

**Small field plots can cause substantial uncertainty in gridded aboveground biomass products from airborne lidar data**

**SUPPLEMENTAL TABLES**

Table S1. Equation 1 estimated parameters used for AGB prediction for 0.04 ha pixels from NEON plot data.

<b>General model</b>			
<b>Ecoregion</b>	<b>Site</b>	<b>a1</b>	<b>b1</b>
All	--	19.14828	0.80071
<b>Ecoregion models</b>			
<b>Ecoregion</b>	<b>Site</b>	<b>a1</b>	<b>b1</b>
Boreal forests	--	8.51490	1.20983
Conifer forests	--	43.13899	0.51836
Temperate grasslands & savannas	--	24.96152	0.74700
Temperate broadleaf & mixed forests	--	3.30149	1.36455
<b>Site models</b>			
<b>Ecoregion</b>	<b>Site</b>	<b>a1</b>	<b>b1</b>
Boreal forests	BONA	3.01866	1.63454
Boreal forests	DEJU	10.58084	1.24051
Conifer forests	NIWO	42.29598	0.85475
Conifer forests	OSBS	5.42200	1.18996
Conifer forests	RMNP	32.69153	0.87023
Temperate grasslands & savannas	CLBJ	6.84821	1.57687
Temperate grasslands & savannas	UKFS	12.96601	0.95026
Temperate broadleaf & mixed forests	LENO	3.92020	1.30690
Temperate broadleaf & mixed forests	ORNL	2.68918	1.37418
Temperate broadleaf & mixed forests	TALL	6.14984	1.15520
Temperate broadleaf & mixed forests	TREE	6.64974	1.10761

Table S2. Equation 1 estimated parameters used for AGB prediction for pixels of varying size from ForestGEO plot data at SERC and SCBI (combined).

<b>Plot/pixel size</b>	<b>a1</b>	<b>b1</b>
0.04 ha	5.10097	1.21271
0.25 ha	12.59873	0.94709
1 ha	13.14767	0.93391

