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## Microbial Biomass Dynamics in Eight Ecosystems During a Climatic Transition Phase at Mt. Kilimanjaro

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### Abstract

To understand impacts of climate and land use changes on biodiversity and accompanying ecosystem stability and services at the Mt. Kilimanjaro, detailed information about the soil microbial biomass and fluxes are needed. Transition phases within the bimodal tropical climate are of special interest since several parameters experience changes in a short time period. Each of the affected parameters has a different effect on soil microbes. As an important factor for soil fertility, microbial biomass C and N will be described on different pedon depending on land use (natural *vs.* agricultural ecosystems) and climate (altitude gradient). Microbial C content will be quantified in different depths and in various dominant ecosystems, *i.e.*, maize fields, coffee plantations, lower montane forests, homegardens, savannah, Podocarpus forest, Ocotea forest and grasslands. Microbial contents of the different land use types will be compared with the conversion of natural ecosystems to agriculture as well as to the changing plant diversity. A comparison of all investigated ecosystems - during the transition period - should provide a better understanding about the change from natural to agricultural land as well as further land degradation.

**Keywords:** Climate transition, land-use change, microbial biomass C, montane ecosystems