contrast_B3 _{OLI}	1.044686
B5 _{OLI}	1.609069
GLCM_mean_B6 _{OLI}	1.146012
Roda Mas	
B6 _{OLI}	5.371266
SD_NDSI	4.820667
SD_NDWI	36.564958
SD_NDVI	62.127144
B4 _{OLI}	10.092117
Ratah	
B7 _{TM}	6.705413
B3 _{TM}	6.712582
GLCM_dissimilarity_B4 _{TM}	1.018423

Note: SD, standard deviation; GLCM, grey level co-occurrence matrix; NDVI, normalized difference vegetation index; NDSI, normalized difference soil index; NDWI, normalized difference water index.

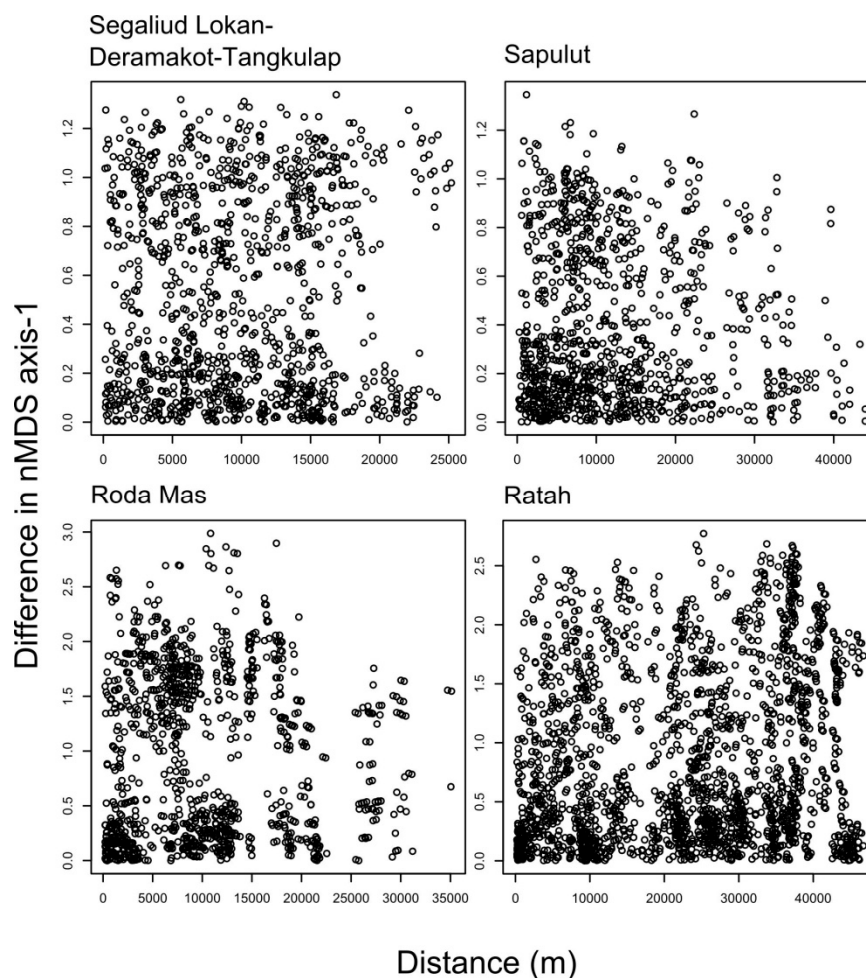


Figure S1. The effects of distance on the difference in the nMDS axis-1 scores of paired vegetation plots. See the main text for the details of the prediction model of nMDS axis-1 for each FMU. Positive relationships were observed for Ratah, potentially indicating the presence of spatial autocorrelations, but adjusted R^2 scores were extremely low in all FMUs: SegaliudLokan-Deramakot-Tangkulap, $R^2 = -0.00$, $P > 0.05$, n.s.; Sapulut, $R^2 = 0.00$, $P > 0.05$, n.s.; Roda Mas, $R^2 = 0.00$, $P > 0.05$, n.s.; Ratah, $R^2 = 0.03$, $P < 0.0001$. n.s. denotes non-significance. Moreover, positive relationships may simply represent the consolidated occurrence of intact forests or disturbed forests.

