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Animal Welfare

Plant Biomass Production in Ecological Compartments in a Network of Long-term Research Sites in the Caatinga Biome

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In seasonally dry tropical forests, biomass is a vital natural resource for the functioning of the biosphere. Its quantification and monitoring are necessary for better planning and management of its use in these areas. Therefore, the objective was to quantify the biomass of different land uses in different compartments of the herbaceous layer in a network of long-term research sites in the Caatinga biome. Evaluations were carried out in plots located in the municipality of Sertânia, Pernambuco. These included the following types of vegetation cover used for livestock purposes in the Caatinga Biome: dense Caatinga, open Caatinga, and herbaceous. In each land use system, two plots of 25 x 25 m (625 m²) were delimited. Within each plot, a 5 m wide border was separated around the entire perimeter, leaving a useful study area of 20 x 20 m (400 m²). These plots were divided into areas with exclusion and inclusion of animals. In each of the four vertices of the useful plot, a sub-plot of 1 x 1 m was delimited, and within these, data were collected on herbaceous and regenerative biomass, necromass, litter, and other life forms. These samples were organized and their estimates interpreted. In the open Caatinga, 0.189 kg/m² of litter was quantified regardless of the presence of animals. The herbaceous layer varied from 0.059 kg/m² to 0.137 kg/m² with exclusion and inclusion, respectively. Necromass on the soil was quantified at 0.155 kg/m² with exclusion of animals. In the dense Caatinga, litter, herbaceous, and necromass on the soil varied from 0.193, 0.0, and 0.148 kg/m², respectively, in the exclusion plot, to 0.226, 0.08, and 0.37 kg/m² in the inclusion plot. In the pasture plot with animal inclusion, 0.094 kg/m² of litter and 0.099 kg/m² of herbaceous biomass production were quantified. Quantifying this herbaceous production is essential for understanding the biogeochemical cycling of the ecosystem and for food production and livestock.

Keywords: seasonally dry tropical forest, phytosociology, land use.