Support Information: Estimation of Alpine Forest Structural Variables from Imaging Spectrometer Data. *Remote Sens.* 2015, *7*, pp–pp.

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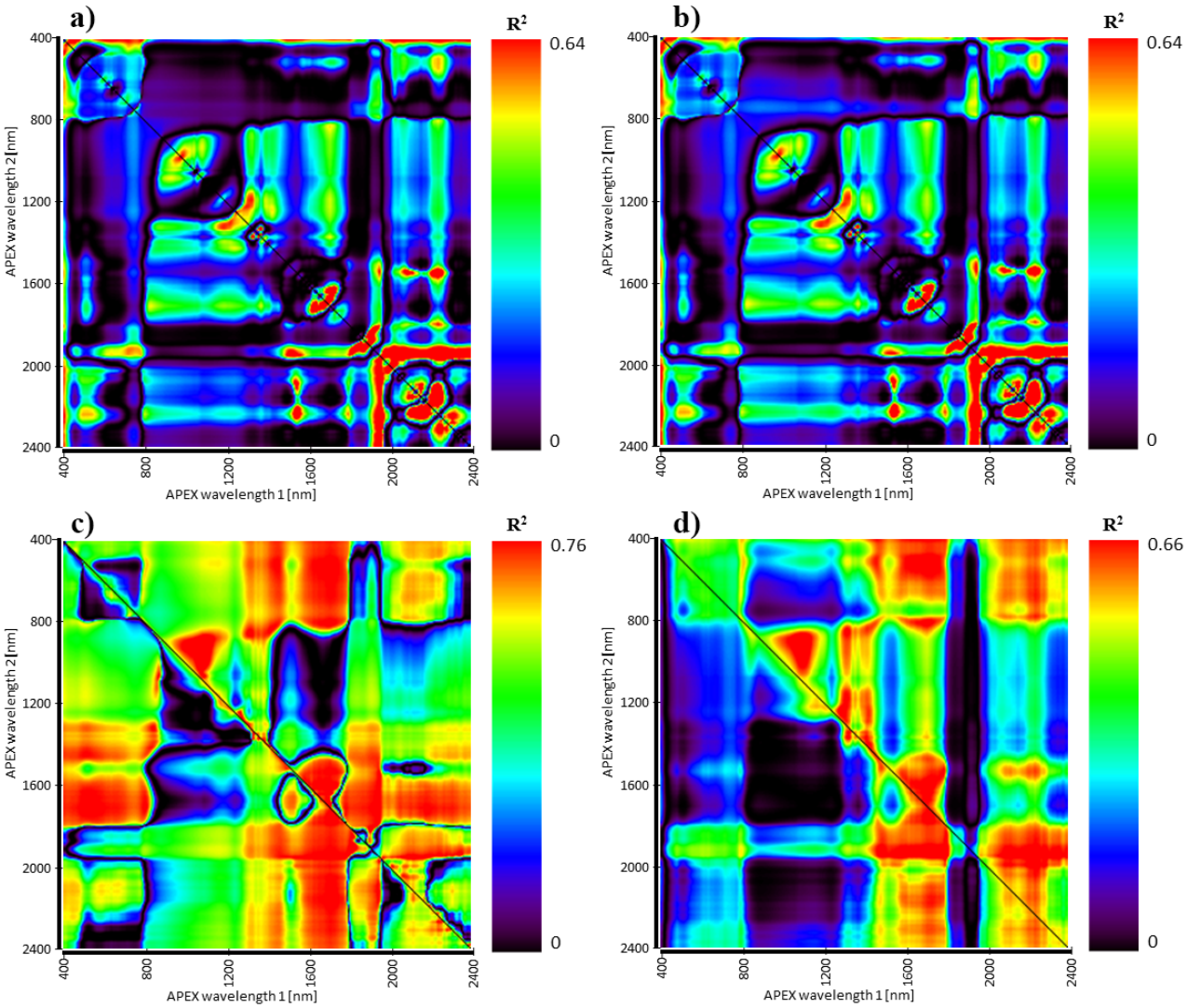

Figure S1. Correlograms showing the coefficients of determination (R^2) between VIs for all two-band combinations and forest canopy cover. (**a**) simple ratio (SR) type; (**b**) NDVI type ; (**c**) PVI type; (**d**) SAVI2 type.

Table S1. Best narrow-band VIs derived from 2D correlograms to estimate canopy cover.

