Supplementary information for Contrasting phylogenetic structure of Amazonian hyperdominance across tree strata by F Draper *et al.*

Appendix 1. List of all species that are hyperdominant in one or more size classes in one or more regions
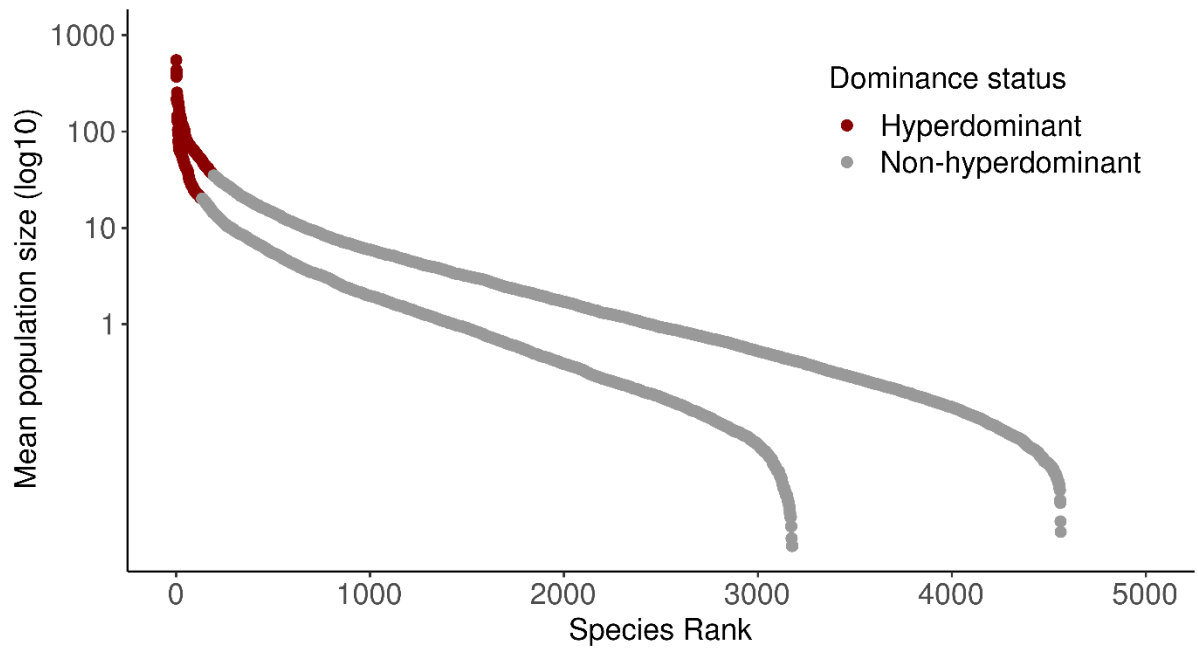
Figure S.1 Empirical rank abundance distribution for all species in our dataset with a diameter ≥ 2.5 cm (upper line) and ≥ 10 cm (lower line). Values on the Y axis represent mean population estimates for each species recorded in our dataset across the 10^6 sampling runs at the entire Amazon scale.
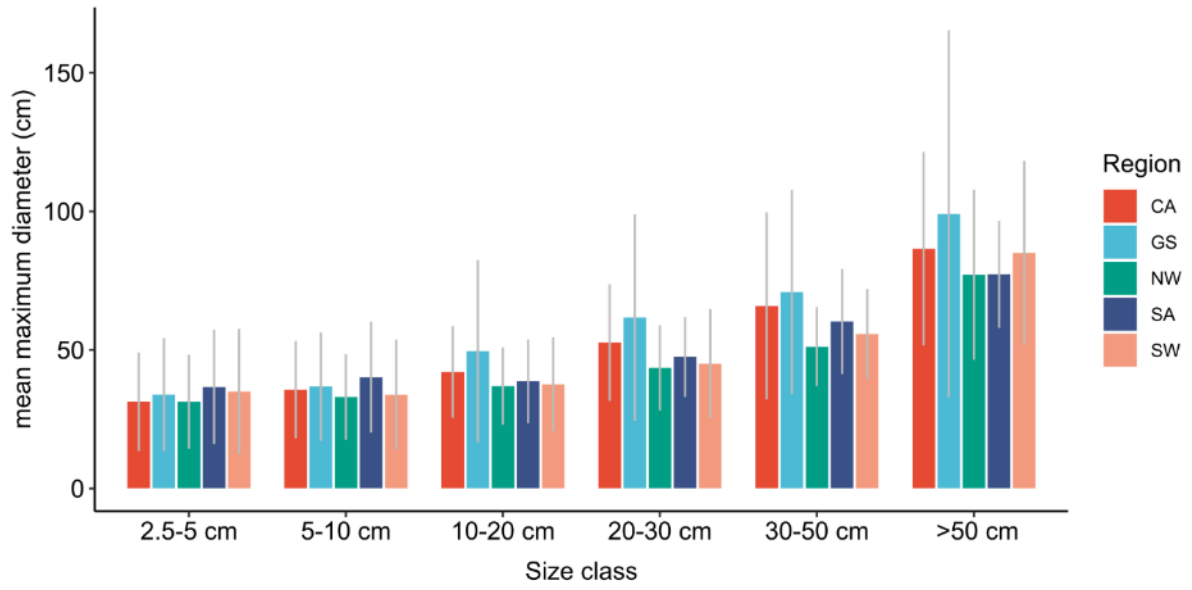
Figure S.2. The mean maximum diameter of hyperdominant tree species across six size classes and five regions. Error bars represent standard deviations surrounding the mean.
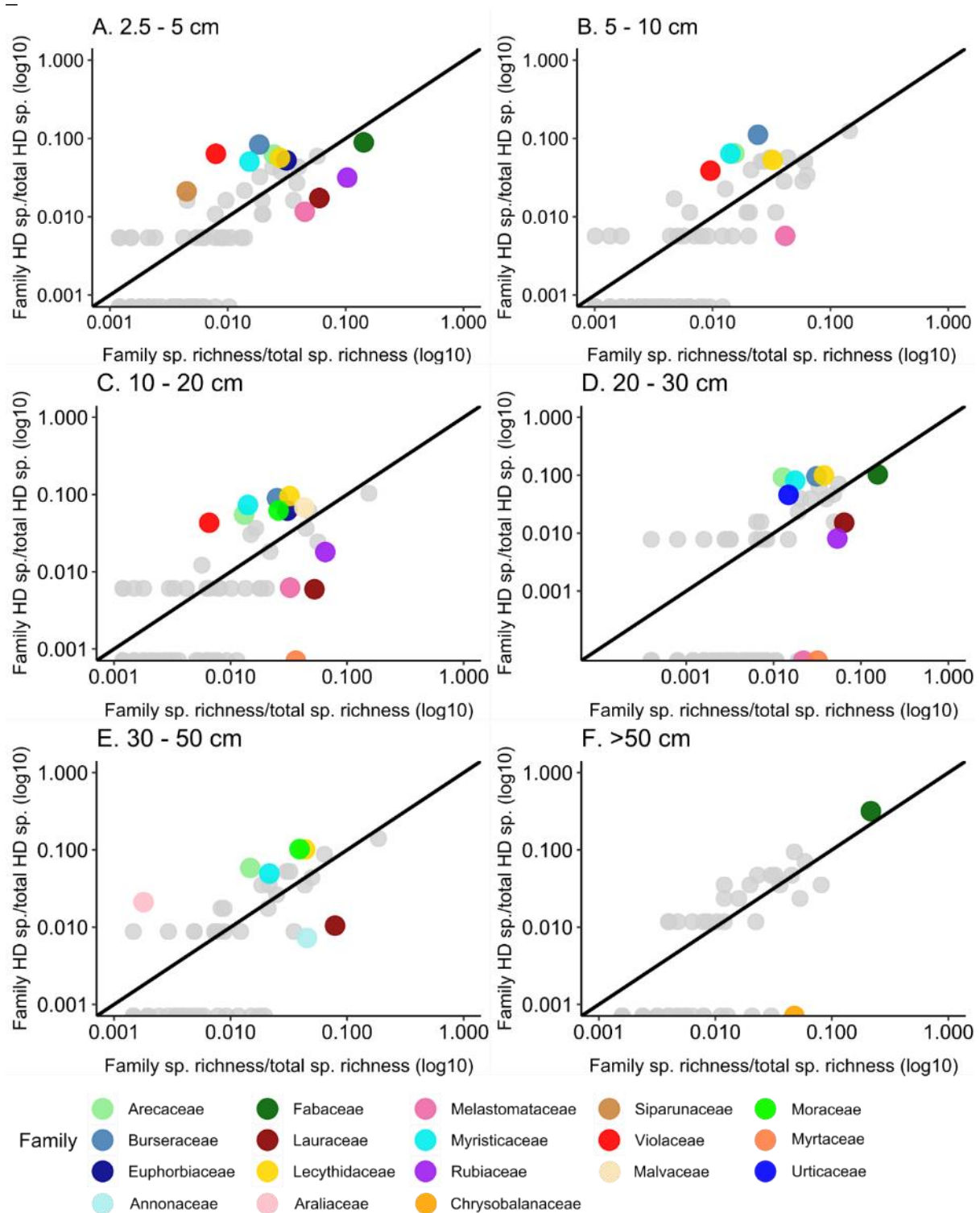
Figure S.3. The relationship between the proportion of observed hyperdominant species per family and the proportion of species richness represented by that family across the six size classes for the basin-wide dataset. Coloured points represent families that had significantly more or significantly fewer hyperdominant species in a given size than would be expected based on the species richness of the family. All non-significant families have been shaded grey. If the number of hyperdominant species per family was driven purely by the number of species in that family then species would align along the 1:1 line (solid black line).
