Relevance of Soils in the Context of Climate Change

The Amazonian rainforest

- „green lung“ of the Earth, hotspot of biodiversity, and tipping element in the global tipping system
- self-sustaining system: regulates regional climate, hydrology & nutrient cycling

Tropical Soils

- can be sources or sinks for CO_2 depending on land-use practices, climate, and above-/ below-ground biomass
- capture organic carbon → conversion from forest leads to the release of CO_2

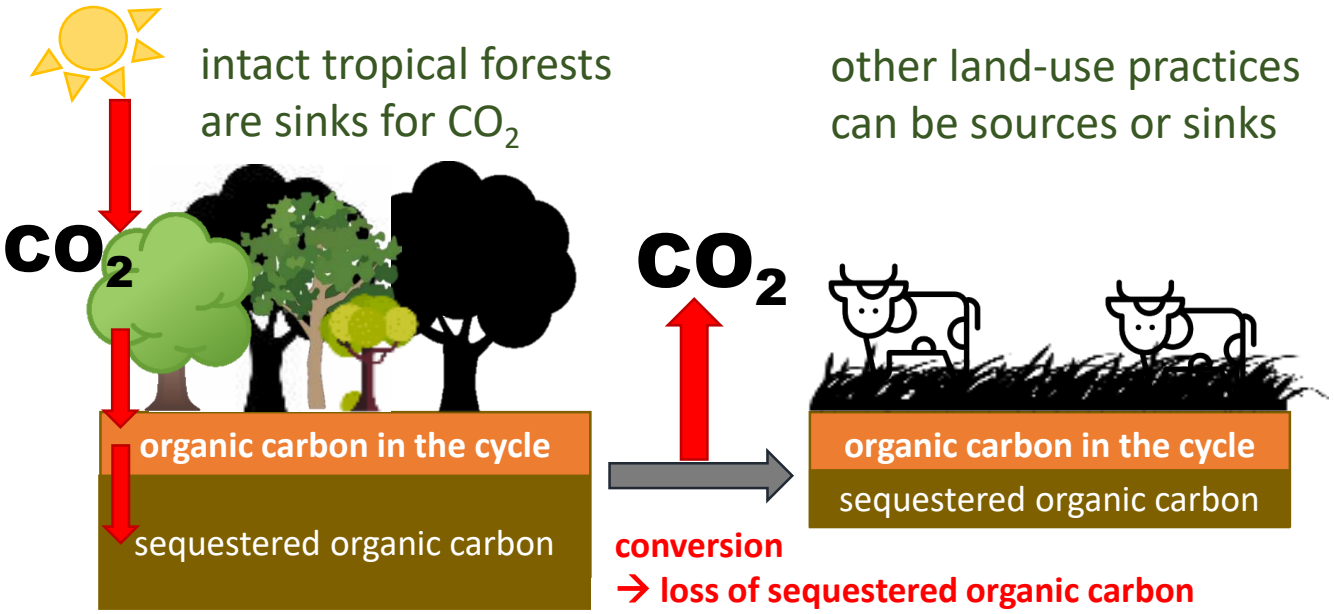

Fig 1.: Simplified sketch of the Organic Carbon Cycle in tropical ecosystems. Tropical rainforests store large amounts of carbon in the biomass and soil. After conversion of these forests to other land-use types, the carbon will be released as Carbon Dioxide (CO_2) into the atmosphere driving climate change.

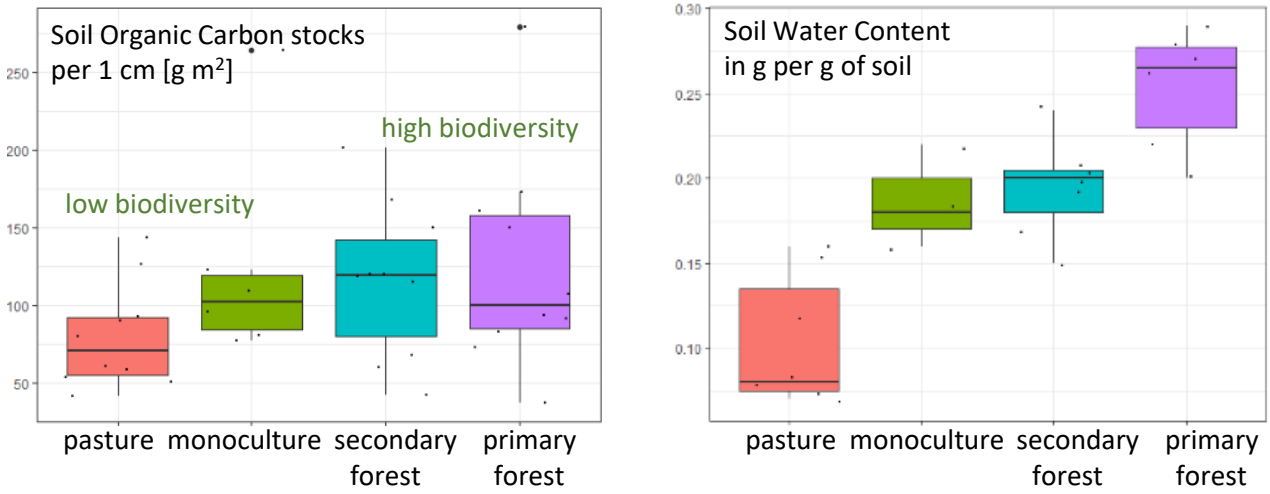

Fig 2.:. Left: Soil Organic Carbon stocks are higher in intact forests compared to other land-use practices as more organic carbon is stored. Right: Soil Water Content is higher in intact forests, as forests are self-sustaining systems regulating their own precipitation and tempera-ture, which are relevant factors in the Organic Carbon Cycle. Data from our study sites in Madre de Dios, Peru.

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