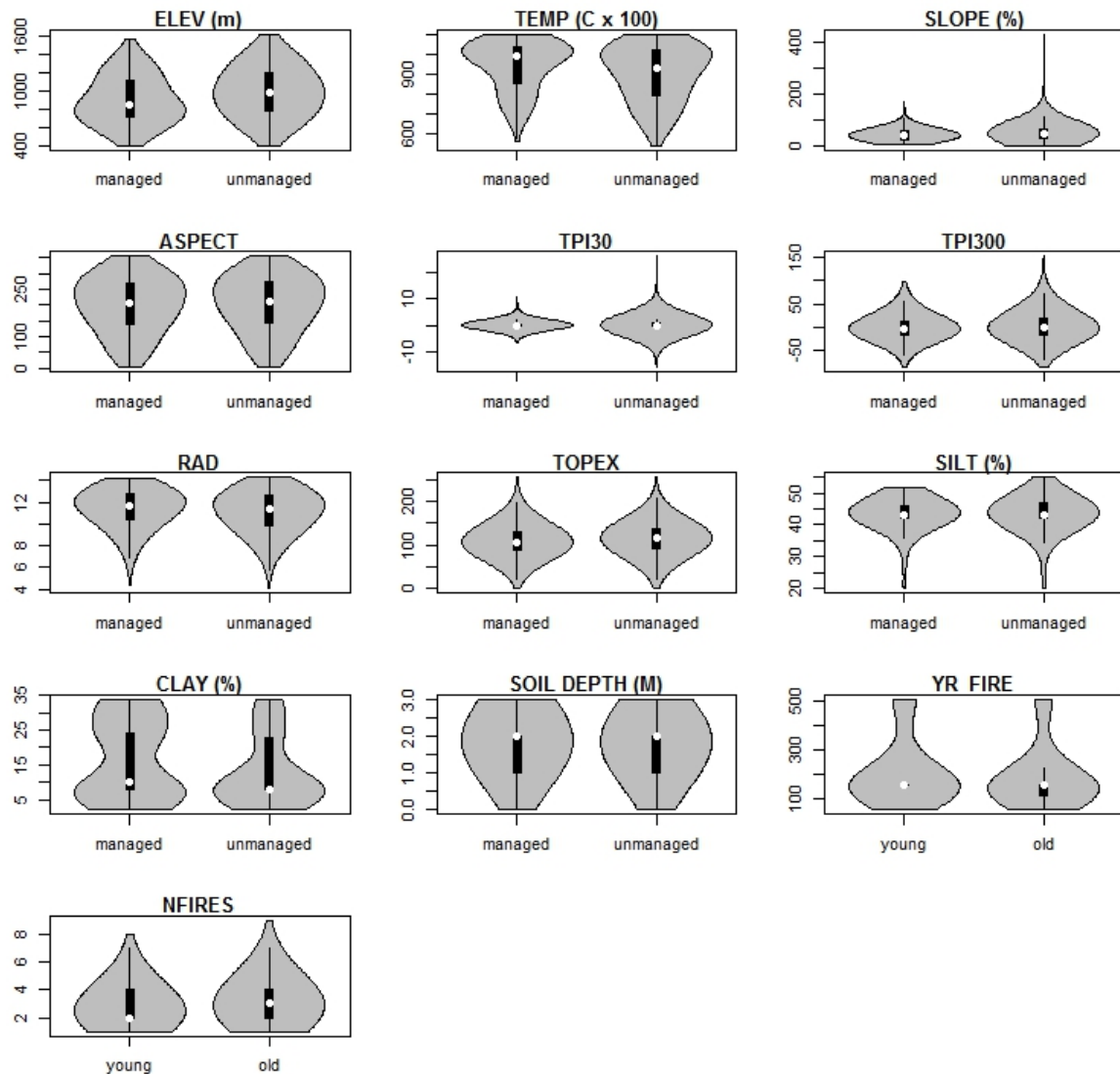