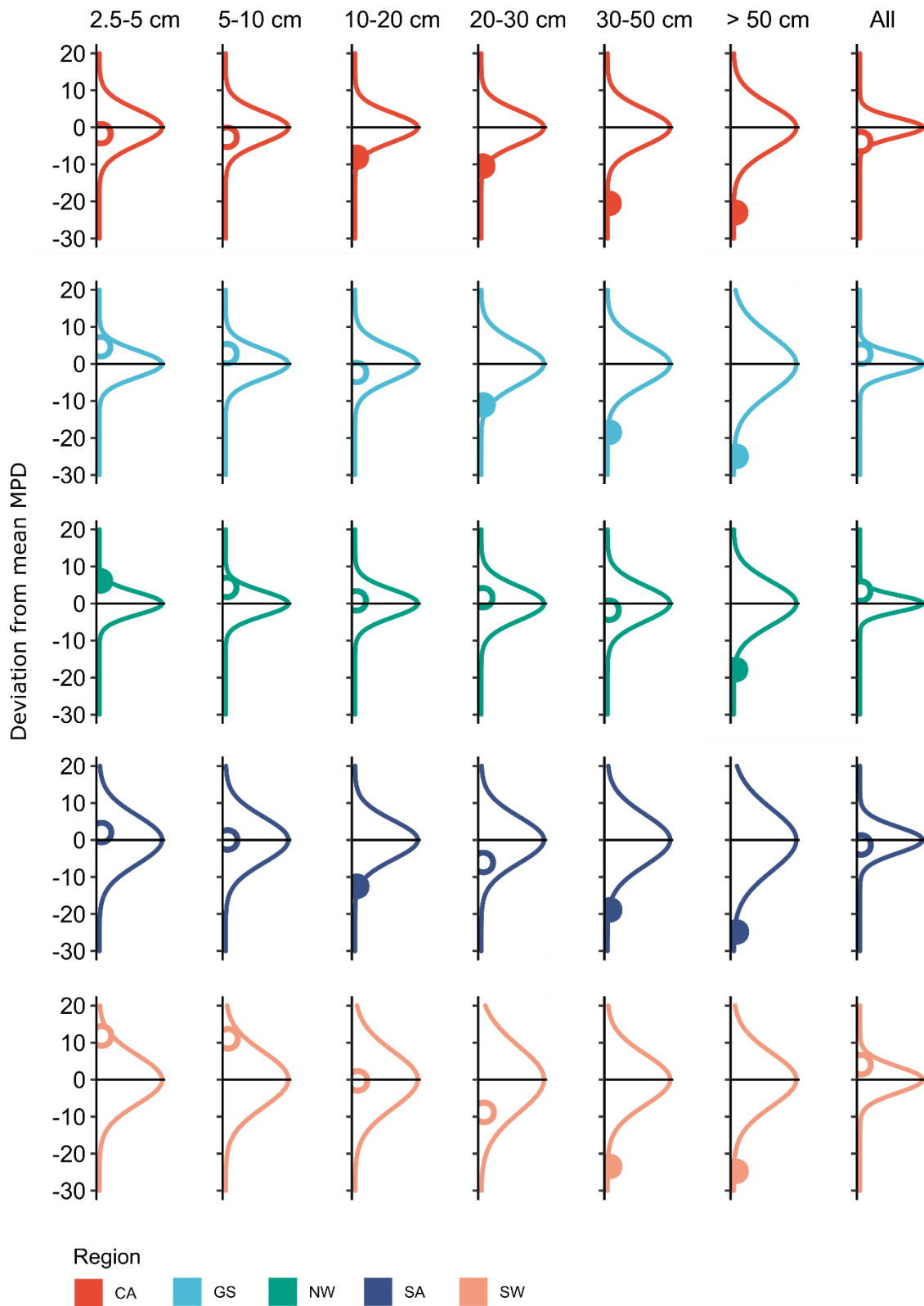
Figure S.4. The observed mean pairwise phylogenetic distance (MPD) among hyperdominant species across the six size classes (points) and the null distribution of MPD for an equivalent number of species (lines). Solid points indicate those hyperdominant communities where the observed MPD was outside two standard deviations from the mean, and therefore considered to be significant. Hollow points indicate hyperdominant communities that had a mean MPD considered to not be statistically significant, i.e. within 2 standard deviations of the null mean.