Vegetation index	$\varrho_{1(nm)}$	$\varrho_{2(nm)}$	R^2
SR Type	2326	1993	0.58
	2404	1993	0.61
	2267	1993	0.51
	2253	2204	0.62
	2204	2253	0.61
NDVI Type	2204	2253	0.61
	1993	2273	0.51
	1993	2326	0.54

	1993	2391	0.53
PVI Type	1716	553	0.54
	1707	586	0.53
	883	**763**	**0.76**
	1654	1545	0.52
	1724	1554	0.55
	1698	1654	0.62
	569	1689	0.53
	1698	1776	0.52
	2162	1993	0.56
	1636	1993	0.52
	1716	2155	0.52
	1716	2232	0.52
SAVI2 Type	895	754	0.65
	2162	1993	0.55
	2239	1993	0.55
	2287	1993	0.57
	2385	1993	0.61

Table S2. Bootstrap results for the best simple and the best stepwise multiple regression model to estimate canopy closure.

Feature	Bootstrap R^2		Bootstrap RMSE (%)		Bootstrap rRMSE (%)	
	Mean	SD	Mean	SD	Mean	SD
Simple Regression	0.60	0.14	9.26	1.35	14.90	2.38
Multiple Regression	0.82	0.07	6.22	0.78	10.01	1.34

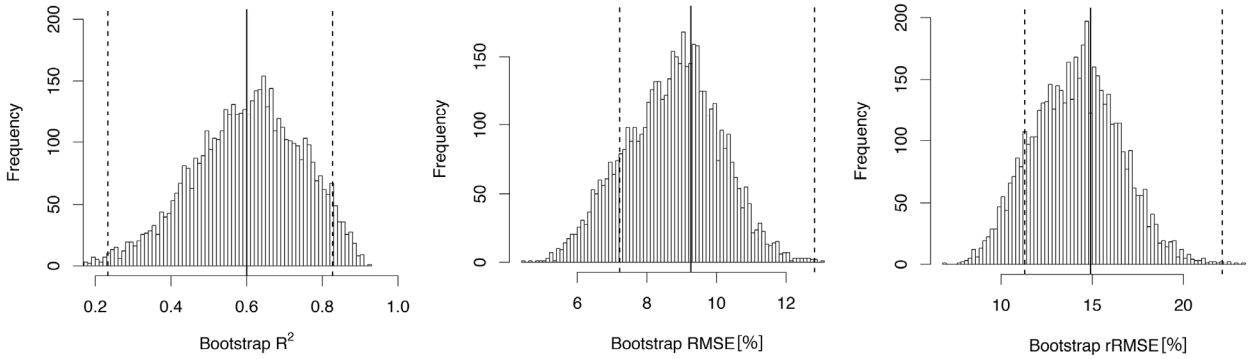

Figure S2. Histogram of R^2, RMSE, and rRMSE as obtained from the bootstrapping for the best simple regression model to estimate canopy closure. The solid line represents the mean value, both dashed lines indicate he upper and lower bounds for the 95 percent confidence.

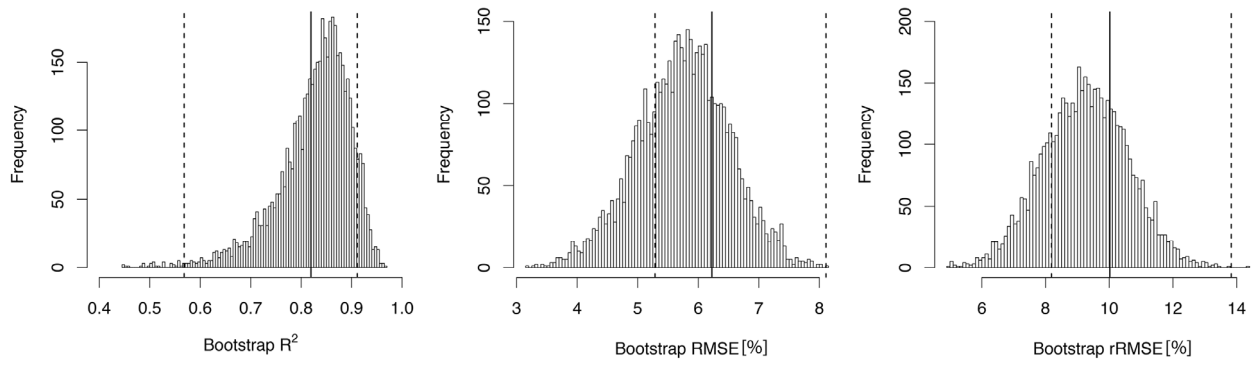

Figure S3. Histogram of R^2, RMSE, and rRMSE as obtained from the bootstrapping for the best multiple regression model to estimate canopy closure. The solid line represents the mean value, both dashed lines indicate he upper and lower bounds for the 95 percent confidence.