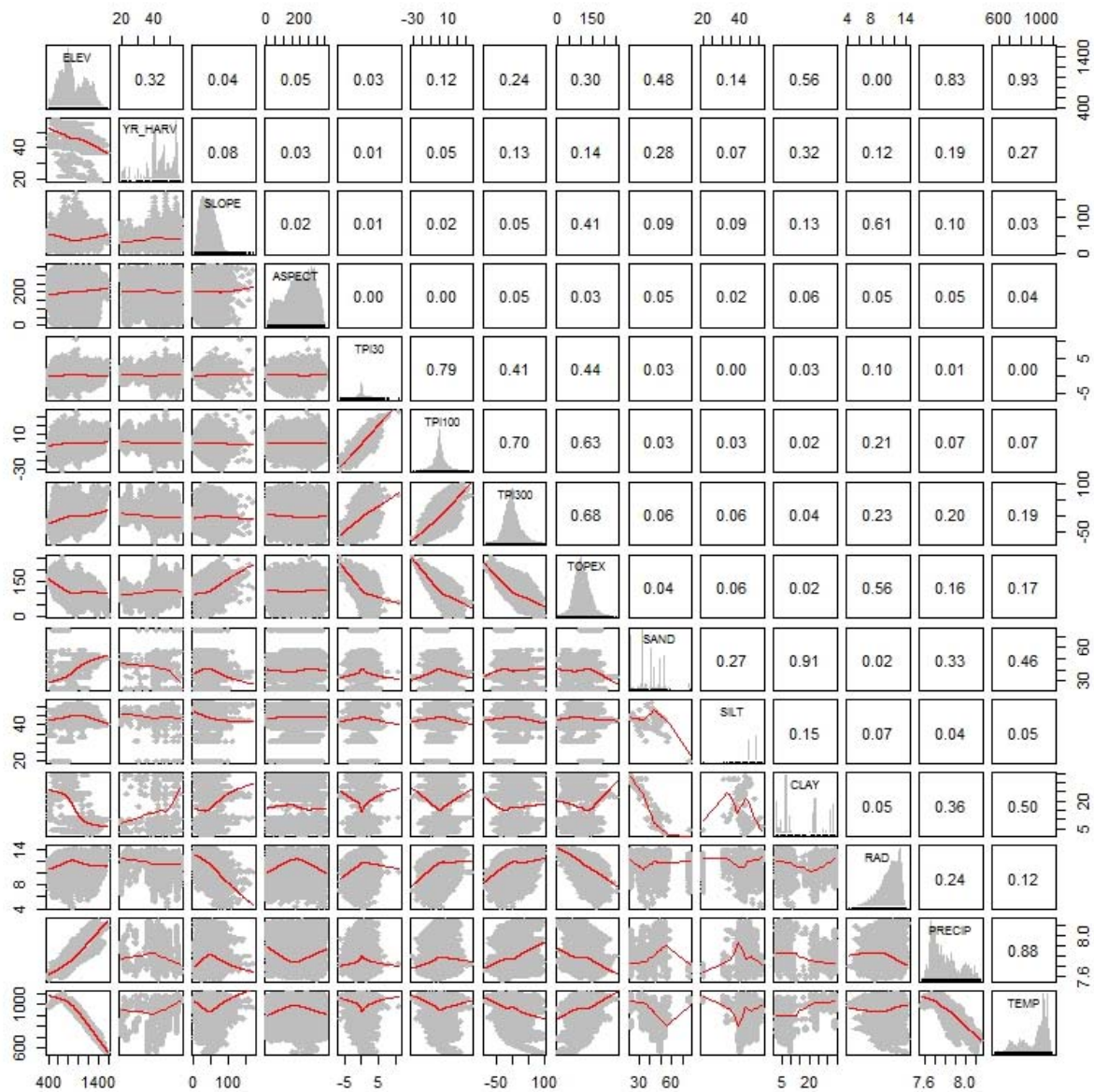