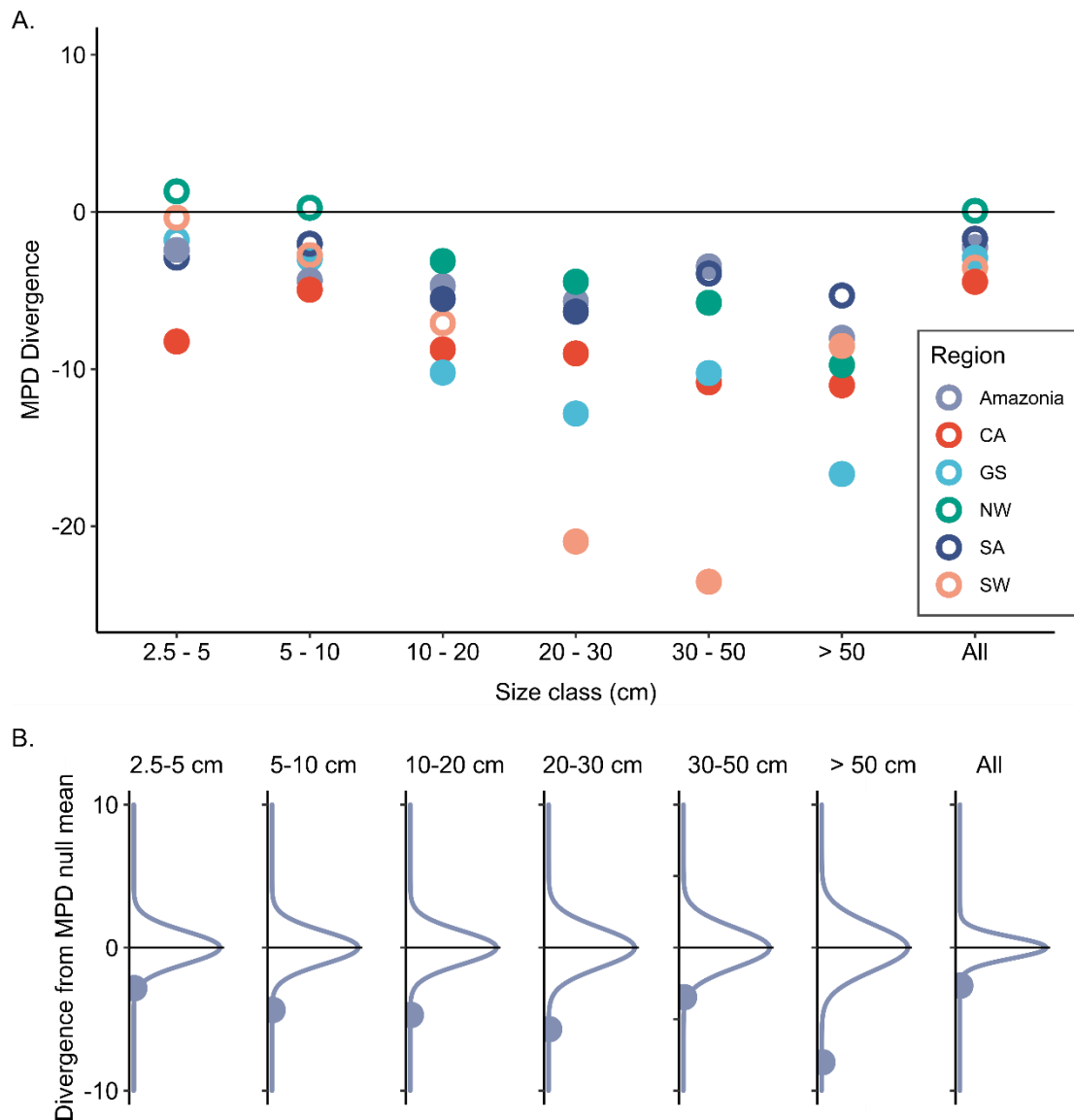
Figure S.5. The observed mean pairwise phylogenetic distance (MPD) among hyperdominant species across the six size classes (points) and the null distribution of MPD for an equivalent number of species (lines) within Eudicots only. Solid points indicate those hyperdominant communities where the observed MPD was outside two standard deviations from the mean, and therefore considered to be significant. Hollow points indicate hyperdominant communities that had a mean MPD considered to not be statistically significant, i.e. within 2 standard deviations of the null mean.
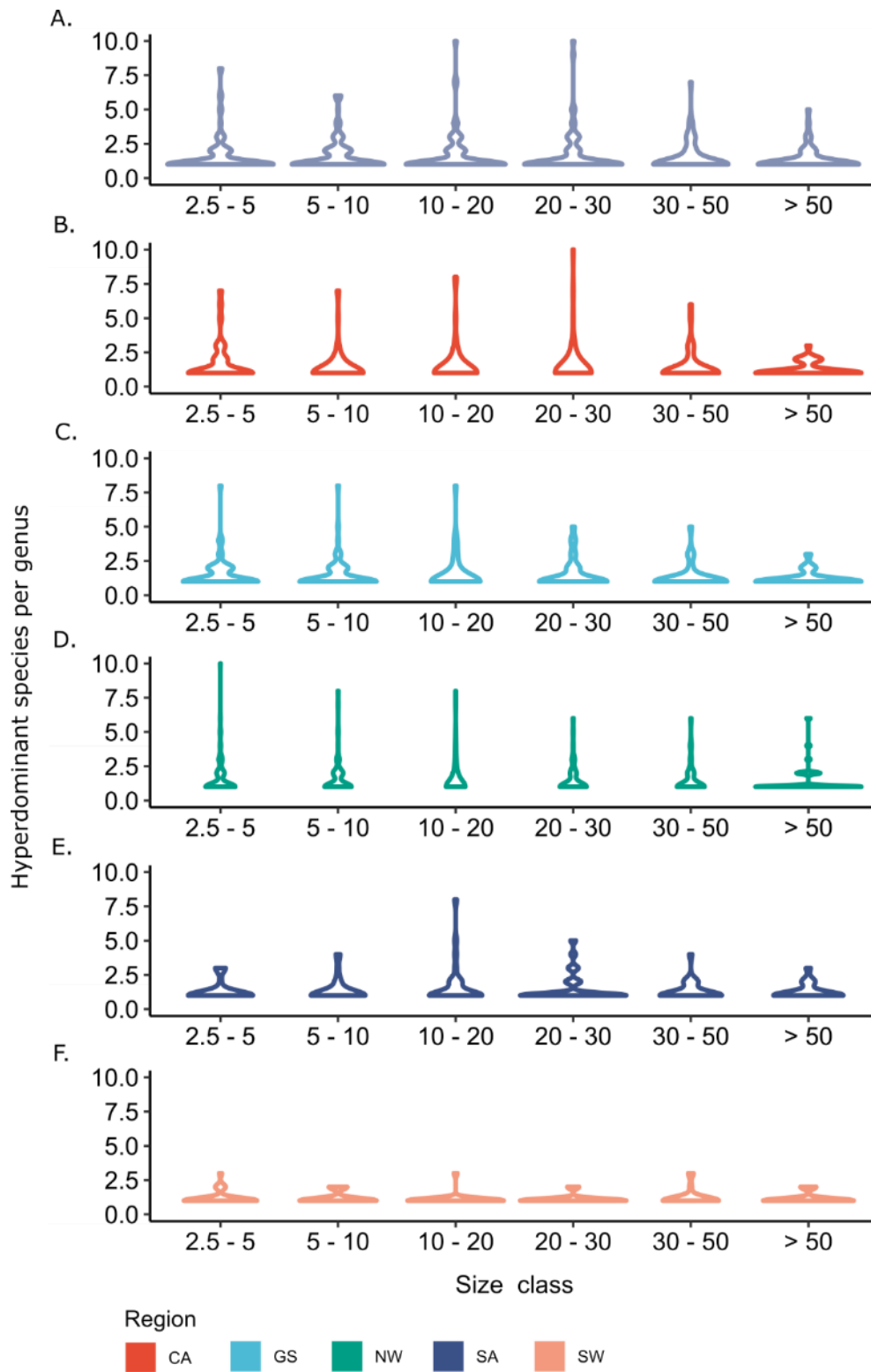
Figure S.6 Violin plots describing the distribution of the number of hyperdominant species per genus across the six size classes and five regions. The width of the plots indicates the proportion of the data that occurs at a given value.