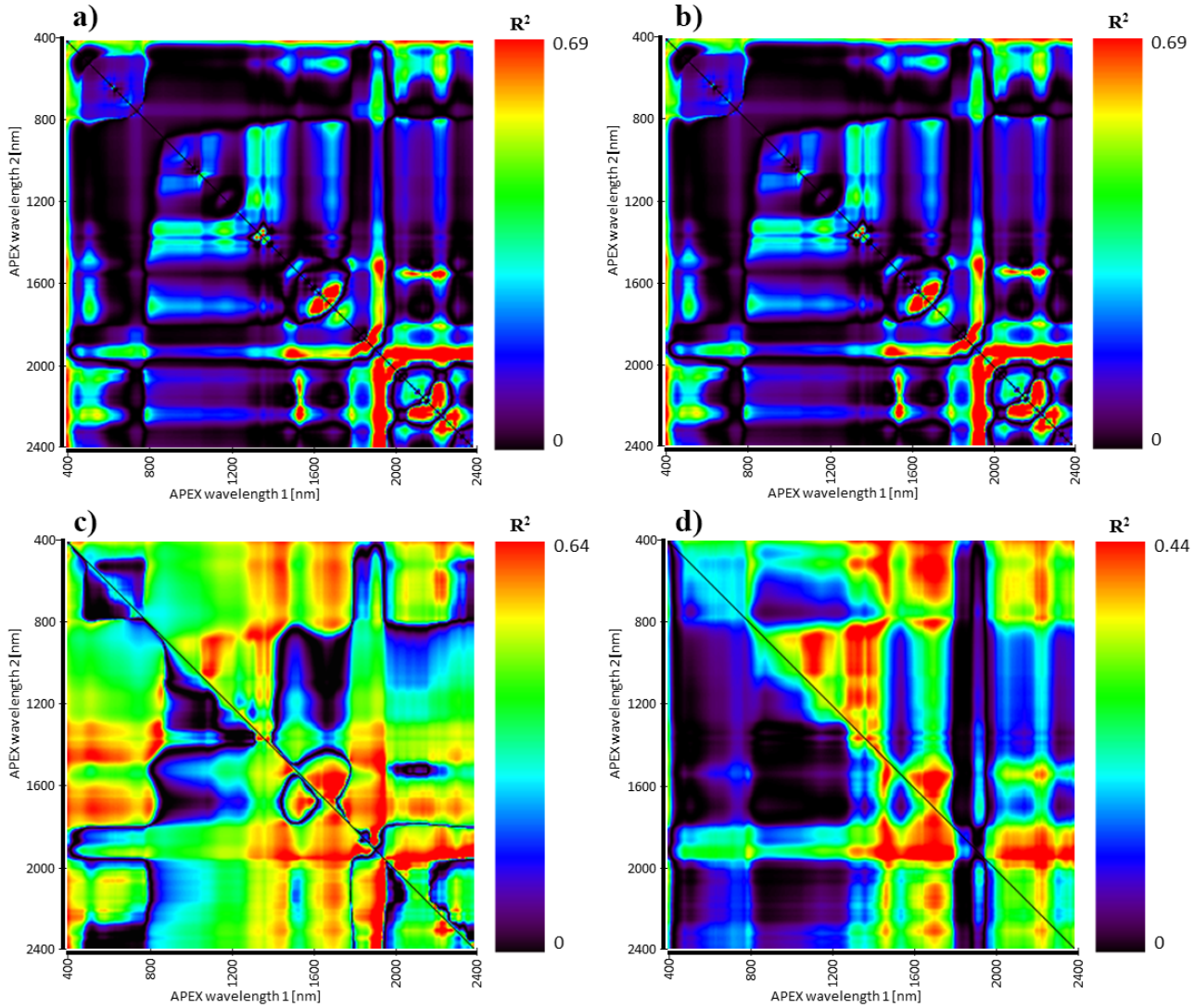

Figure S4. Correlograms showing the coefficients of determination (R2) between VIs for all two-band combinations and basal area. (a) simple ratio (SR) type; (b) NDVI type; (c) PVI type; (d) SAVI2 type.