## Electronic Supplemental Material for Zald et al. Complex mountain terrain...



**Figure 1.** Violin plots of environmental variables for young managed and old unmanaged forests. Median values are represented by white circles, interquartile range by the black bar, 5<sup>th</sup> and 95<sup>th</sup> percentile range by the vertical black line, and the smoothed histogram in gray. Values calculated from all the pixels of each mapped environmental variable. See Table 1 in the manuscript for descriptions of variable codes.



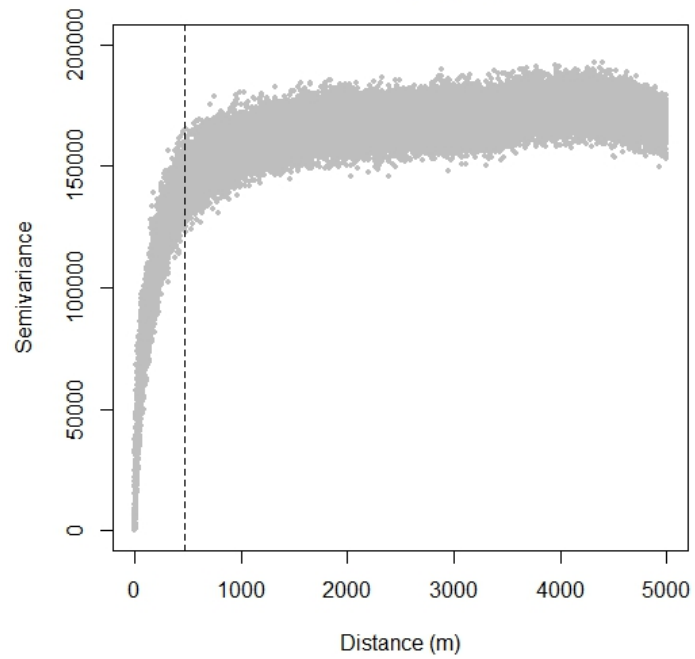
**Figure 2.** Cross correlation matrix between environmental variables in young managed forests. Diagonal panels show histograms (gray bars) for each variable, below diagonal each panel is a scatterplot (gray circles) and fit line (red) for each variable pair, panels above diagonal contain Pearson correlation coefficients for each variable pair. Values calculated from all the pixels of each mapped environmental variable. See Table 1 in the manuscript for descriptions of variable codes.



**Figure 2 continued.** Cross correlation matrix between environmental variables in old unmanaged forests. Diagonal panels show histograms (gray bars) for each variable, below diagonal each panel is a scatterplot (gray circles) and fit line (red) for each variable pair, panels above diagonal contain pearson correlation coefficients for each variable pair. Values calculated from all the pixels of each mapped environmental variable. See Table 1 in the manuscript for descriptions of variable codes.

**Table 1.** Mean and confidence interval of range, partial sill, and nugget for the 20 semivariograms of mapped aboveground live carbon (ALC).

	mean	95% lclm	95% uclm
range	471.46	379.12	563.80
partial sill	84723.06	81196.11	88250.00
nugget	85870.79	82084.06	89657.52