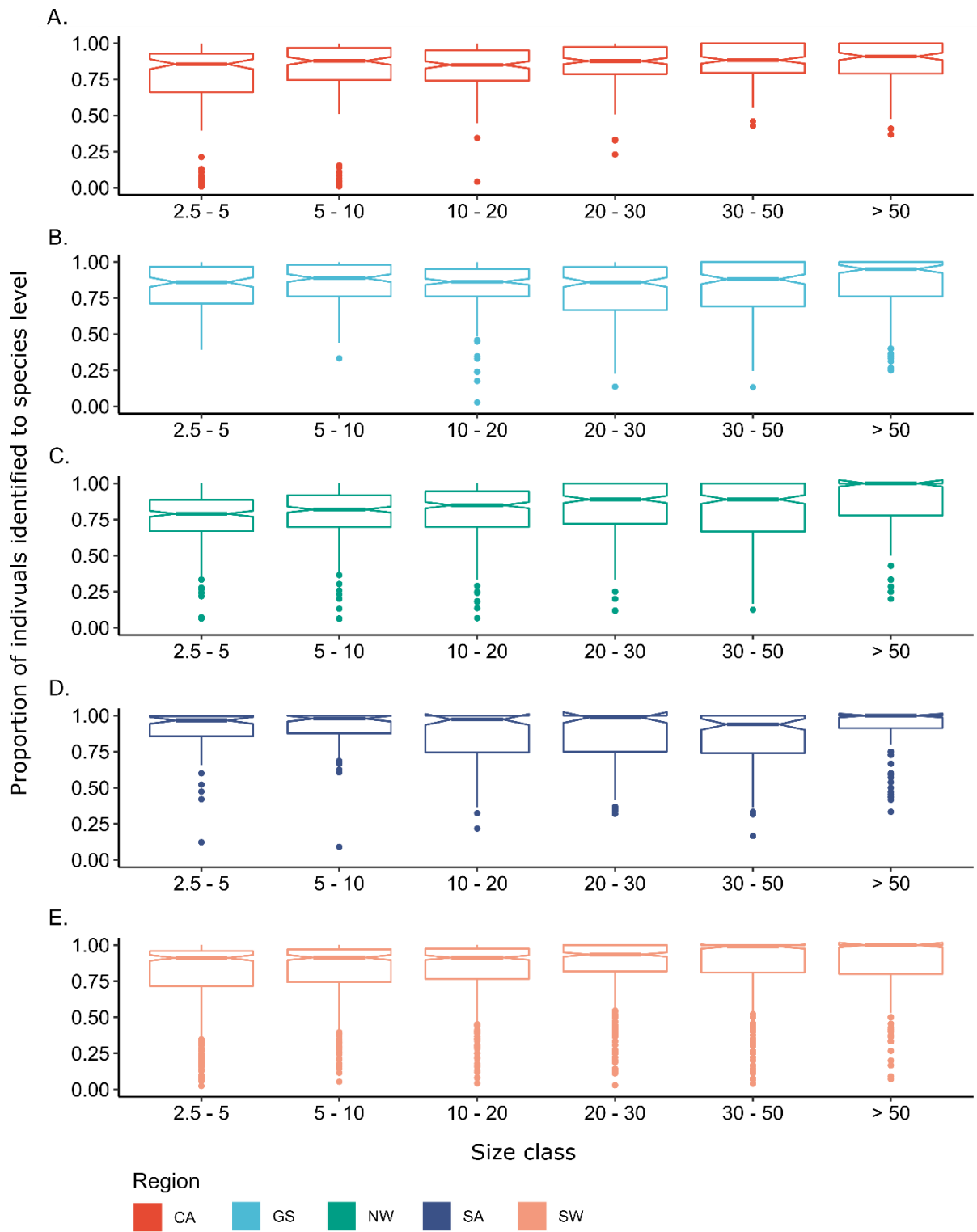
Figure S.7 Box plots describing the proportion of species identified to species level across the six size classes and five study regions. The middle horizontal line with the boxes shows the median value, the top and bottom hinges of the box denote the 25th and 75th percentiles. Whiskers (vertical lines) denote the interquartile range x 1.5, and notches denote 95% confidence intervals surrounding the median.