Table S3. Best narrow-band VIs derived from 2D-correlograms to estimate basal area.

Vegetation Index	$\varrho_{1(nm)}$	$\varrho_{2(nm)}$	R^2
SR Type	1618	1724	0.58
	2112	1993	0.51
	2293	1993	0.53
	2385	**1993**	**0.63**
	1993	2300	0.50
	1993	2385	0.61
NDVI Type	1618	1724	0.58
	1993	2293	0.52
	1993	2391	0.62
PVI Type	1993	2112	0.55
	1993	2211	0.50
SAVI2 Type	1716	1993	0.42

Table S4. Bootstrap results for the best simple and the best stepwise multiple regression model to estimate basal area.

Feature	Bootstrap R^2		Bootstrap RMSE (m^2/ha)		Bootstrap rRMSE (%)	
	Mean	SD	Mean	SD	Mean	SD
Simple regression	0.60	0.11	9.51	1.34	22.88	3.28
Multiple regression	0.68	0.07	8.50	1.01	20.45	2.47

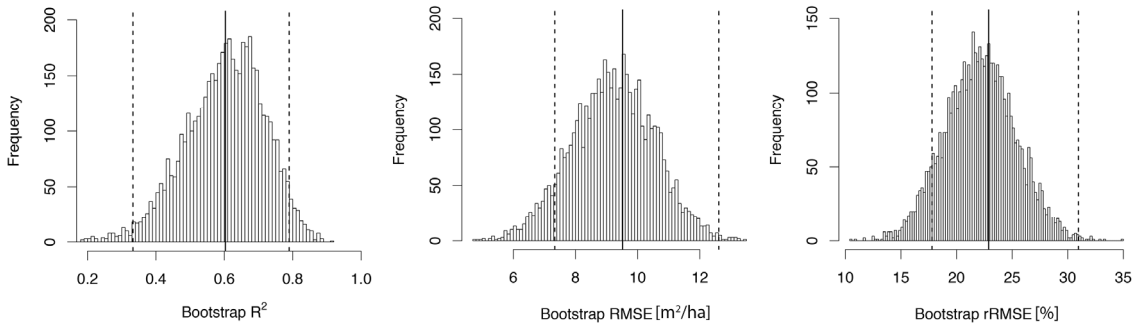

Figure S5. Histogram of R2, RMSE, and rRMSE as obtained from the bootstrapping for the best simple regression model to estimate basal area. The solid line represents the mean value, both dashed lines indicate he upper and lower bounds for the 95 percent confidence.

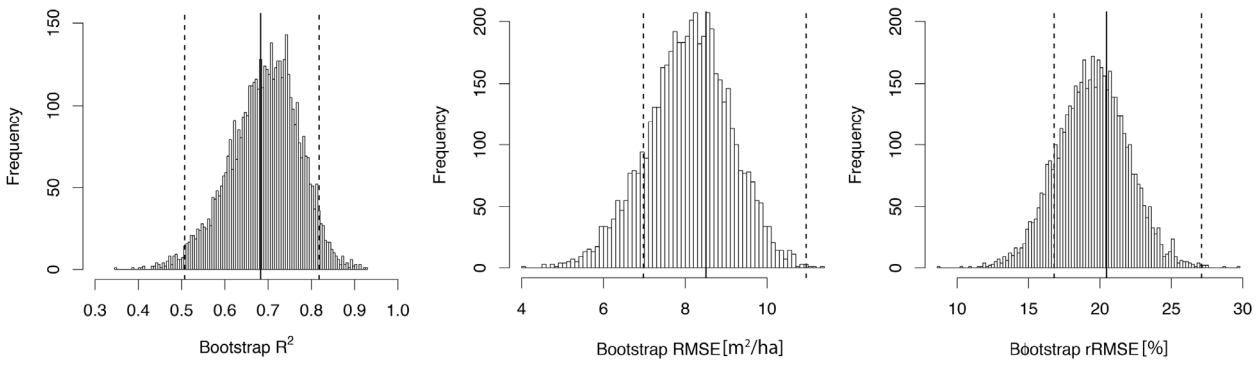

Figure S6. Histogram of R2, RMSE, and rRMSE as obtained from the bootstrapping for the best multiple regression model to estimate basal area. The solid line shows the mean value and the dashed lines show he upper and lower bounds for the 95 percent confidence.

