P52-07 – S52 *Free Session: Tropical ecology*
17:30 – 18:30 – Joffre Area (Level 1)

Seasonal variation in tree growth along a hidro-edaphic gradient of oligotrophic forest in northern amazonia

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Background: Understanding growth patterns of trees is essential to assess the potential of forests to accumulate carbon. Biotic and abiotic factors that influence tree growth vary spatially and temporally within forests. The goal of this study was to determine how abiotic factors (soil texture, water table depth and rainfall) influence the seasonal changes in tree diameter growth in a hidro-edaphic gradient of oligotrophic forest in northern Amazonia.
Methods: We analyze seasonal changes in tree diameter increment over three consecutive years (quaterly measurements between February 2013 to February 2016) among 2427 randomly selected individuals (dbh greater than or equal to 10 cm) of 290 forest tree species spread over 10 1-ha plots. The plots were located at the Viruá National Park (Caracaraí, Roraima, Brazil). The Virua network forest plot is a long-term research site coordinated by the Brazilian Biodiversity Research Program (PPBio). Intra-annual diametric growth was measured with plastic band digital dendrometers and calipers that are accurate up to ± 0.01 mm.
Results: We observed a strong seasonal variation in tree growth between sites and years and the overall tendency to reduce tree growth during the dry season followed by peaks of diameter increment during the rainy season. The plot mean annual growth vary from 0.1 to 2.3 mm/year. In plots located in sandy soils with shallow water table, the mean annual growth did not exceed 0.6 mm/year while in well-drained soils the mean annual growth could attain 2.3 mm/year. In the monitored interval, less than 40% of the individuals presented any growth suggesting that few individuals could be responsible for most of the forest net primary productivity.
Discussion: These observations will provide valuable insights into environmental and ecological triggers of diametric growth, differences in species sensitivity to these triggers, and potential limitations of forest productivity in response to climate change. The ongoing monitoring will also reveal the effects of 2015-2016 El Niño drought on tree growth and mortality in this still neglected area of Amazonia.

P52-08 – S52 *Free Session: Tropical ecology*
17:30 – 18:30 – Joffre Area (Level 1)

Landscape connectivity of the Mangroves forest in Costa Rica, Central America: one of the world's most threatened ecosystems

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Mangrove forests occur along ocean coastlines throughout the tropics, and support numerous ecosystem services, including fisheries production and nutrient cycling. In addition, mangroves sequester approximately 22.8 million metric tons of carbon each year, and account for 11% of the total input of terrestrial carbon into the ocean. However, the areal extent of mangrove forests has declined by 30–50% over the past half century as a result of coastal development, aquaculture expansion and over-harvesting. Particular areas of geographical concern include the Atlantic and Pacific coasts of Central America, where as many as 40% of mangroves species present are threatened with extinction. In this fragmented landscape, the connectivity between habitat patches is very important to maintain viable populations. In this study, we aim to quantify connectivity of the Mangroves forest in Costa Rica, using graph theory to identify how landscape connectivity has change in the past 60 yeas, in order to establish conservation priorities and to direct conservation efforts. Graph theory is a good approach because connectivity indices combine spatially habitat data with species-specific dispersal data and can quantify structural and functional connectivity over the landscapes. We will use these indices to quantify the overall connectivity of the study area, to determine the change in connectivity. Natural areas were identified using 2008 land cover data for Costa Rica and compared with the first edition topographical maps that range between 1945 and 1965. Functional connectivity will be analyzed using the dispersal distances of Mangrove warblers (Setophaga petechia xanthotera) (5km), which is and endemic subspecies to the Mangroves forest in Costa Rica and is the focus species in my PhD research. Currently I am working on the analyses but the results are going to be ready for the ATBC 2016bsymposium.