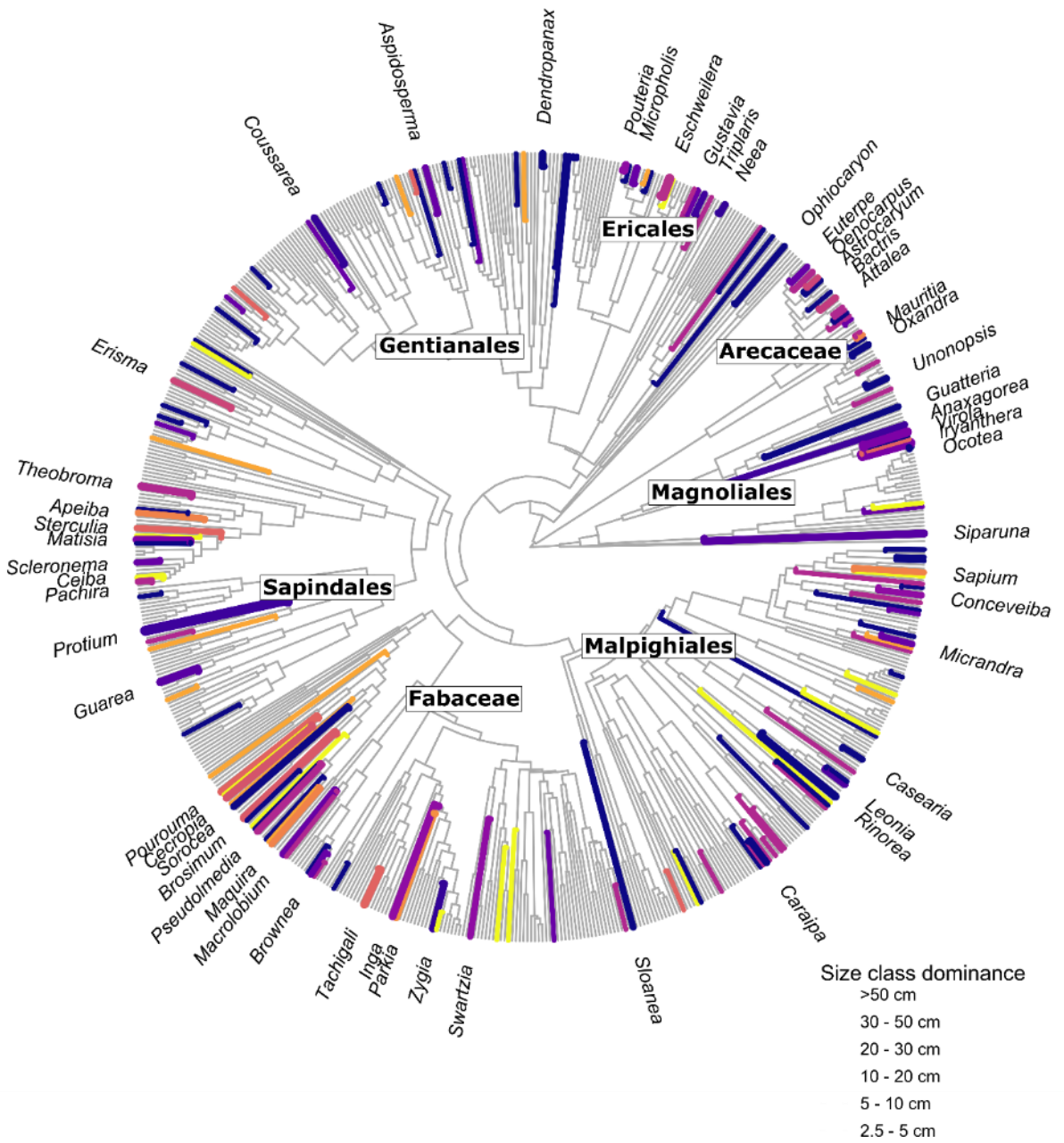
Figure S.8 Phylogenetic structure of hyperdominance across tree strata within the Northwest Amazon region
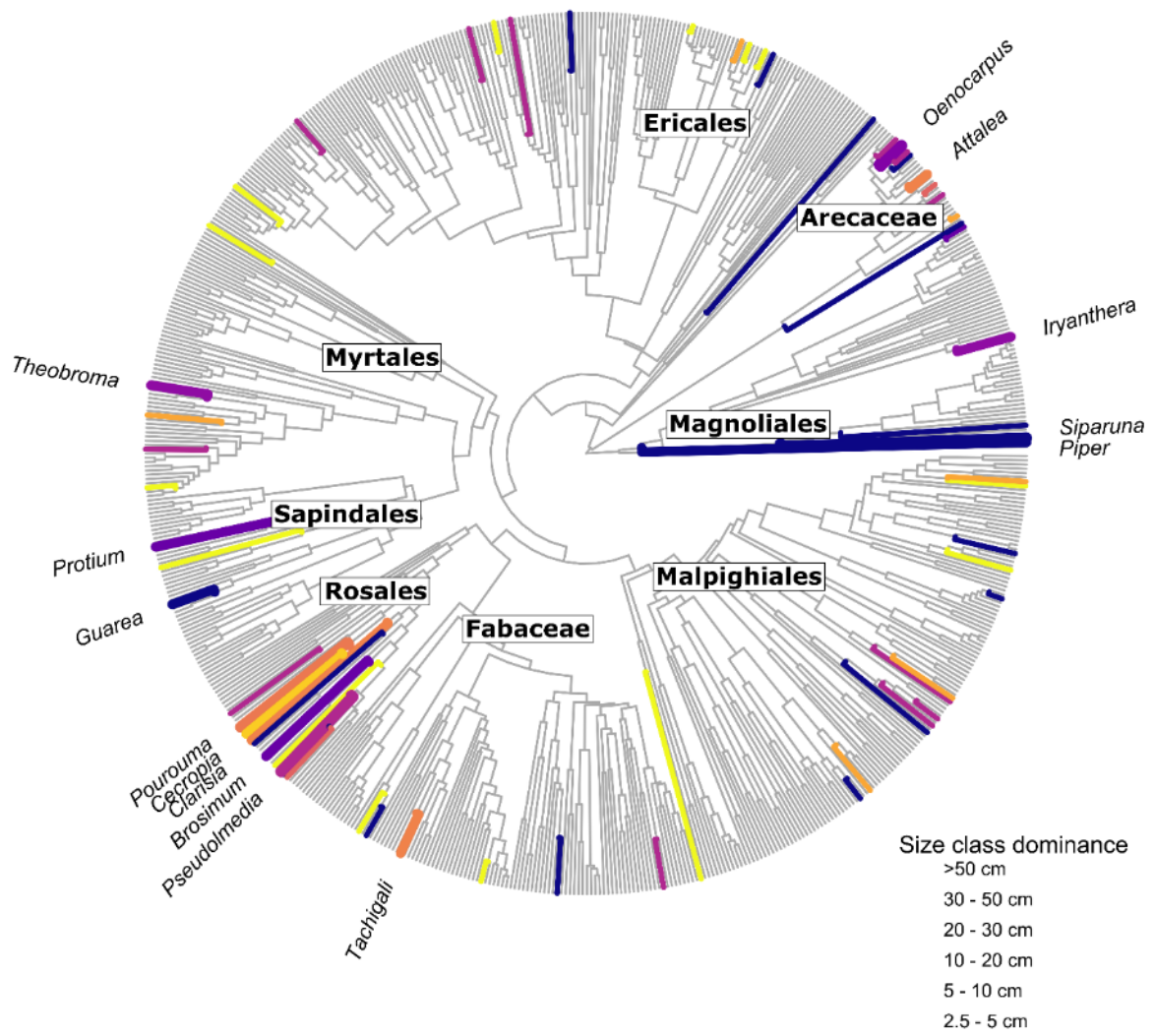
Figure S.9 Phylogenetic structure of hyperdominance across tree strata within the southwest Amazon region
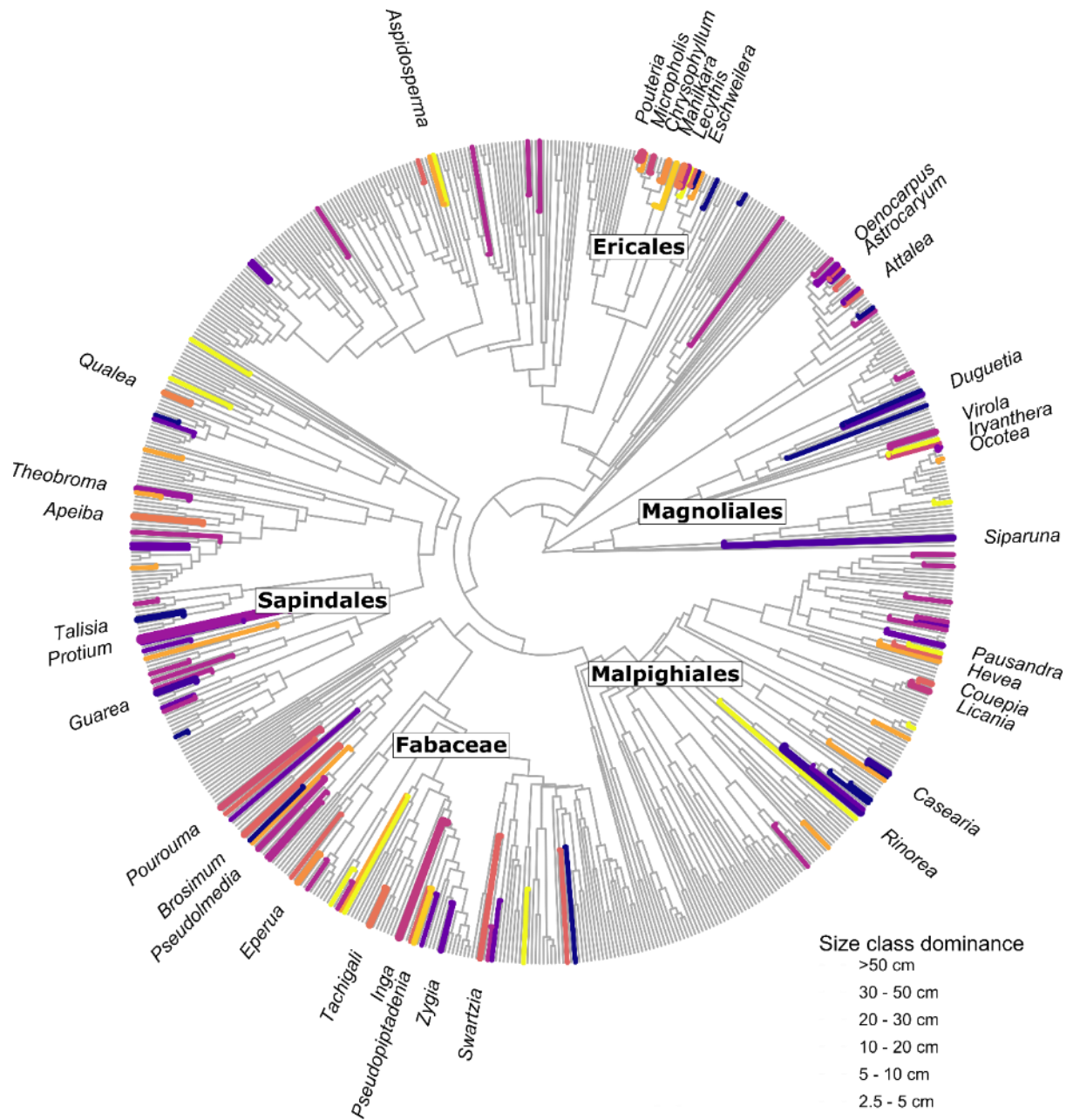