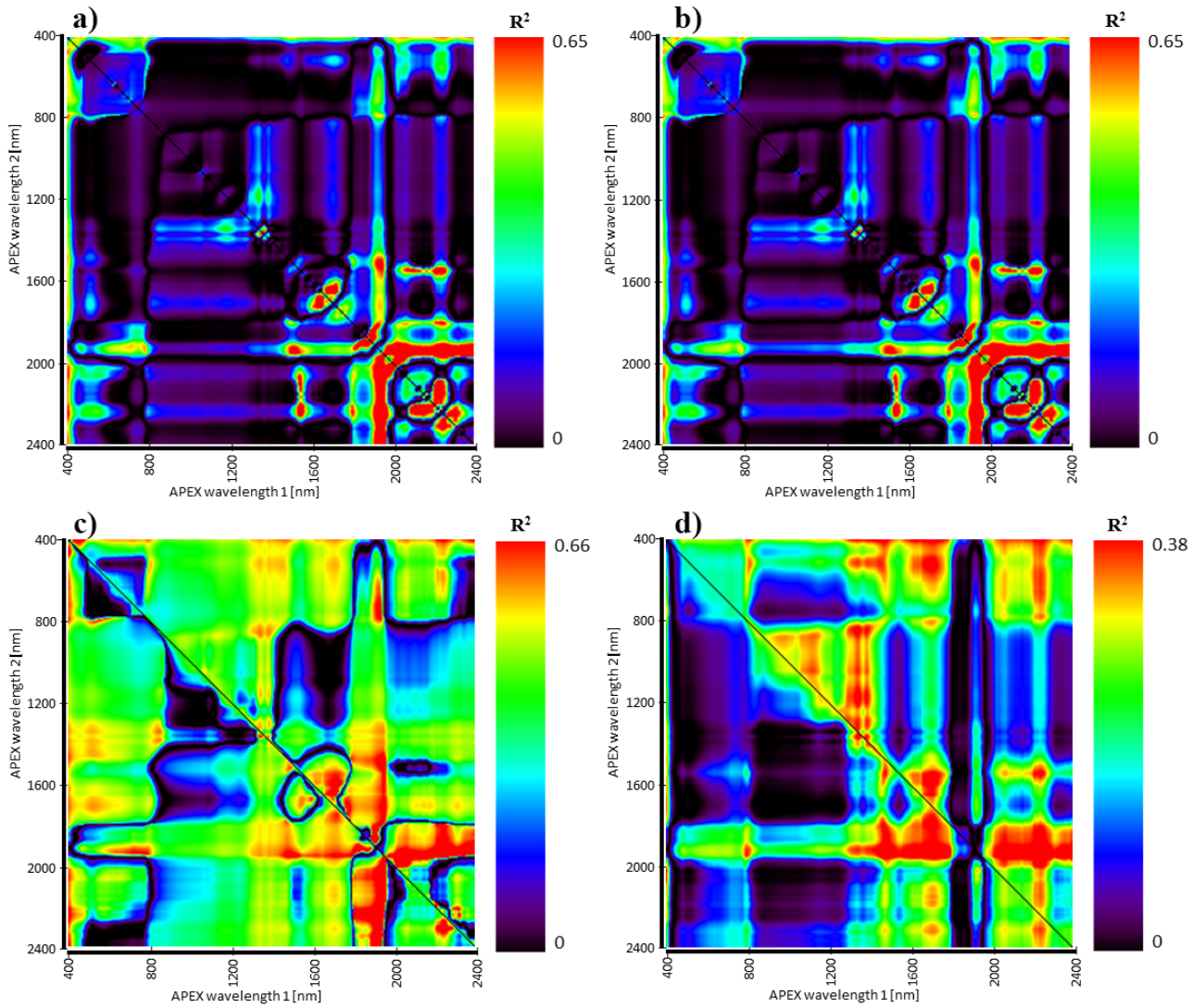

Figure S7. Correlograms showing the coefficients of determination (R^2) between VIs for all two-band combinations and timber volume. (**a**) simple ratio (SR) type; (**b**) NDVI type; (**c**) PVI type; (**d**) SAVI2 type.

Table S5. Best narrow-band VIs derived from 2D-correlograms to estimate volume.

