

## **Appendix C Bias of generic allometric models in tree-level biomass estimates as a function of stem diameter.**

In our biomass dataset, small-diameter trees had larger samples size than large-diameter trees. This might result in larger bias (overestimate or underestimate) in biomass estimates for large-diameter trees. We calculated the bias for each tree (percent difference between observed and estimated biomass) as:

$$\text{Bias (\%)} = 100 \times (\hat{y}_i - y_i)/y_i$$

where  $\hat{y}_i$  and  $y_i$  are the estimated and observed biomass of a tree  $i$ , respectively (Chave et al. 2005).

Bias was plotted against logarithm of stem diameter for the recommended generic models (Fig. C1) and smoothed by a “lowess” function in R software version 2.15.3 (red curve in the figure, Cleveland 1981, R Development Core Team 2013). As the curve become far above or below the zero (dashed horizontal line), the model over- or underestimates the biomass of individual tree. The magnitude of bias was comparable between small-diameter trees ( $D = 1\text{--}20$  cm, i.e.,  $\ln(D) = 0\text{--}3$  cm) and large-diameter trees ( $D = 20\text{--}70$  cm, i.e.,  $\ln(D) = 3\text{--}4.2$  cm).

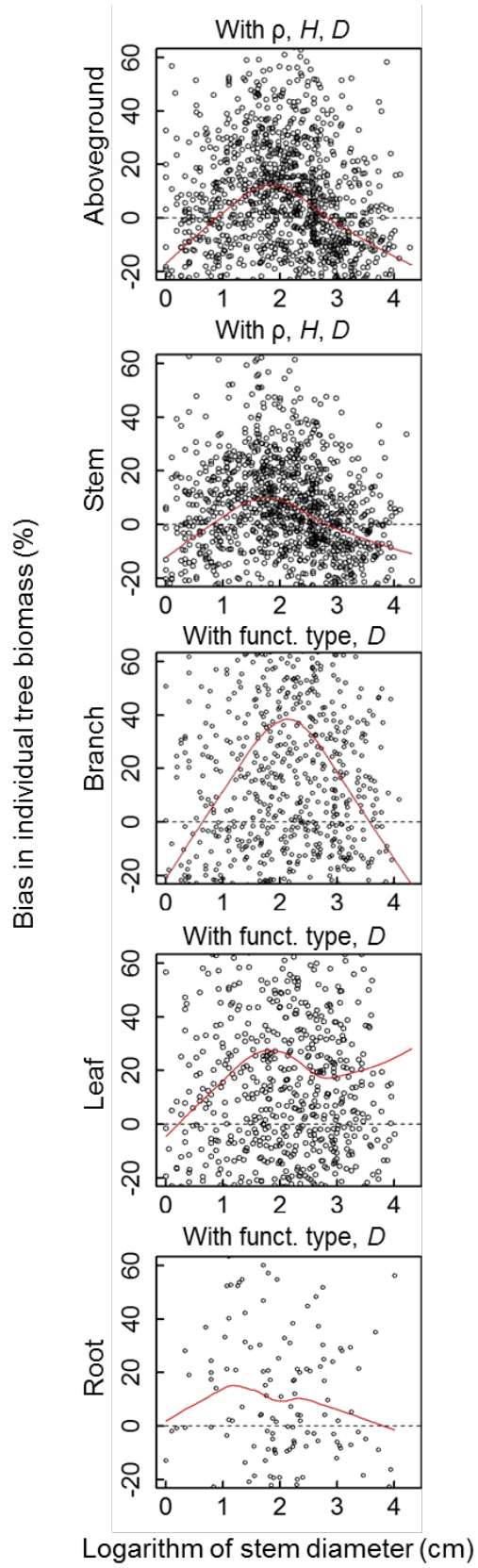


FIG. C1

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