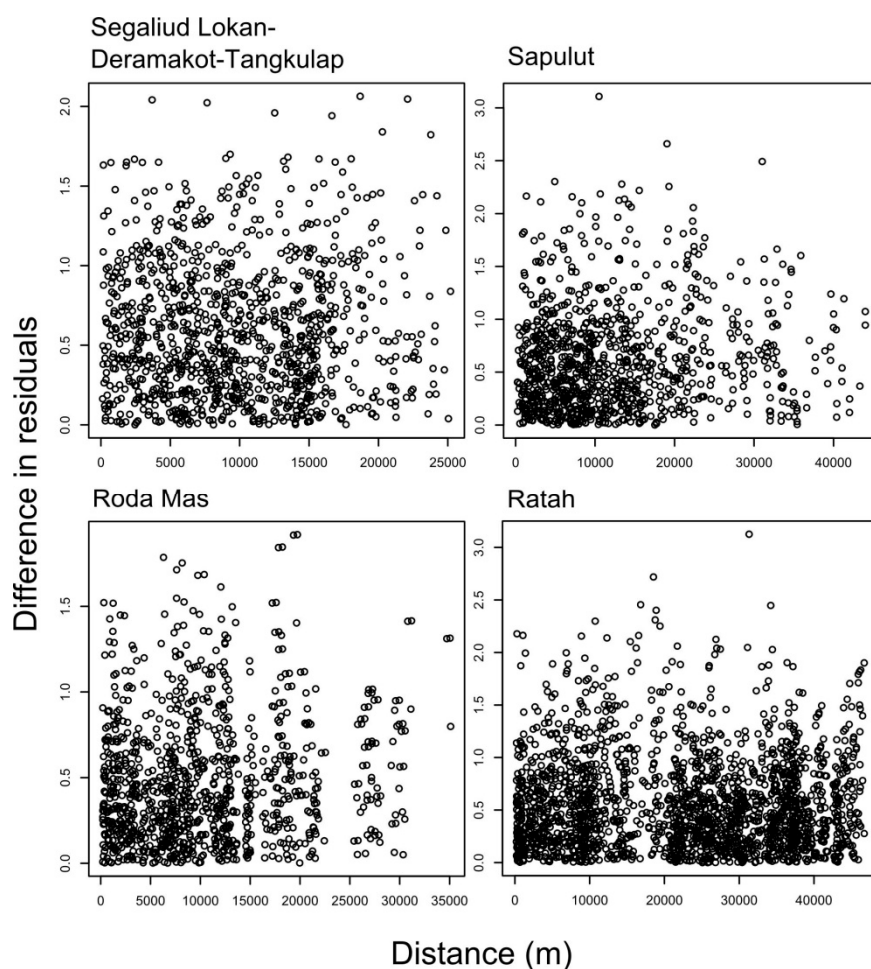


Figure S2. The effects of distance on the difference in the residuals of nMDS axis-1 (i.e. observed nMDS axis-1 – predicted nMDS axis-1) of paired vegetation plots. See the main text for the details of the prediction model of nMDS axis-1 for each FMU. Positive relationships were observed for two FMUs (Sapulut and Roda Mas), potentially indicating the presence of spatial autocorrelations, but adjusted R^2 scores were extremely low in all FMUs: SegaliudLokan-Deramakot-Tangkulap, $R^2 = -0.00$, $P > 0.05$, n.s.; Sapulut, $R^2 = 0.01$, $P < 0.001$; Roda Mas, $R^2 = 0.01$, $P < 0.0001$; Ratah, $R^2 = 0.00$, $P > 0.05$, n.s. denotes non-significance. Moreover, positive relationships may simply represent the consolidated occurrence of intact forests or disturbed forests.

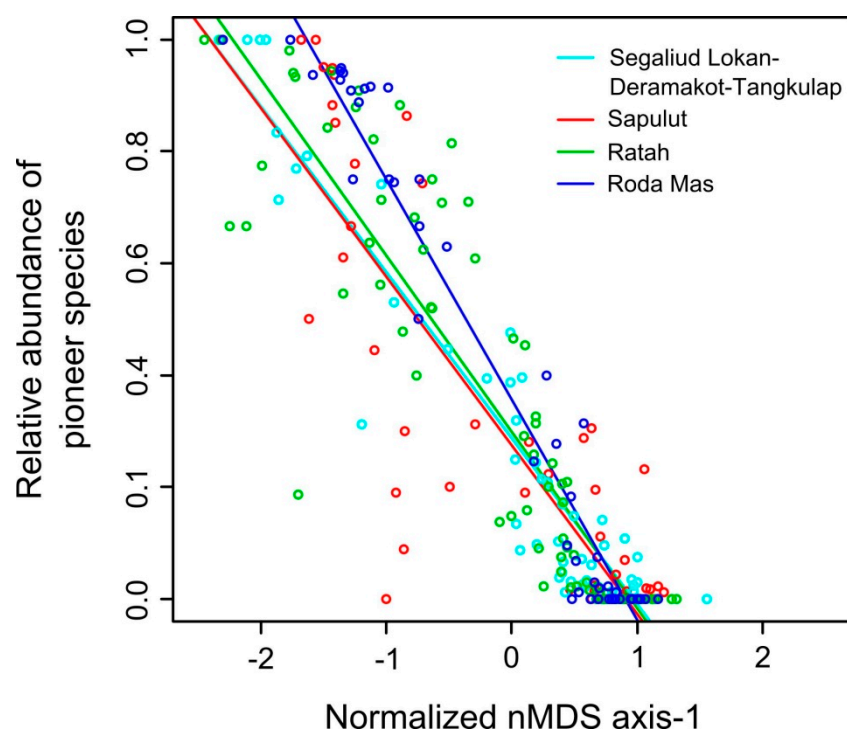


Figure S3. The relationships between the normalized nMDS axis-1 scores and relative abundance of pioneer species (genera) in each FMU. The adjusted R^2 scores were significantly high in all FMUs: SegaliudLokan-Deramakot-Tangkulap, $R^2 = 0.72$, $P < 0.001$; Sapulut, $R^2 = 0.90$, $P < 0.001$; Roda Mas, $R^2 = 0.95$, $P < 0.001$; Ratah, $R^2 = 0.82$, $P < 0.001$. There were no significant differences in the intercept and slope of regression lines among Segaliud Lokan (including Deramakot and Tangkulap), Ratah and Sapulut. The intercept and slope of Roda Mas were exceptionally significantly different from the other FMUs (intercept, $P < 0.05$; slope, $P < 0.001$), but the range of the deviation was still within that of the other FMUs.