



Influence of Soils, Precipitation and Slope on the Composition of Species along a Forest Altitudinal Gradient in the Border of Pantanal Wetland

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The aim of this study was to verify the influence of soils nutrients contents, precipitation, and slope on the composition of species along a forest altitudinal gradient in a tropical seasonal hill in the border of the Pantanal. Five areas were established at different altitudes. The first at 100 m, on a plain, and the rest on Santa Cruz hill at altitudes of 200, 400, 600 and 800 m. In each area, twelve 30 x 30 m plots distributed in three 30 x 120 m blocks were established, totaling 5.4 ha. These blocks were positioned perpendicular to the slope direction. All trees and shrubs, with branch circumferences at 1.3 m above soil summed 15 cm or more, were sampled. We also measured the slope of each sample with help of a clinometer. Fifteen soil samples between 0 and 20 cm depth were collected in each plot. These samples were then mixed to give a single sample per plot and used for nutrient and granulometric analyses. The rainfall per altitude was estimated using data from rain collectors at several altitudes on hills in the region. We sampled 6093 individuals of 169 species in five altitudes. There was a gradient in the soil nutrients level along the altitude variation, except in the area at 200 m. This gradient was related to soil depth where, with exception of the area at 200 m, the shallow soils were at higher altitudes and the deeper ones were found at the base or intermediate areas. The number of species at each altitude varied from 49 to 79 with no clear tendency with altitude. In terms of floristic composition, there were two main vegetation groups corresponding to the deciduous forest up to an altitude of 200 m and the semideciduous forest between 400 and 800 m. These variations in floristic composition were influenced mainly by the variation in precipitation and slope for semideciduous forest and by nutrients for the deciduous forest.