

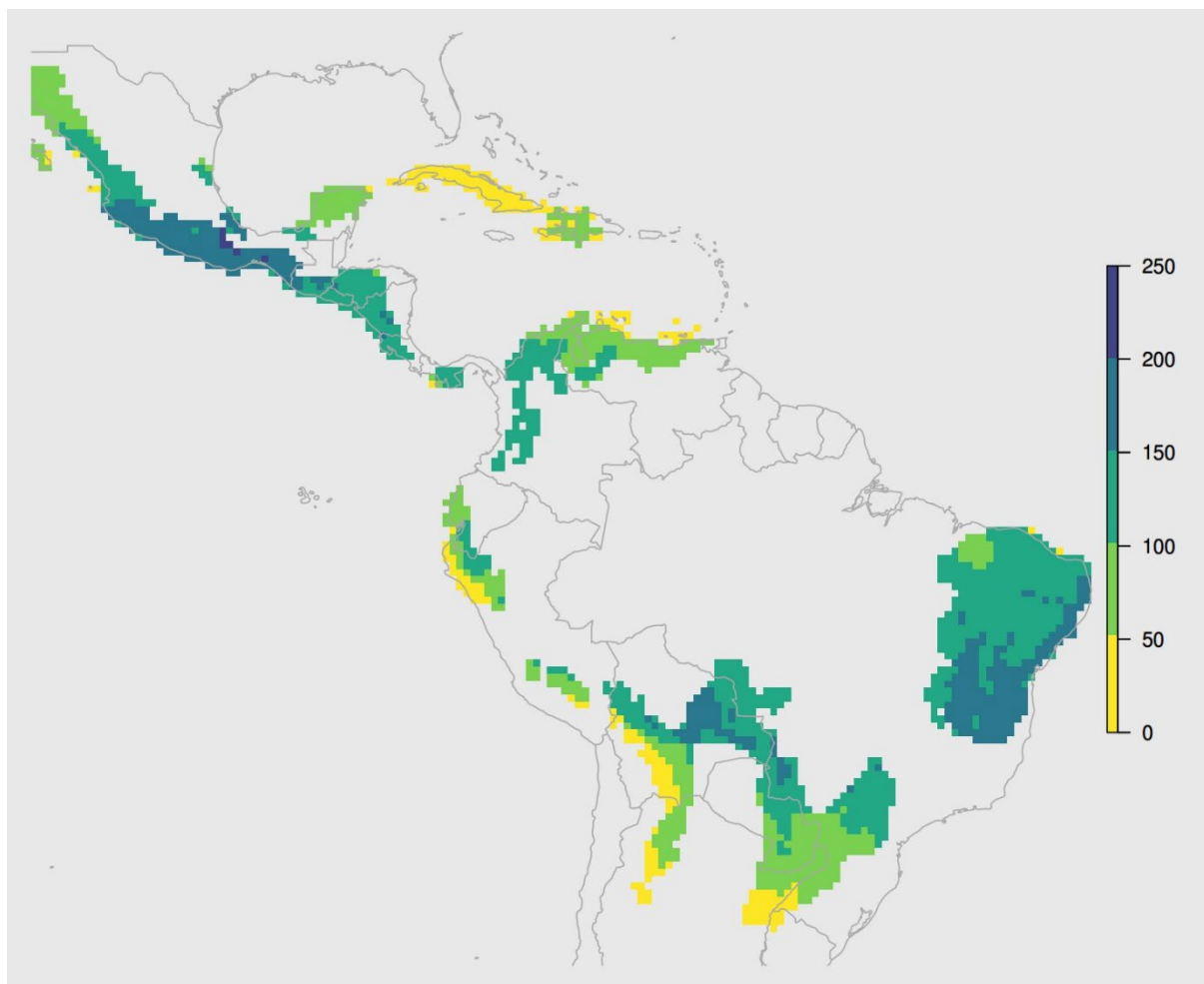
Project Update: September 2022

ACTIVITIES DEVELOPMENT

Species and data collection

From all databases available as GBIF [<https://www.gbif.org/>]; Sistema Nacional de Información Sobre Biodiversidad de México [SNIB; <https://www.snib.mx/>], SiB-Colombia [<https://sibcolombia.net/>], and DRYFLOR, we obtained around 2050 plant species associated with Neotropical seasonally dry forest. Then, after we performed a data cleaning process including nomenclature check, geocoding error, and background check against previously known distributions, we had ca. 1200 species with more than nine records.

Of the 1200 species, 243 belong to an IUCN category: five belong to Data Deficient, 200 to Least Concern, seven to Near Threatened, 21 to Vulnerable, and nine to Endangered. Nevertheless, we assumed that some of the species which did not appear on the Red List did have enough data to be evaluated. Our results could be a tool to identify potential species that could be endangered in climate change scenarios.



Richness map.

Potential distribution models

Until now, we have performed the potential distribution models for 10XX species for current and three future climate change scenarios (2040, 2060, 2080). We constructed an incidence matrix to calculate the taxonomic and phylogenetic diversity of the dry forest in current future climatic scenarios based on model predictions.

Preliminary results indicate that under global climate change the seasonally dry tropical forest will lose 2.3% ($\pm 1.9\%$, standard deviation) in species richness for the year 2040 and the reduction is expected to increase up to 10.3% (± 5.1) in 2080. On the other hand, the alpha phylogenetic diversity, specifically, the mean pairwise distance (MPD) increased on average 0.5 (± 14.8) in 2040 and 1.1 (± 18.3) in 2080, suggesting local extinctions. Consonantly, we also observed changes in the composition among communities; the dissimilarity among sites is expected to increase (i.e., biotic heterogenisation) in future scenarios, 31% ($\pm 19\%$) in 2040 up to 37% (± 0.20) in 2080, compared to the current scenario ($29\% \pm 18\%$).

Fieldtrips

The field trips have been to Colombia and Mexico but we have not yet gone to Venezuela for security reasons. In Colombia, we selected Montes de María dry forest due to this forest has several endemic species. In Montes de Maria Forest, we measured functional traits and made a brief teaching course to students from Universidad de Sucre, Sincelejo, Colombia, on how to measure the functional traits in trees and the main characteristics of these plants. In Mexico, the field trips have been along Veracruz state which is one of the places with more gaps of information regarding the seasonally dry tropical forest. After all, we already have more than 30 endemic species with functional traits data.





Above: Functional traits. Below: Dry Forest Colombia.