## SUPPLEMENTAL FIGURES

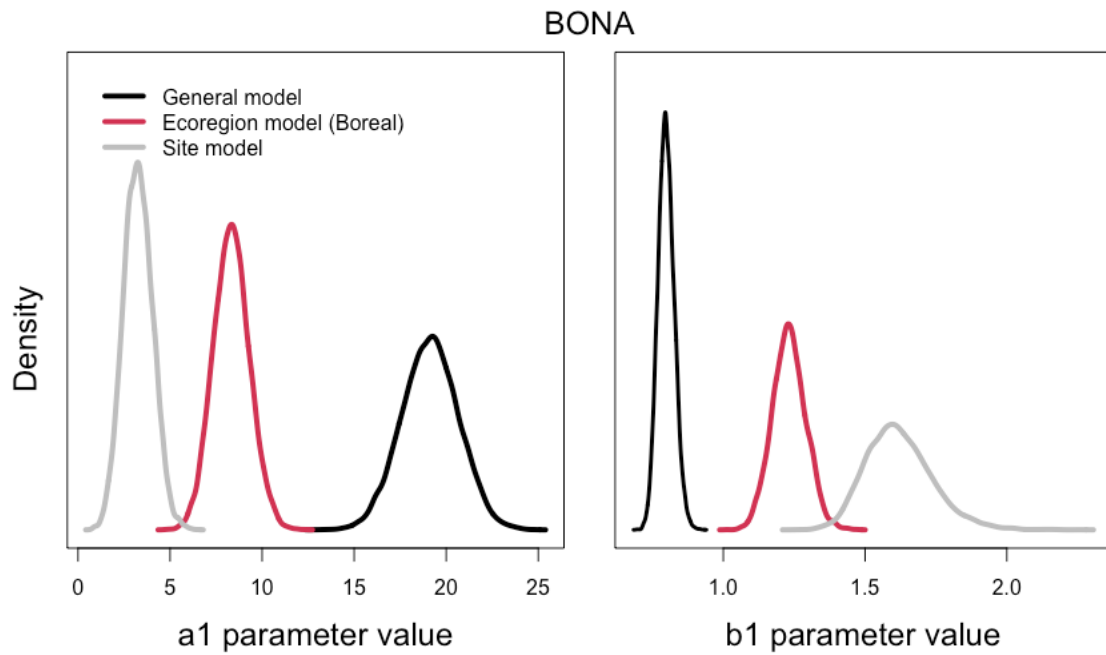


Figure S1. Parameter estimates for MCH-AGB models (Equation 1) for the BONA site. Parameter estimates are shown for the general model (fit with all data), ecoregion-specific model, and site-specific model. The density plots show the distribution of estimates among all “wild” bootstrapping iterations.

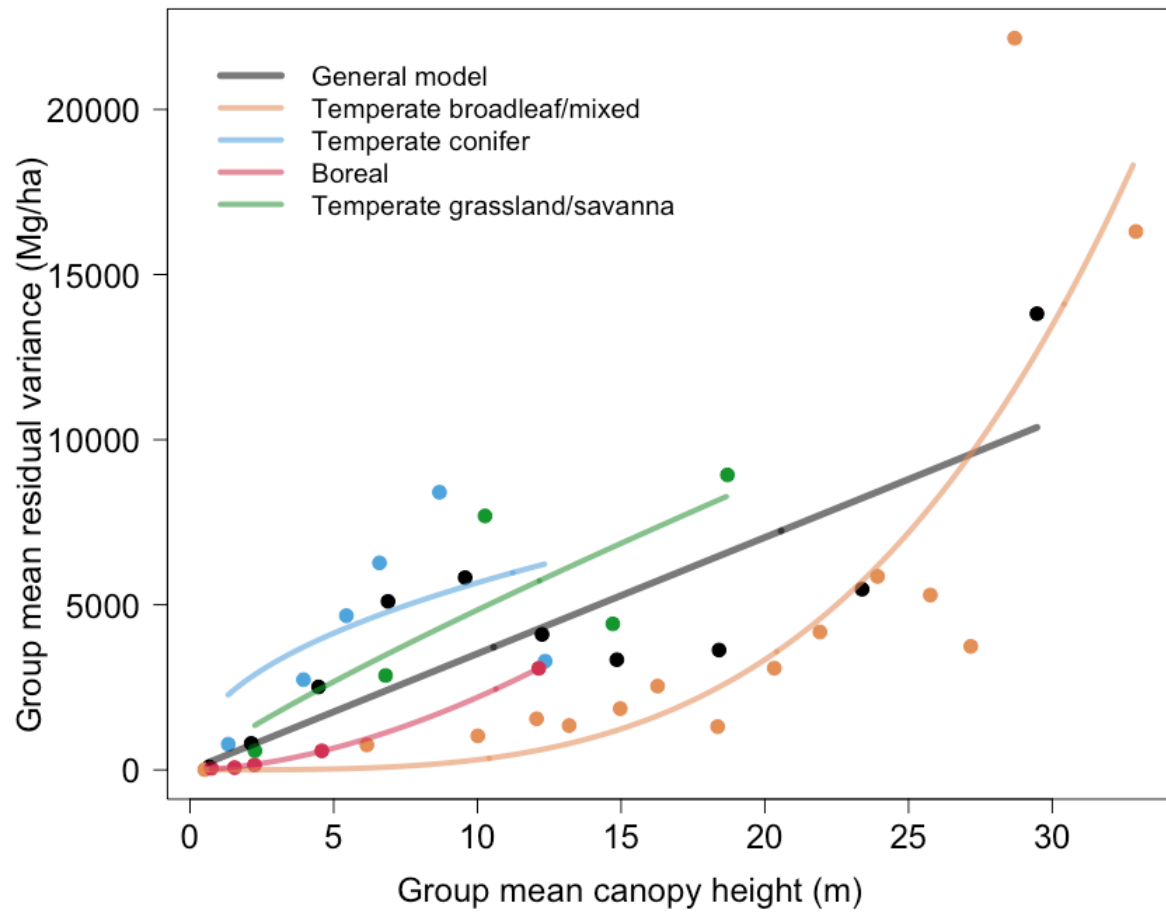


Figure S2. Fitted models describing residual variance as a function of canopy height (Equation 2) for the general model (black) and for each ecoregion-specific model (colors).

