

Soil macrofaunal communities in permanent pastures derived from tropical forest or savanna.

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The impact of the conversion of native ecosystems into extensive or intensive pastures was assessed with a standardised methodology in two neotropical phytogeographical regions, *i.e.* a tropical savanna area (Eastern Plains of Colombia) and a tropical rain forest area (Brazilian Amazon).

In the savanna area, extensive cattle ranching only leads to a slight enhancement of earthworm populations and to short-term fire-induced decreases of macrofaunal density. In intensive pastures, the initial taxonomic richness and composition of soil macrofauna is maintained, while native earthworm biomass is highly increased. This may be explained by the similar mesologic conditions between these systems (similar vegetation structure) and by the highest quality of the organic inputs in the pastures (roots, litter and cattle faeces). Increased macrofaunal activity with a high taxonomic diversity is expected to have positive impacts on the sustainability of pastures in Colombian savannas.

In the Amazon basin, slashing and burning of the forest for intensive pasture establishment origins more dramatic effects on native macrofauna. Taxonomic diversity is particularly deeply affected. Native earthworm species are largely depleted at the expense of exotic peregrine species like e.g. *Pontoscolex corethrurus*. These results are probably bound with the dramatic environmental changes that follow the conversion of forest into grassland ecosystems. Such modifications of macrofaunal communities are likely to have potential negative effects in terms of soil functioning and sustainability of agropastoral systems in this area.

Key words: Tropical savannas, forests, pasture establishment, soil macrofauna, earthworms, soil biodiversity.