

Study of the Diversity of Earthworm Communities in the Reserve and Hunting Domain of Bombo Lumene, Tray of Bateke

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Summary

Soil macrofauna is regularly put forward for his role on the physical and chemical characteristics of cultivated land. In addition, the working frequency and intensity of cropping land use are important to consider in the management of agricultural land factors. This thesis aims to quantify the effect of land cover on earthworm communities, and to identify environmental factors that govern these organizations. Among the potential factors, the diversity of the structure of the habitat is increasingly discussed, but few studies support these hypotheses. Based on a large sampling of earthworms, the study to investigate the earthworm diversity and simultaneously the effect of different regulatory factors in different land of Bombo-Lumene was performed. A strong earthworm habitat diversity was found to be based on crop, diet, type of prostomium and geographical distribution. Ten species of earthworms have been identified including 8 endemic and 2 cosmopolitan ones. The diversity of these lines was correlated with the type of land use. It has a very strong and decisive effect on stand density earthworms. In addition to environmental variables, taxonomic richness of earthworms can be reliably predicted by the type of land use. The dense forest, gallery forest and forest regrowth are more diverse than the tree savannah, grassland and land under cultivation. Furthermore, the decomposition of wood is of first importance on the development of soil characteristics, including the enhancement of forest and/or agricultural issues. Earthworms play an important role in the transformation of soil organic matter, nutrients, distribution of energy flow in terrestrial ecosystems and increasing soil fertility. Three *taxa* decomposers of wood, namely *Dichogaster austeni*, *D. wenkei* and *D. tenuiseta* were identified. The joint analysis of soil and earthworm casts suggested significantly larger carbon and nitrogen soil contents. The role of the macrofauna was discussed in the context of the restoration of degraded areas by the mobilization of organic matter in the soil ecosystems and the improvement of soil fertility in the tropical climate. In addition, the type of land use significantly influence the ecological structure of earthworm populations. Abundances and densities of earthworms were positively correlated to the gradient of vegetation. The semi-deciduous rain forest seems more suitable and conducive to the development of these stands. Earthworm biomass decreased following a intensification gradient of anthropogenic activities. Soil-dwelling species are unfailingly better suited to different habitats and that epigeic anecic species. Therefore, they are an important component of ecological categories of earthworms. In contrast, anecic species are better represented in the soil under cultivation, which reflects their particular adaptation to the environment disturbed.

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