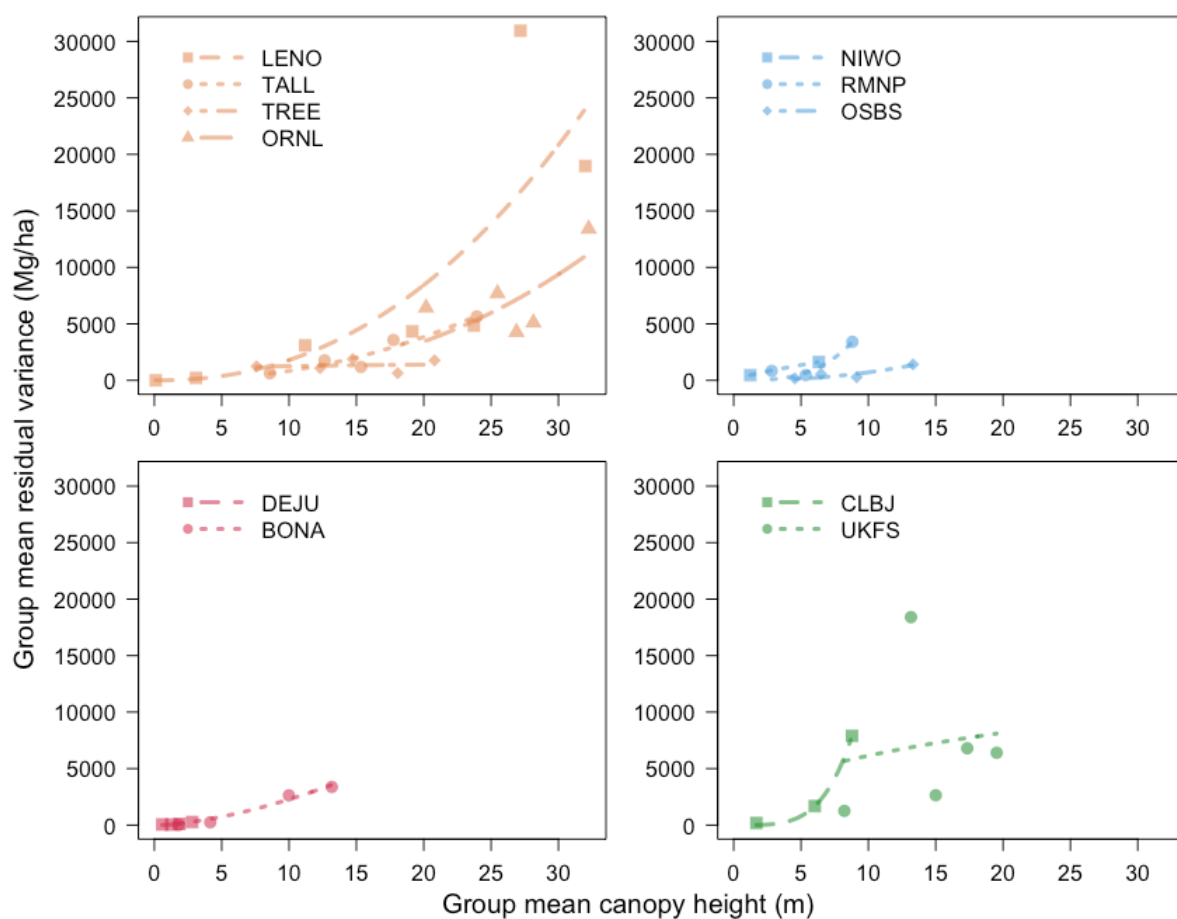


Figure S3. Fitted models describing residual variance as a function of canopy height (Equation 2) for each site-specific model within ecoregions. One panel is shown per ecoregion.