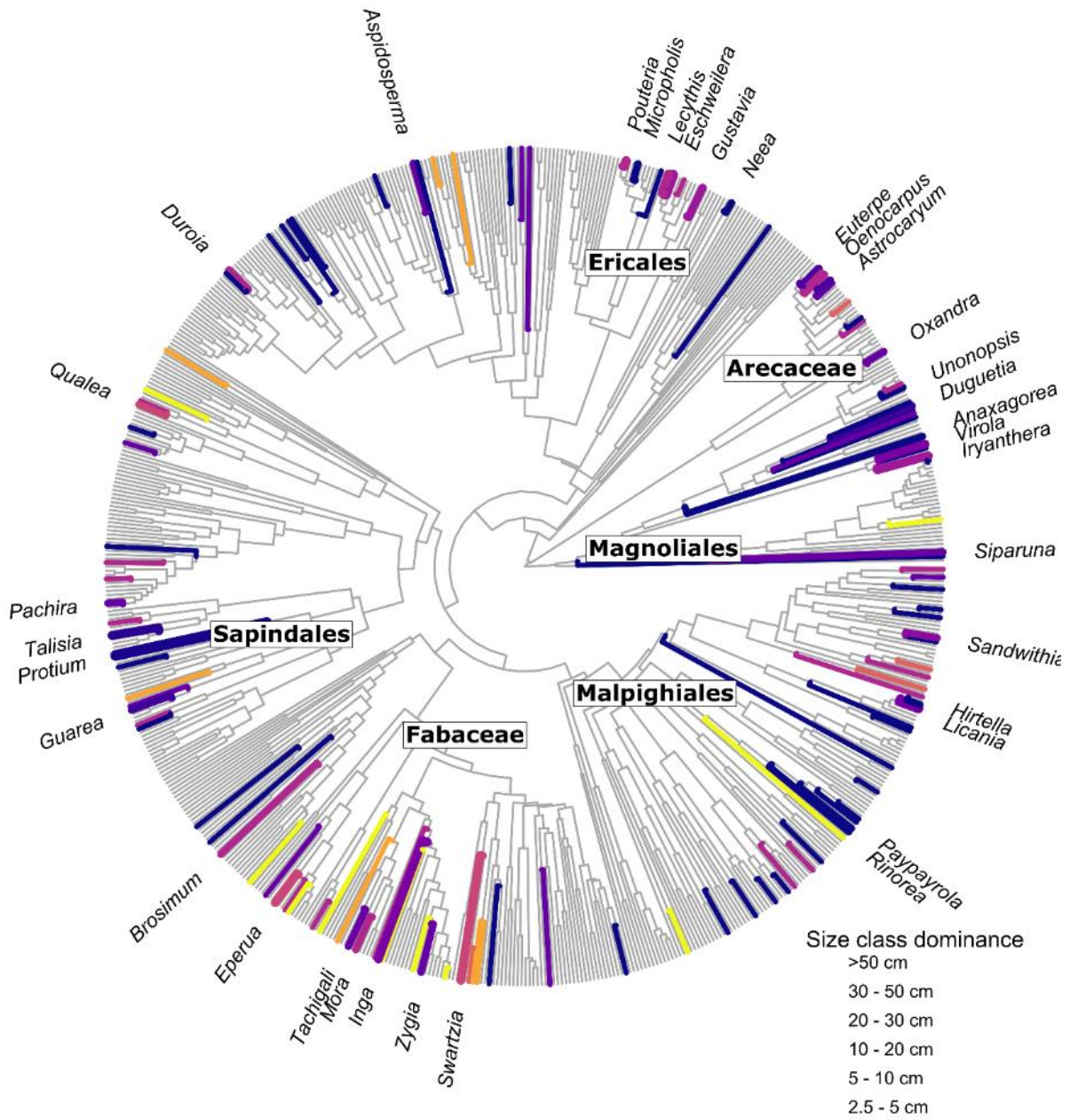Figure S.10 Phylogenetic structure of hyperdominance across tree strata within the Central Amazon region

Figure S.11 Phylogenetic structure of hyperdominance across tree strata within the Guiana Shield region
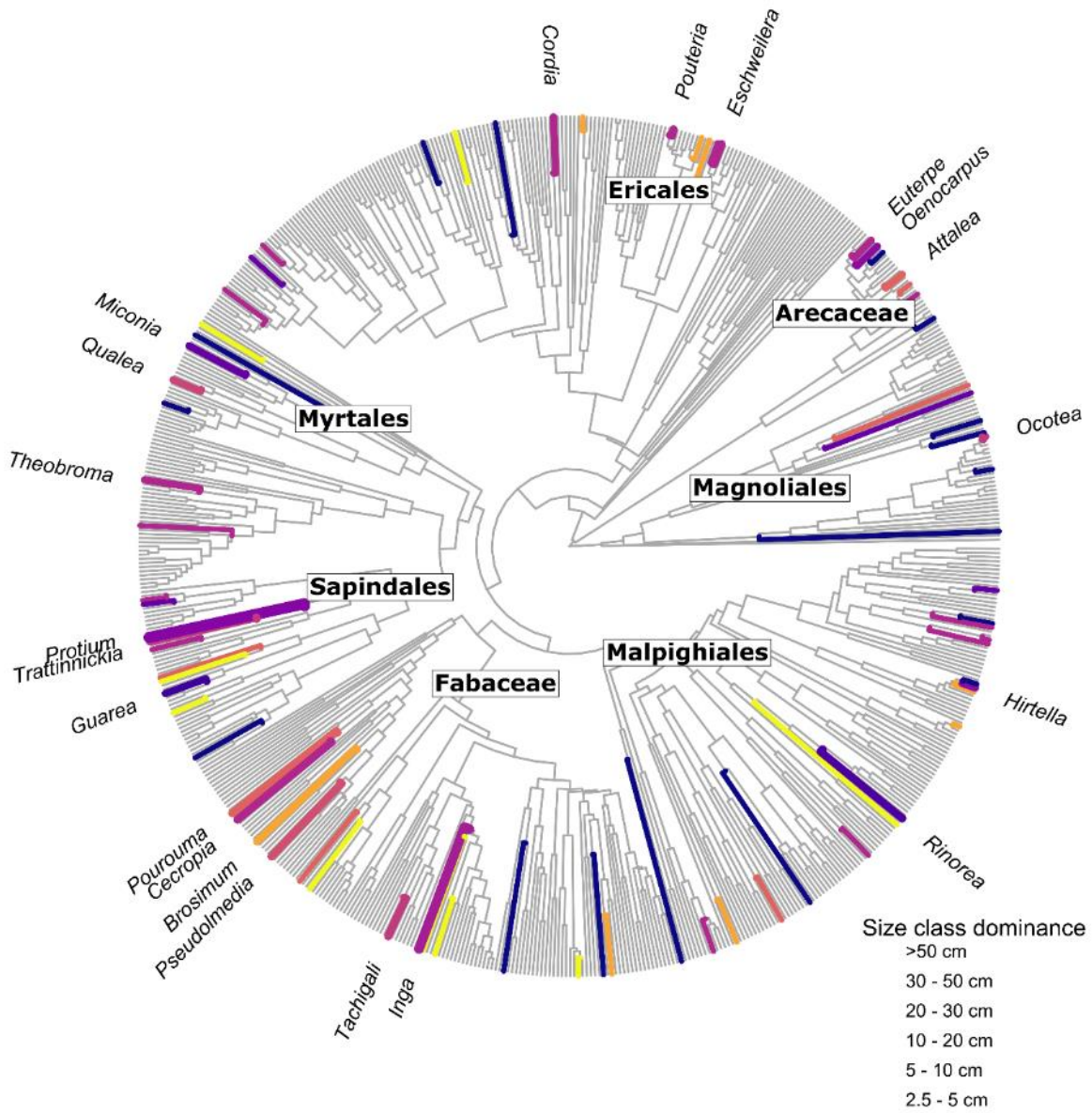
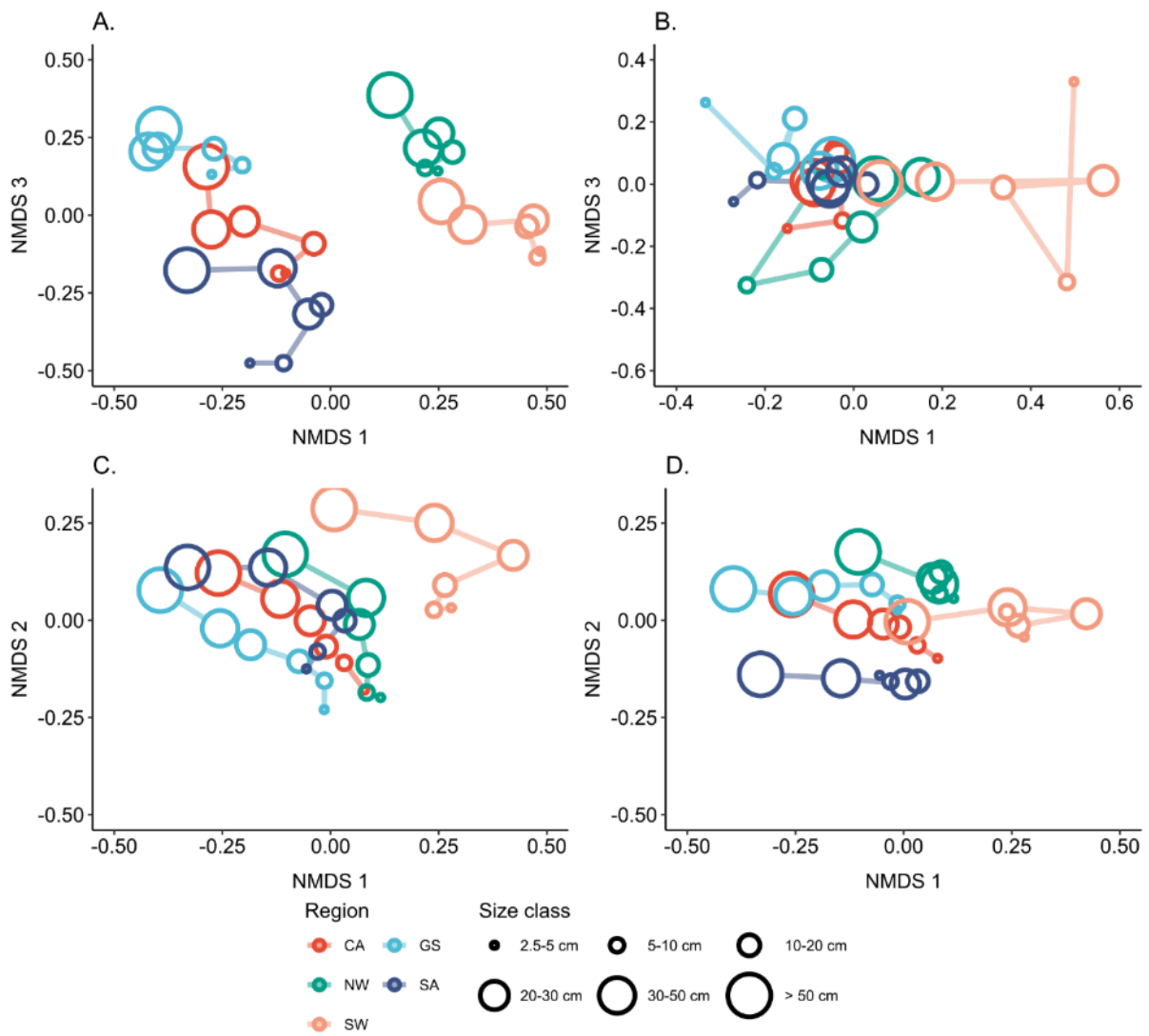Figure S.12 Phylogenetic structure of hyperdominance across tree strata within the Southern Amazon region
