Supplementary Materials

Table S1. Statistics of forest variables calculated from each of 15 surveyed plots.

Plots	DBH (cm)			QMD (cm)	BA (m² ha⁻¹)	DEN (trees ha⁻¹)	NTS	H′	D
	Minimum	Mean	Maximum						
1	3.5	11.2	74.8	13.8	25.2	1688	14	1.63	0.74
2	3.5	10.4	97.4	14.5	24.3	1477	17	1.61	0.72
3	3.5	8.5	41.4	9.8	15.9	2062	18	1.46	0.63
4	4.0	9.5	51.6	11.0	22.5	2286	24	1.81	0.72
5	4.0	9.6	63.7	11.6	21.2	1897	12	1.51	0.70
6	4.0	13.9	91.0	18.8	30.7	1101	18	1.71	0.68
7	3.6	11.1	76.4	15.3	16.0	869	16	1.51	0.60
8	3.8	10.9	42.7	13.1	10.0	741	12	1.74	0.74
9	3.5	9.4	50.9	12.5	10.9	889	13	1.37	0.60
10	3.8	9.1	30.9	10.7	9.0	991	18	2.04	0.79
11	3.8	9.6	33.7	11.0	5.6	593	10	1.45	0.67
12	3.8	10.6	48.4	13.2	17.8	1298	14	1.18	0.49
13	3.8	10.5	54.4	14.0	5.8	380	11	1.62	0.71
14	3.8	12.4	49.7	15.0	15.1	853	12	1.46	0.66
15	3.8	11.8	49.3	14.3	12.4	779	11	1.32	0.57

Table S2. The best multiple linear models fitted for the 7 forest variables using the 5 PCs and 15 uncorrelated LiDAR metrics as input data.

Variable	Input data - PCA			
MDBH	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	10.3703	0.3265	31.759	1.05E-13***
PC2	0.1323	0.0558	2.371	0.0339*
QMD	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	12.815	0.42004	30.509	1.75E-13***
PC2	0.29324	0.07178	4.086	0.00129**
BA	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	13.8749	1.6515	8.402	2.27E-06***
PC1	0.7026	0.2673	2.629	0.022*
PC2	0.4919	0.2651	1.856	0.0482*
DEN	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	1099	138.32	7.945	4.03E-06***
PC1	56.61	22.39	2.529	0.0265*
PC2	-22.75	22.2	-1.025	0.0326*
NTS	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	13.7278	0.8217	16.707	1.13E-09***
PC1	0.4221	0.1356	3.112	0.00898**
PC3	-0.1778	0.1618	-1.099	0.0293*
H′	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	1.52863	0.056597	27.009	8.34E-13***
PC1	0.01422	0.009341	1.522	0.042*
D	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	0.65872	0.021761	30.27	1.94E-13***
PC1	0.00433	0.003592	1.205	0.025*

Values followed by '*' are significant at the level α = 0.05; values followed by '**' are significant at level α = 0.01 and values followed by '***' are significant at level α = 0.001.

Table S2. The best multiple linear regression models fitted for the 7 forest variables using the 5 PCs and 15 uncorrelated LiDAR metrics as input data.

Variable	Input data – 15 uncorrelated LiDAR metrics			
MDBH	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	50.8028	14.0312	3.621	0.00311**
zpcum9	-0.4116	0.1435	-2.869	0.01317*
QMD	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	60.0498	22.0737	2.72	0.0186*
zpcum9	-0.5153	0.2174	-2.37	0.0354*
BA	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	-45.687	16.0257	-2.851	0.0158*
zmax	1.1912	0.3905	3.051	0.011*
zskew	-6.8411	2.928	-2.336	0.0394*
imax	0.2826	0.1085	2.604	0.0245*
DEN	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	-4274.3	2299.93	-1.858	0.0401*
zskew	-546.53	222.04	-2.461	0.03168
zpcum7	52.64	21.71	2.424	0.0338*
NTS	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	-25.154	12.67328	-1.985	0.03267*
zq75	1.12544	0.28003	4.019	0.00202**
zpcum5	-0.171	0.05446	-3.14	0.00941**
zpcum7	0.4479	0.13257	3.379	0.00616**
H′	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	-8.569	3.6518	-2.346	0.0355*
ipcumzq90	0.1115	0.0402	2.774	0.0158*
D	**Estimate**	**Std. Error**	**t value**	*p-value*
(Intercept)	-3.0444	1.37869	-2.208	0.0458*
ipcumzq90	0.04088	0.01518	2.693	0.0184*

Values followed by '*' are significant at the level $\alpha = 0.05$; values followed by '**' are significant at level $\alpha = 0.01$ and values followed by '***' are significant at level $\alpha = 0.001$.