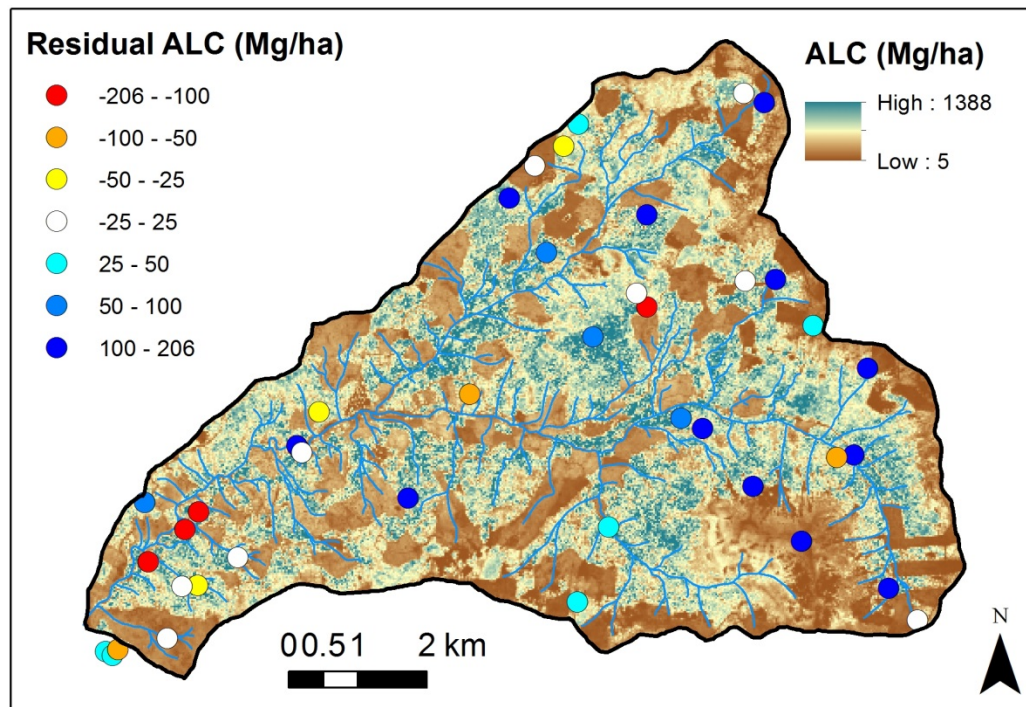


**Figure 3.** Composite of all 20 sampled empirical semivariograms of mapped ALC. Vertical dashed line represents the mean range (471.458 m).

**Table 2.** Descriptions and selection metrics for regression models of ALC in relation to years since harvest (YR\_HARV) in managed forests and years since wildfire (YR\_FIRE) in unmanaged forests.