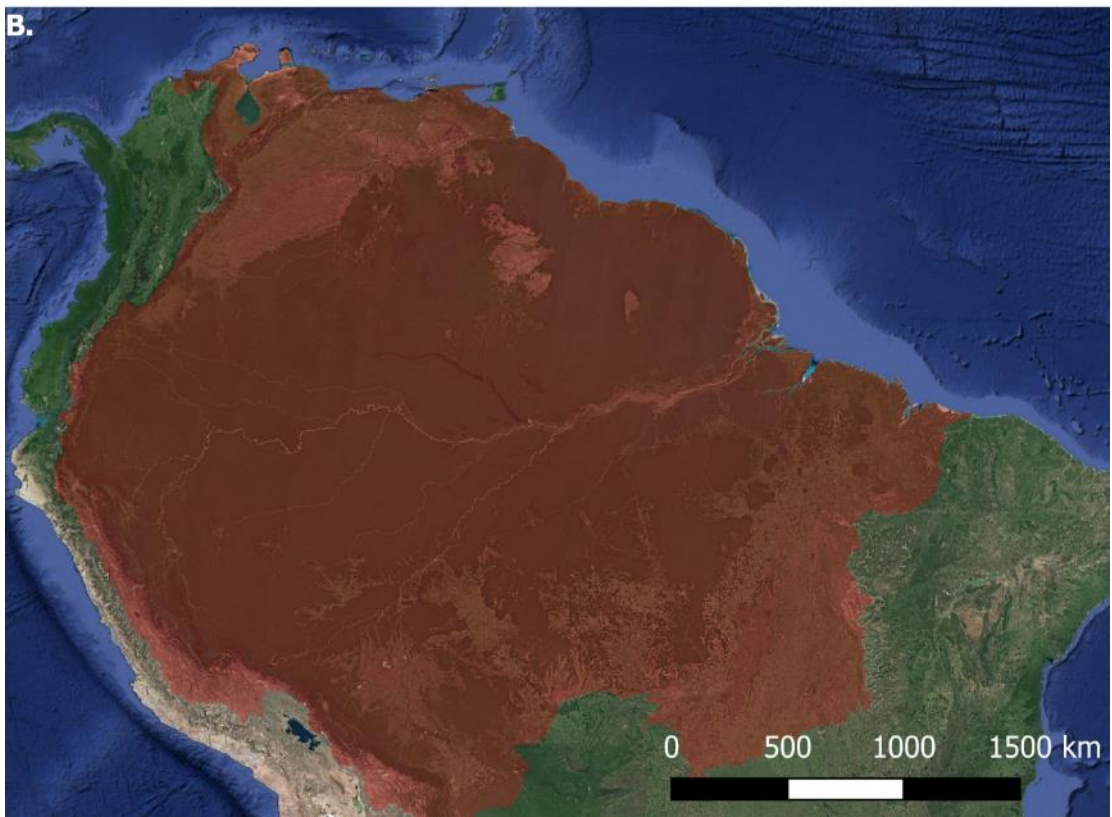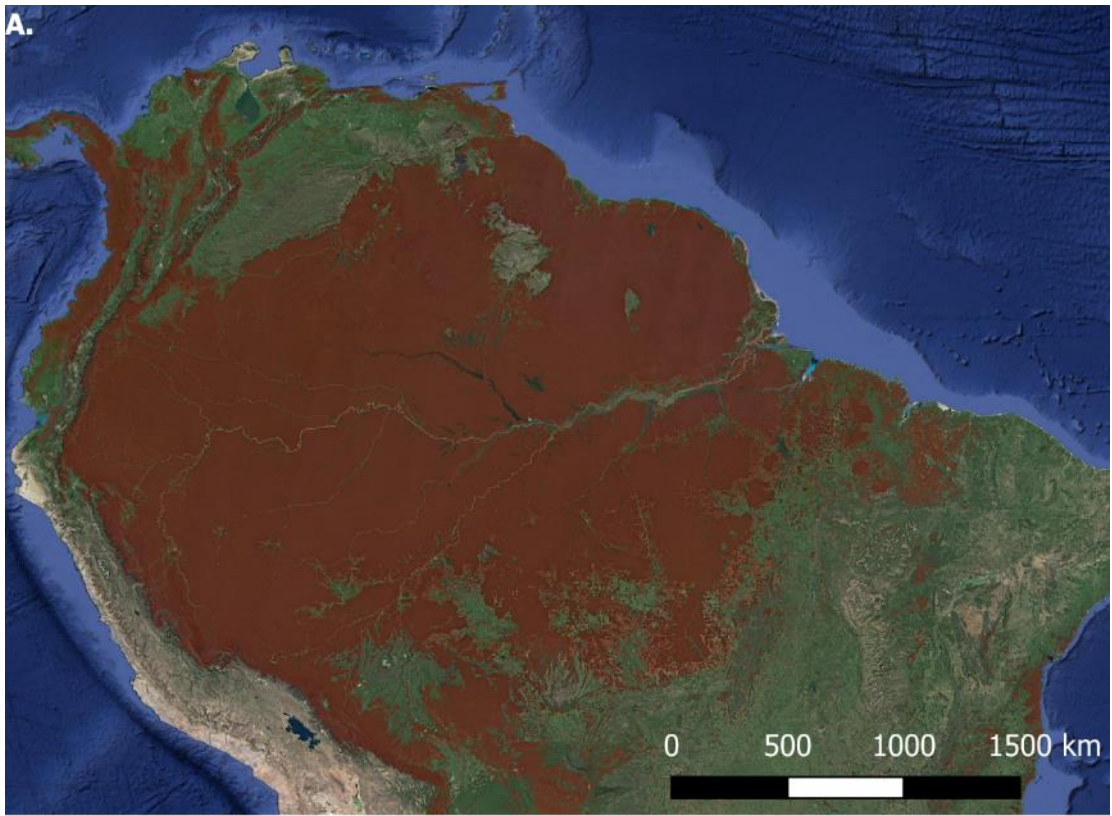
Figure S.13 NMDS ordinations for the remaining NMDS axes, showing similarity in composition of hyperdominant species in terms of: species abundances (panel A); mean pairwise phylogenetic distance (panel B) and the unifrac phylogenetic distance approach (panels C and D).