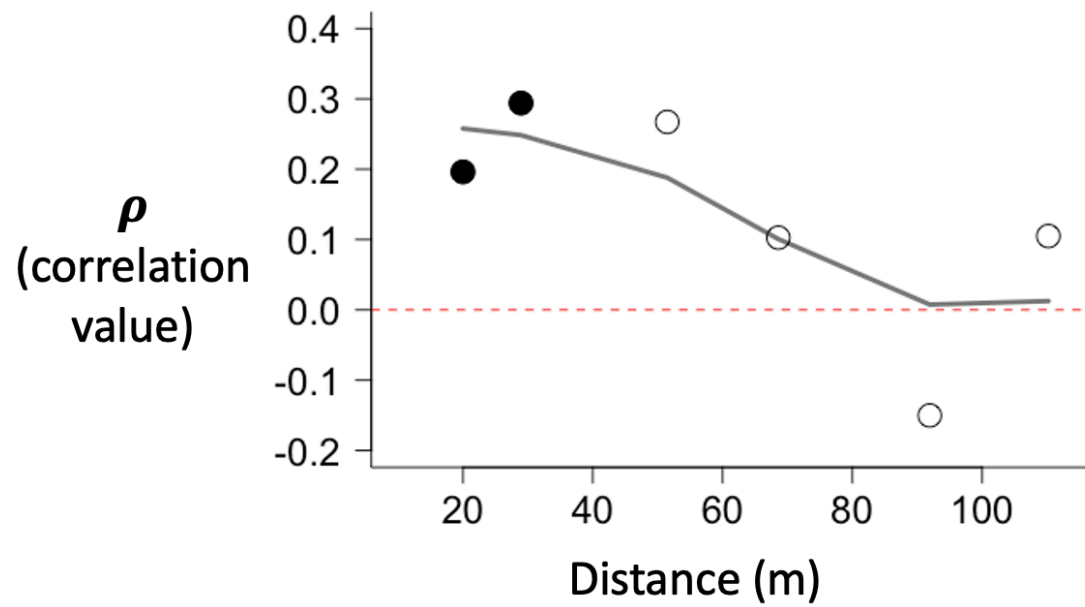


Figure S4. Estimated empirical spatial correlogram describing how the correlation between model residual values changes with distance. Solid points indicate correlation values that were statistically significant ( $P < 0.05$ ).