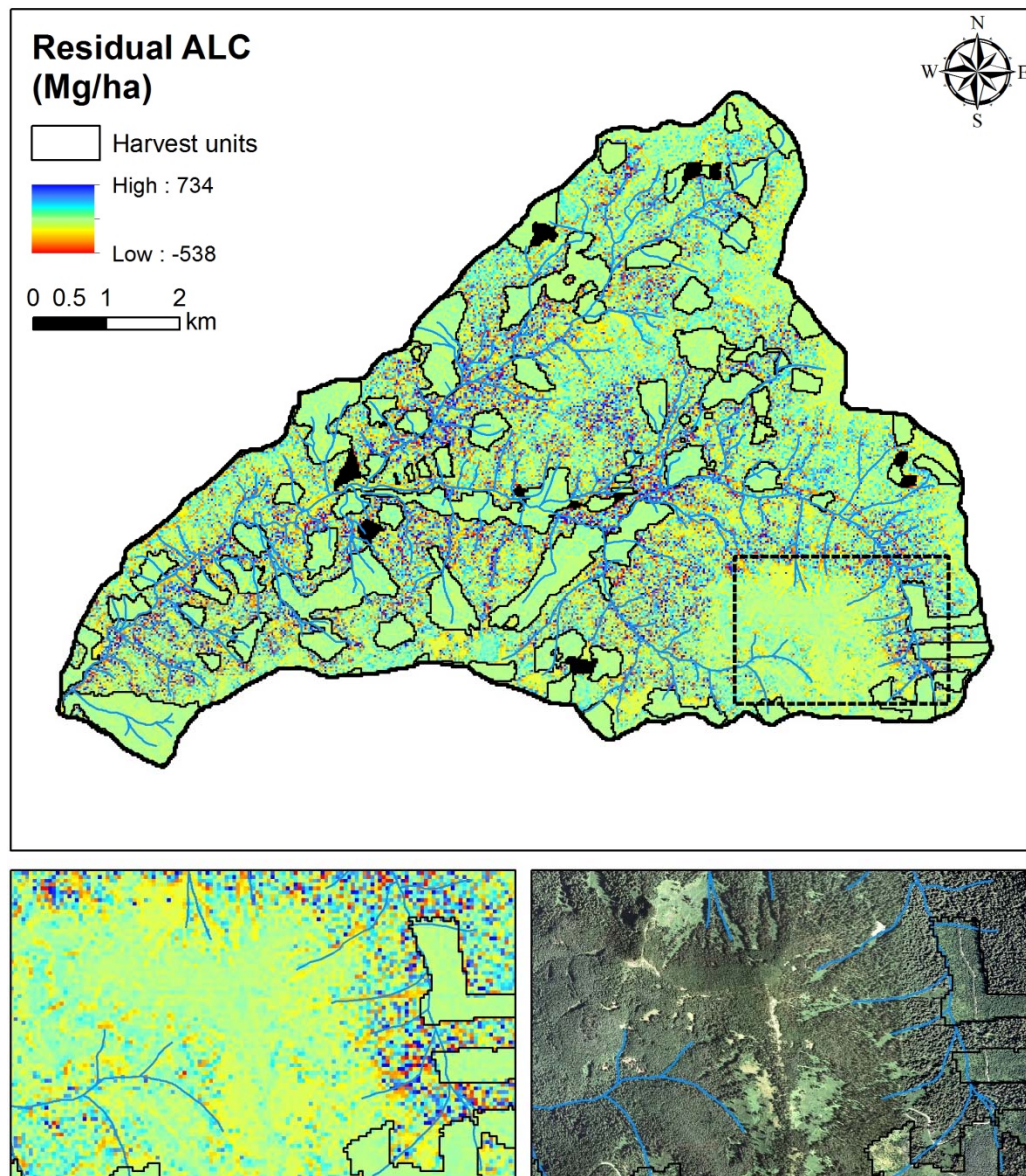
Rank	Model Form	AIC	$\Delta$ AIC	$L(g_i   x)$	$w_i$	ER	$adj R^2$
1	YR_HARV <sup>3</sup>	1520.89	0.00	1.00	0.52	1.69	0.59
2	YR_HARV + YR_HARV <sup>3</sup>	1521.94	1.05	0.59	0.31	-	0.59
3	YR_HARV + YR_HARV <sup>2</sup> + YR_HARV <sup>3</sup>	1523.06	2.17	0.34	0.18	-	0.59
4	Null model	1639.76	118.87	0.00	0.00	-	-
1	log(YR_FIRE)	1335.91	0.00	1.00	0.75	2.99	0.11
2	YR_FIRE	1353.28	2.19	0.33	0.25	-	0.09
3	Null model	1452.61	12.30	0.00	0.00	-	-

Note: Akaike Information Criteria (AIC), AIC differences ( $\Delta$ AIC), likelihood of a model given the data ( $L(g_i|x)$ ), Akaike weights ( $w_i$ ), and adjusted  $R^2$  ( $adj R^2$ ).



