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Soils Inundation and Forest Composition in a Large Tropical Wetland

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Many tropical wetlands are subjected to seasonal flooding. It creates an inundation gradient, which influences richness, basal area, and composition of species. However, the influence of soils together inundation in these environments is poorly understood. The aim of this study was to verify how much of the soils variation and inundation can explain the species composition in riparian forests of Pantanal wetland, Brazil. The study was accomplished in four areas of the national park of the Pantanal along the rivers Bigueirinho, Cuiabá and Burros lake. In each area, was established 120 plots of 5 x 15 m each one, totaling 120 or 0.9 ha of sampled area. In each plot, was sampled all trees with diameter at breast height (1.3 m above soil) equal or greater than 5 cm. We also included palms with stems higher than 1.3 m. To verify the individual levels of inundation was measured the height of watermark left by the last flooding in each tree. After that, was used a mean of these measures by each plot. In each one was also collected 10 simple soil samples between 0 and 20 cm depth, to compose a single sample. For each soil sample, were analyzed macro and micronutrients, granulometry, pH, organic matter, cation exchange capacity and basis saturation. Were analyzed the data using variance partitioning and RDA. We sampled 1047 individuals belonging to 24 families, 37 genera and 51 species. The soils parameter analyzed explained 18% of the total species composition variation, while inundation explained only 7.4 %, becoming clear the stronger role of the soil parameters on species distribution in these wetlands than inundation.