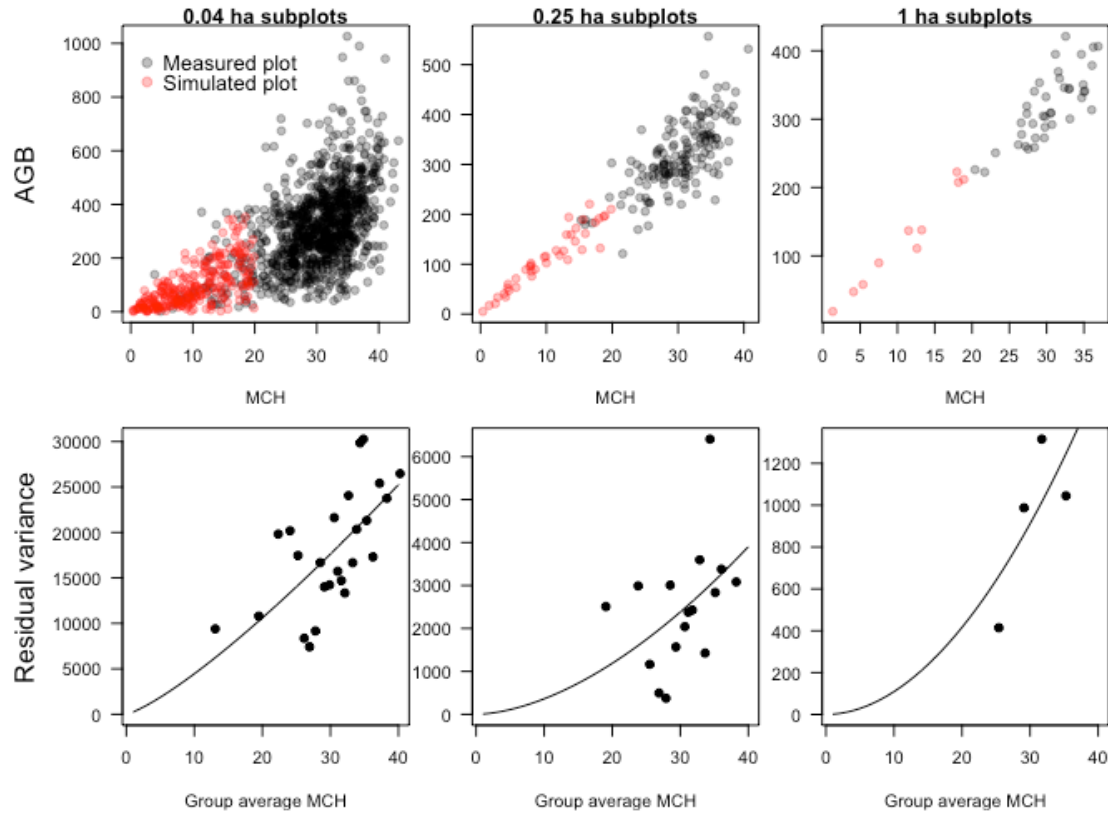


Figure S5. Megaplot data from the SCBI and SERC sites used to compare 1-ha pixel-level uncertainty in AGB estimated from 0.04 ha subplots (left), 0.25 ha subplots (middle), and 1 ha subplots (right). Because megaplots only covered forests with greater AGB values, 10 ha total of simulated data were added (red points, top row) using the relationship between residual variance and MCH fit with observed values (bottom row).

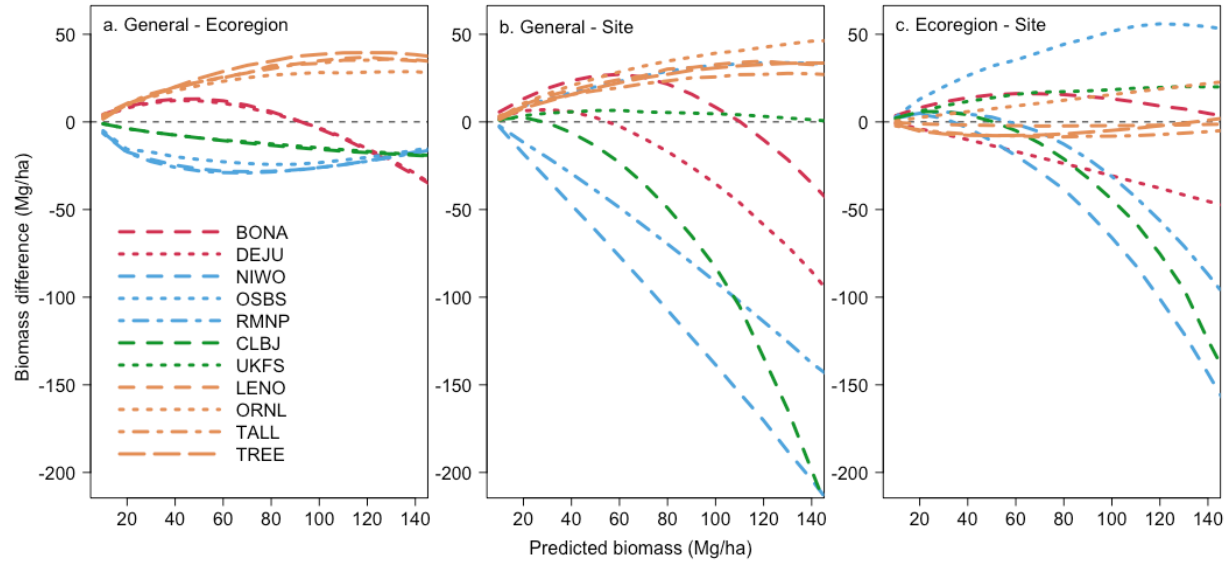


Figure S6. Differences in predicted AGB using the general, ecoregion-specific, or site-specific models for each site (Equation 1). Predicted AGB values are the average predicted values for 1-ha pixels across all bootstrap iterations. For each panel, the x-axis values reflect predicted biomass of the broader model type (*i.e.* the general model for a-b, and the ecoregion model for c).