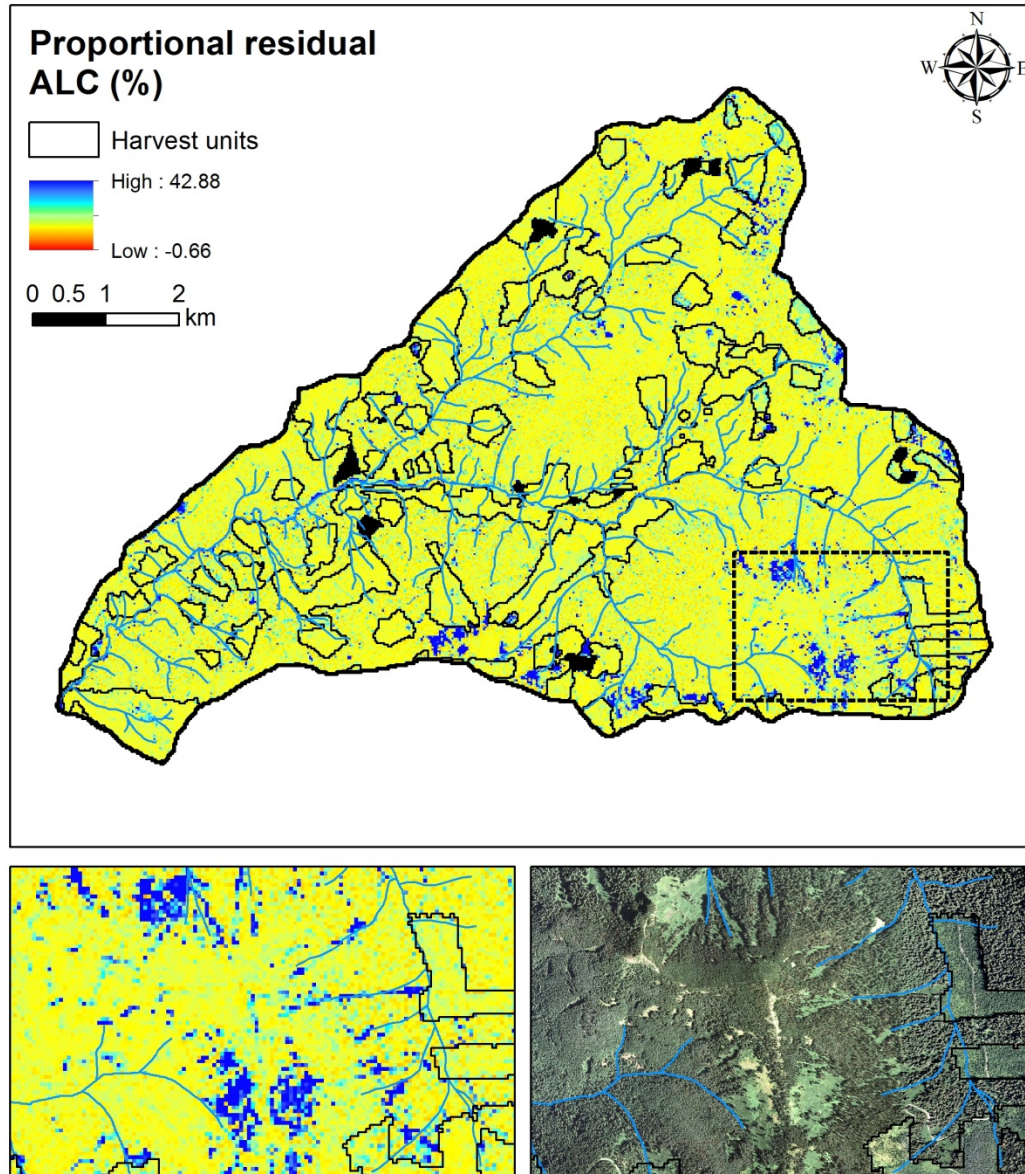
**Figure 4.** Spatial pattern of ALC model residuals at field plot locations in the HJA. Circles are color coded by magnitude and sign of residual ALC. Locations are coordinate centroids for the 42 spatially independent groups. Underlying map of ALC derived from applying model coefficients in Table 2 to lidar data, and back transforming predicted cube root ALC. Spatial grain of underlying ALC map is 25 m. Note that three of the coordinate centroids are outside the study area boundary, representing plots outside the study area that were part of the larger plot dataset and had lidar data associated with them as part of a larger lidar acquisition not included in the map. Streams depicted in blue.



