**To burn or not to burn: transition from savanna to forest in the ‘mise en défens’ in Manzonzi (Lower Congo Province in the Democratic Republic of Congo)**

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The regular burning of forests and savannas is a tradition in most African countries. In the Lower Congo Province of the Democratic of Congo, this practice was stopped over 88 ha in 2005. The changing landscape is quantified through measurements in permanent sample plots, wood samples and tree-ring analyses. In total, more than 10 000 trees were identified and diameters were measured, along with the quantification of seedlings and juvenile trees with circumference < 20 cm. Height measurements are available for 10% of the total sample population and 23 trees were felled and carefully weighed (stem, branches, leaves, fruits). The felled trees contained cambial marks that are being studied on stem disks to see if dominant tree species have distinct tree rings. The influence of this exclosure on forest structure and carbon stock is evaluated and existing biomass models are compared to new models based on the current inventory. The preliminary results show a transition from a more dominant savanna structure with *Maprounea Africana* Müll. Arg. to a secondary tropical forest structure with pioneer species as *Macaranga spinosa* Müll. Arg. Biomass models (based on both weighed trees and dendrometric data) point out that the structure of classic pantropical equations is not ideal within transition zones like the exclosure. However, conclusions will only be drawn after thorough analysis of AIC values and residual plots. Our results can be directly used within the ongoing REDD+ - readiness project.