Supplemental material

Remote sensing of forest diversities: the effect of image resolution and spectral plot extent

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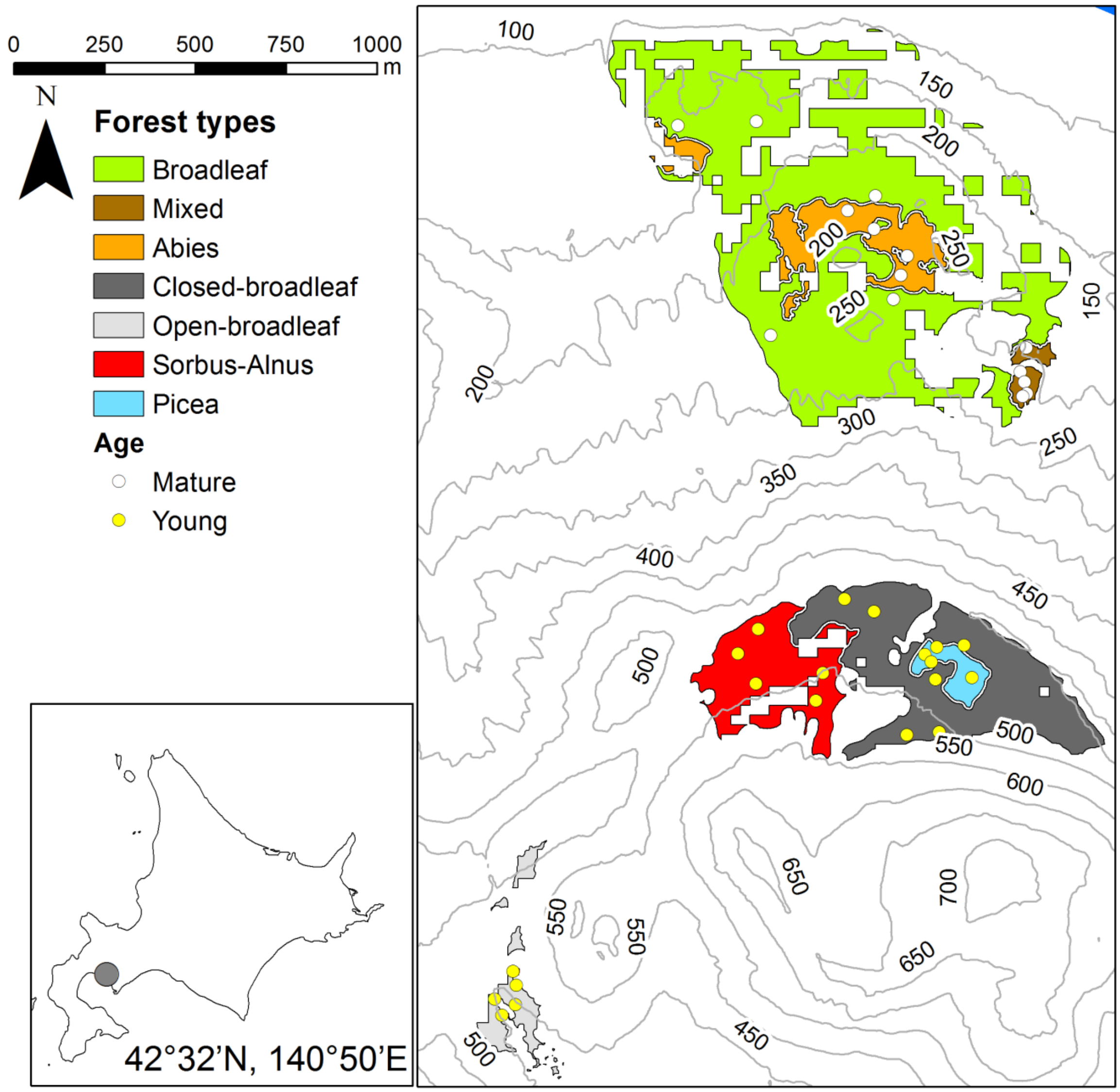

Figure S1. The borders and types of forests used for stratified random sampling when selecting plot locations. The inset map shows the location of the study area in Hokkaido. Random points were generated using ArcGIS software and the first five accessible locations per forest types were selected as plots. There are three needle-leaved plantations: *Picea*, *Abies*; and Mixed forest (mix of *Abies* ssp. and broadleaved species); and one semi-artificial broadleaved forest type: the Betula-Sorbus forest.