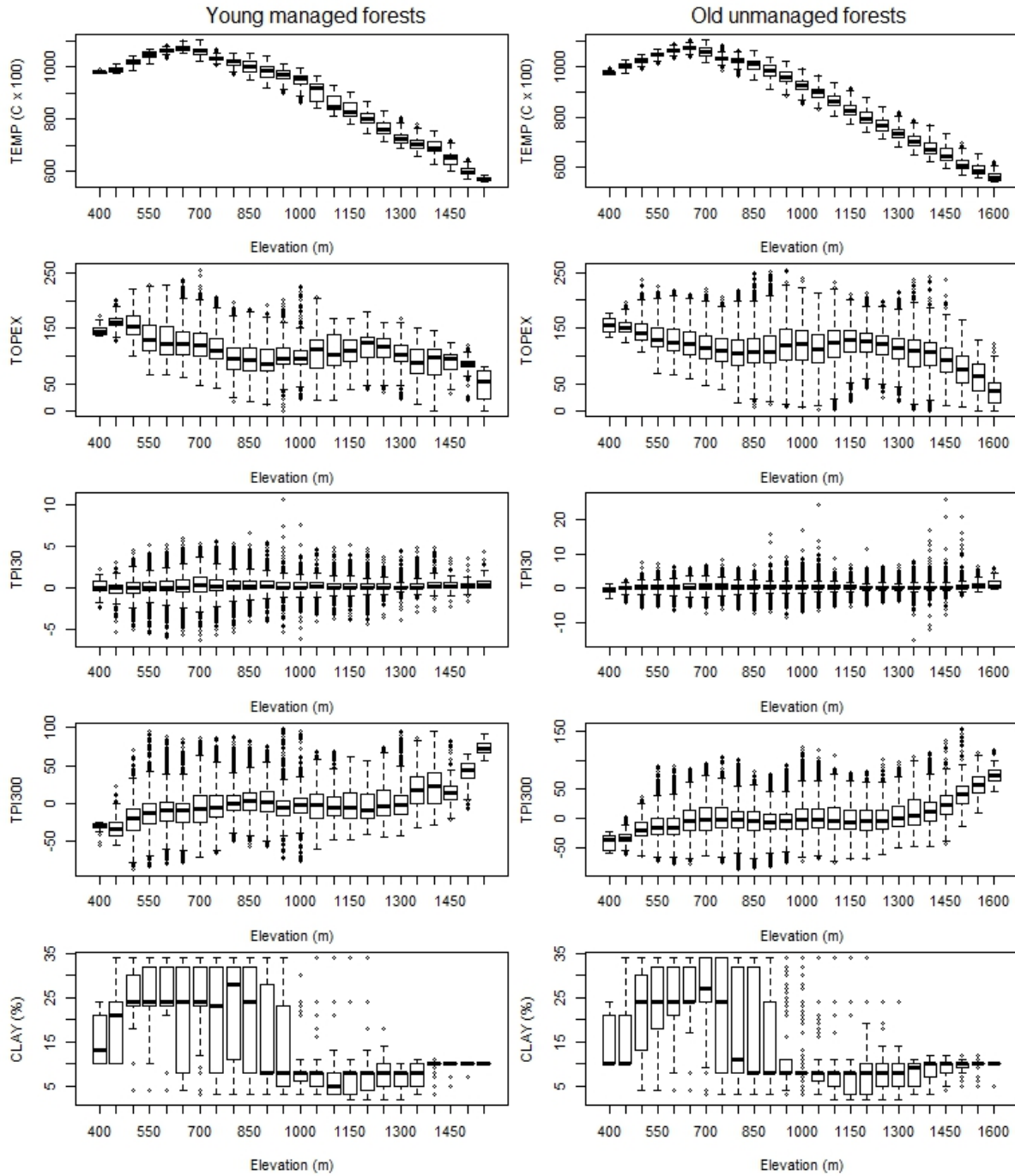


**Figure 5.** Map of residual aboveground live carbon (ALC) from sequential autoregressive (SAR) model predictions for the HJA study area. Residuals calculated as SAR ALC predictions subtracted from lidar ALC estimates. Black outline polygons denote harvest units. Black filled polygons denote partial harvests with variable tree retention that were excluded from SAR analysis. Streams depicted in blue. Map cell size is 25 m.





**Figure 6.** Map of proportional residual aboveground live carbon (ALC) from SAR model predictions. Proportional residual ALC calculated as SAR ALC predictions subtracted from lidar ALC estimates, divided by lidar ALC estimates. Black dashed rectangle denotes extent of inset images of proportional residual ALC (bottom left) and digital orthophoto (bottom right). Black outline polygons denote harvest units, and black filled polygons denote partial harvests with variable tree retention that were excluded from SAR analysis. Streams depicted in blue. Map cell size is 25 m.



**Figure 7.** Boxplots of selected climatic and topographic predictor variables in relation to elevation. for managed and unmanaged forests.