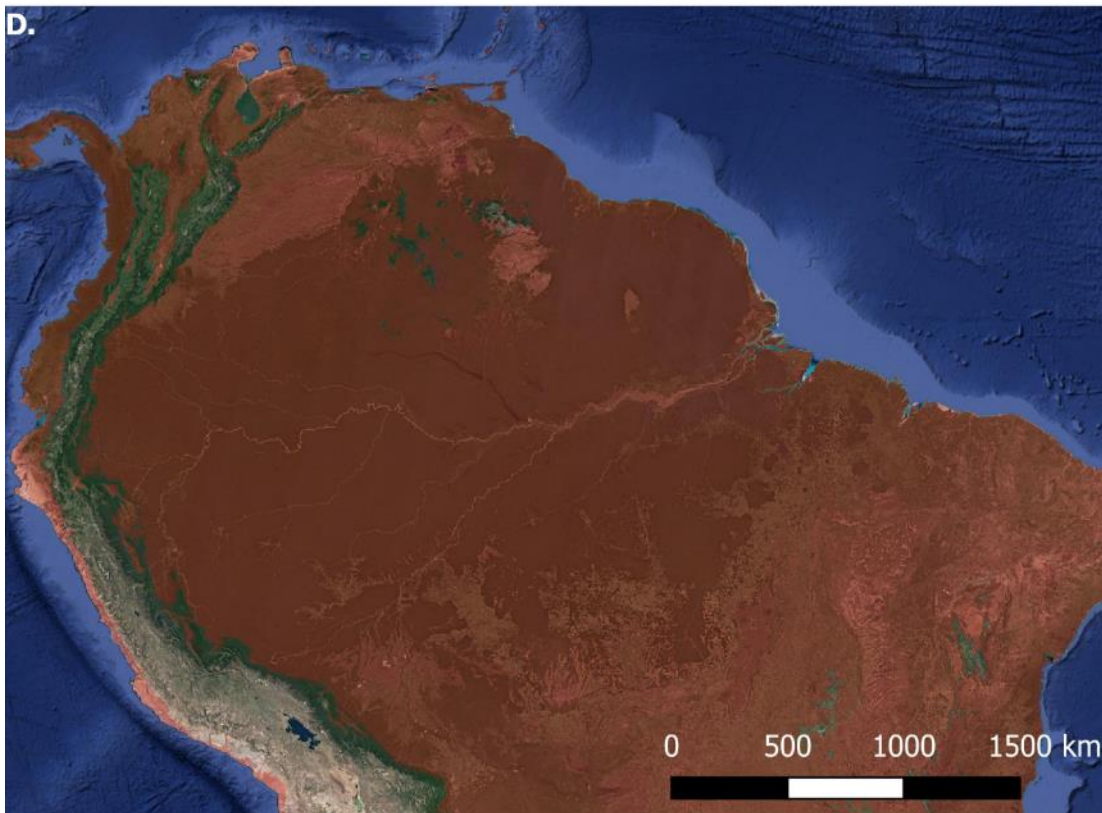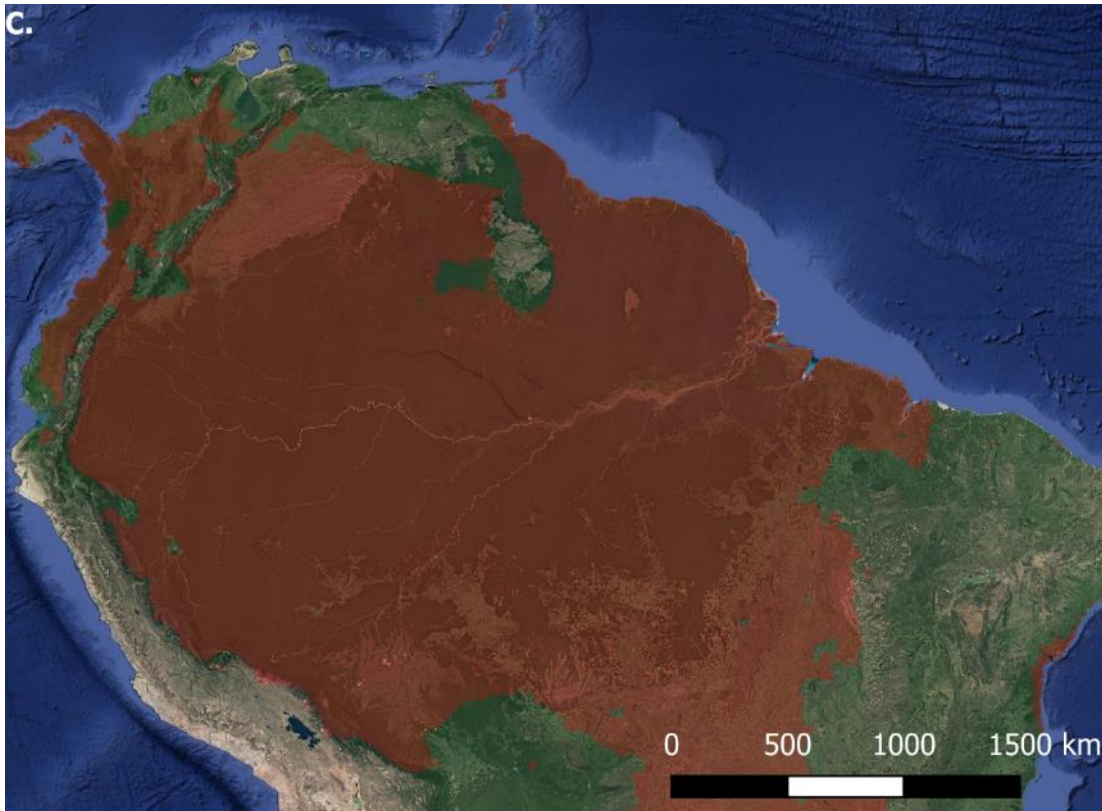
A.

B.

Figure S. 14. The four input layers that define wider Amazonia: Panel A. 2010 tree cover > 70%; panel B hydrobasins mapped catchments for Amazon, Orinoco and all Guiana Shield rivers; panel C mean annual precipitation > 1300 mm according to CHIRPS dataset; panel D elevation < 1000 m above sea level.