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Oral

Monitoring carbon stocks and tree diversity in the tropical forest landscape of Tshopo province, Democratic Republic of the Congo (188)

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 oral

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OS-10 Species resilience and adaptations to climate change

Abstract

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Tropical forests provide a multitude of ecosystem services and are exceptional reservoirs of carbon and biodiversity. In the Democratic Republic of Congo, forests are threatened by deforestation and degradation caused mainly by the expansion of agriculture onto forest land. The aim of this study is to estimate the impact of deforestation and degradation on forest carbon stocks and tree diversity in Tshopo province. The approach implemented consists of (i) monitoring the dynamics of the forest frontier, i.e. the forest-agriculture interface, using satellite products and GPS points and identifying its determinants through field surveys and (ii) assess the impact of land use on carbon stocks and biodiversity using tree inventory in 50×50 m plots established in the different land uses. We assumed Kisangani to be the epicenter of deforestation and degradation, with a sampling along different road axes, and at different distance from the city, 0-50, 50-100, and 100-150 km. Satellite products evidence that deforestation is concentrated around the town of Kisangani, and along main roads, with an acceleration of the phenomenon from 2010 onwards. Plot data shows that mature forest loses almost all its above-ground biomass when it is converted to food crops, and plantations, but this biomass is gradually recovered during succession from the young fallows to the old fallows, and up to secondary forests. Diversity is also impacted by forest conversion, and although species richness seems to recover more rapidly than biomass, floristic composition is fundamentally altered, with only little overlap in species composition between secondary and mature forests. These results are of extreme importance to guide forest management and conservation strategies in the province.

Keywords:

Biomass, Carbon_stock, Climate_change, Deforestation, Democratic_Republic_of_the_Congo, Diversity, Forest_degradation, Land_use, Tropical_forest, Tshopo_province

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