Vegetation Index	$\varrho_{1(nm)}$	$\varrho_{2(nm)}$	R^2
SR Type	2293	1993	0.54
	2385	1993	0.61
	1993	2105	0.53
	1993	2300	0.55
	1993	2385	0.61
NDVI Type	1993	2098	0.53
	1993	2293	0.55
	1993	2385	0.61
PVI Type	2105	2001	0.56
	1993	**2091**	**0.64**
	1993	2155	0.54
SAVI2 Type	2287	1993	0.38

Table S6. Bootstrap results for the best simple and the best stepwise multiple regression model to estimate timber volume.

Feature	Bootstrap R^2		Bootstrap RMSE (m^3/ha)		Bootstrap rRMSE (%)	
	Mean	SD	Mean	SD	Mean	SD
Simple Regression	0.68	0.10	101.04	11.91	24.29	3.42
Multiple Regression	0.72	0.07	93.11	8.77	22.38	2.53

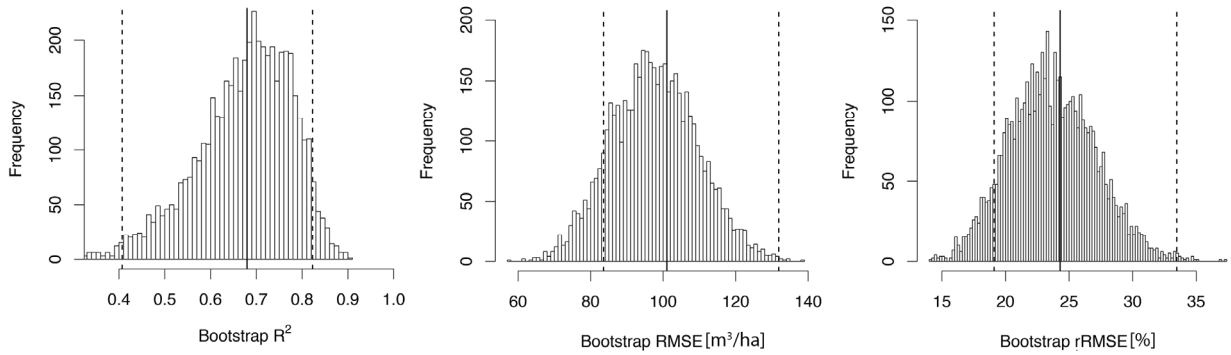

Figure S8. Histogram of R^2, RMSE, and rRMSE as obtained from the bootstrapping for the best simple regression model to estimate timber volume. The solid line represents the mean value, both dashed lines indicate he upper and lower bounds for the 95 percent confidence.

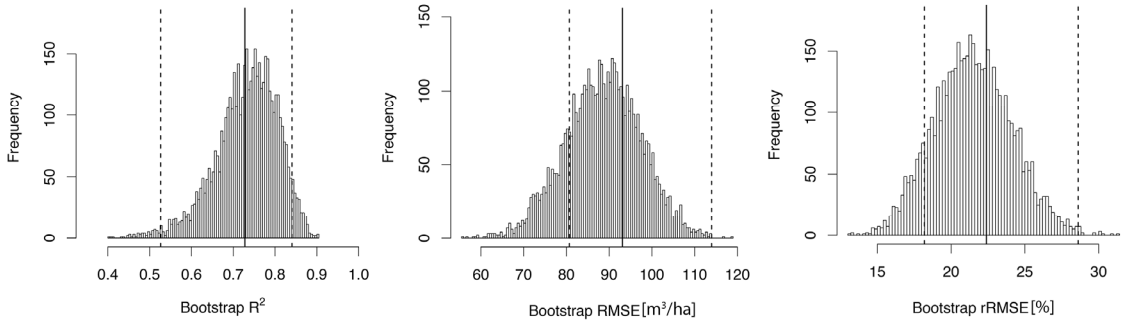

Figure S9. Histogram of R2, RMSE, and rRMSE as obtained from the bootstrapping for the best multiple regression model to estimate timber volume. The solid line represents the mean value, both dashed lines indicate he upper and lower bounds for the 95 percent confidence.

Table S7. Correlation between measured basal area, forest volume and canopy closure (N = number of field plots, ** = correlation is significant at the *0.01* level, Sig. = indicates the p-value to check for significance).

		Canopy Closure	**Basal Area**	**Volume**
Canopy Closure	Pearson Correlation	1	0.741**	0.627**
	Sig.		0.000	0.000
	N	35	35	35
Basal Area	Pearson Correlation	0.**741****	1	0.946**
	Sig.	0.000		0.000
	N	35	35	35
Volume	Pearson Correlation	0.**627****	0.**946****	1
	Sig.	0.000	0.000	
	N	35	35	35