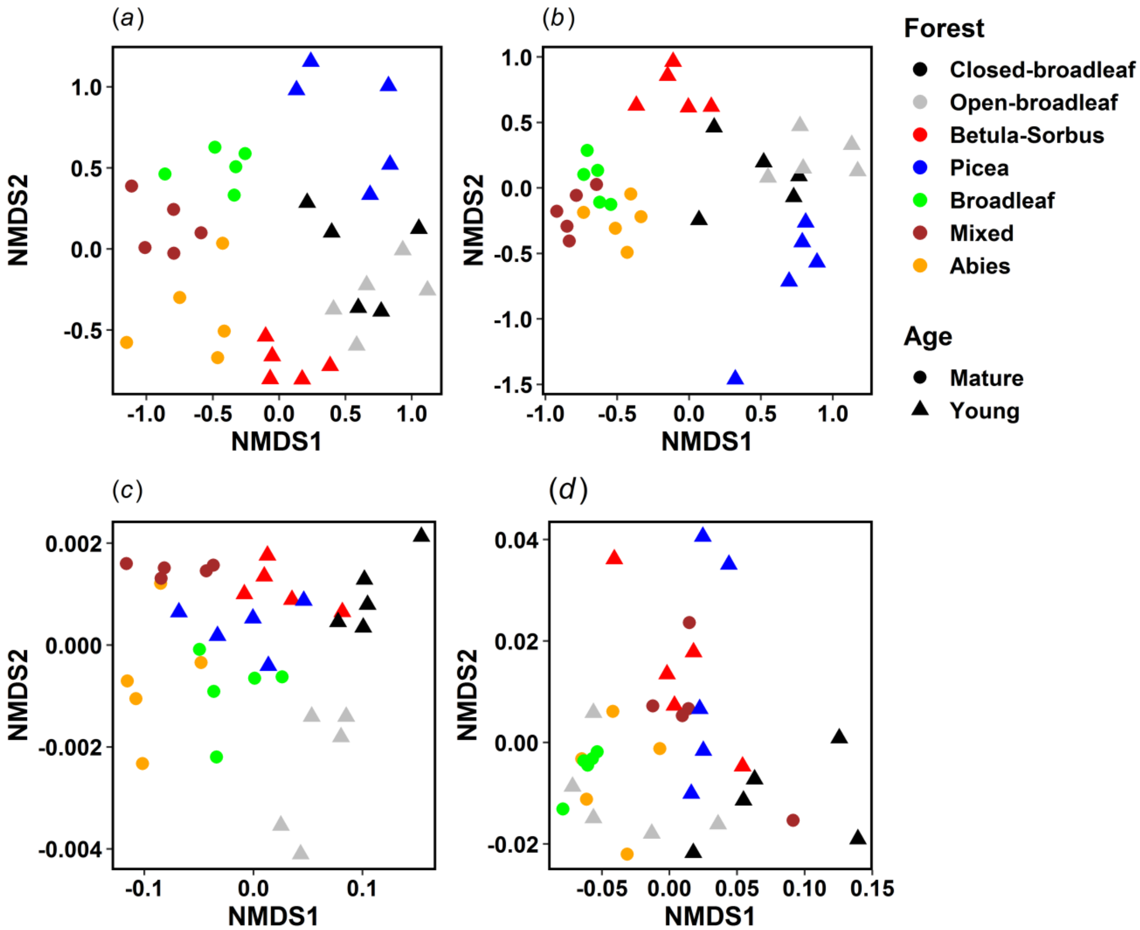

Figure S2. Ordination of plots with non-metric multidimensional scaling. The canopy (*a*) and total (*b*) distances were calculated with Bray-Curtis dissimilarity matrices, while for the spectral indicators (*c*, *d*) Euclidean distances were used. The spectral matrices were calculated from the two indicators with the highest Mantel's *r*: PC1-mean and NIR-mean were used to simulate canopy conditions (*c*) while NDVI-***J'*** and Red-***D*** were used to simulate total conditions (*d*). Different colours indicate different forest types and different symbols indicate the age of the forests.

Table S1. Distinctness of forest types and age based on the dissimilarity matrices. ANOSIM (permutation: 10 000) was used to calculate correlation and significance values. Details about calculating the dissimilarity matrices are described at Figure S2. $P < 0.001$ unless otherwise marked.

r based on field survey	Canopy	Total
Age	0.88	0.56
Forest types	0.53	0.29

r based on spectral diversities	PC1-mean + NIR-mean	NDVI-***J'*** + Red-***D***
Age	0.55	0.36
Forest types	0.52	0.07 ($P = 0.07$)