From the Sahara to the Congo River

Combining

Assisted Natural Regeneration and Land Tenure Security

to improve

slash-and-burn agriculture

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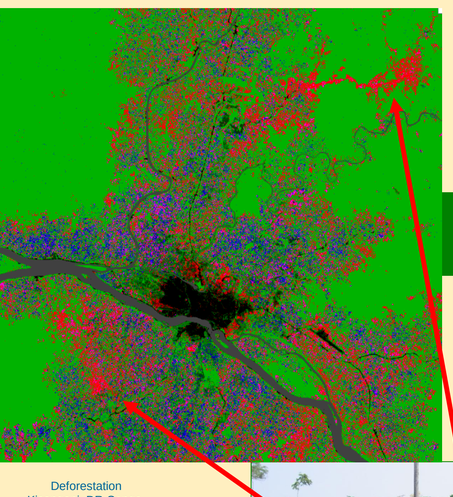


Deforestation
Kisangani, DR Congo,
Google 2013
------ 5 km

Background

Slash-and-burn (S&B) agriculture is the leading factor behind the degradation of tropical forests and represents an ecological and economic dead end.
Most of the techniques tested to replace S&B (alley cropping, Ramial Chipped Wood, micro-char, etc..) have provided disappointing results in terms of dissemination at the farm level. Over one billion farmers still rely on S&B for their daily survival.

Many authors have noted that to improve S&B, technical methods easy for poor farmers to implement (involving minimal equipment, labour, and agricultural inputs) are essential, and must be supported by public policy.

Faidherbia albida and *Sorghum* in North-Cameroon

In dryland Africa, especially in Niger and northern Cameroon, funds raised through projects and levies on bundled cotton sales have made it possible to support the conservation of young trees on fields when fallows are cleared and during weeding. This Assisted Natural Regeneration (ANR) support policy was promoted by the State Corporation responsible for the development of cotton crops and was accompanied by a delimitation and demarcation of fields. From 1990 to present, this policy has resulted in the conservation of over one million *Faidherbia albida*, and, in so doing, the expansion and densification of Agroforestry Parklands (AfP).

Methods

In the equatorial wetlands of D. R. Congo (DRC), the experience is much more recent. Simple Management Plans (SMP) of village territories have been put in place since 2010 to improve Land Tenure Security (LTS). ANR methods also have been promoted to conserve young trees growing spontaneously in cultivated fields, after S&B, when fallows are cleared and during weeding. In areas where the environment was too degraded, leguminous trees have been planted as Planted Improved Fallow (PIF) using the Taungya method.

Results

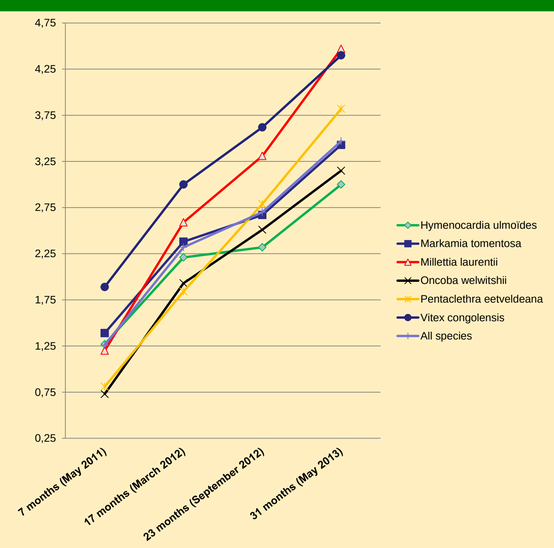


Figure 1: Mean diameter (in centimetres) of ANR trees measured 30 cm above the ground, by species and as a function of time (in months) after burning

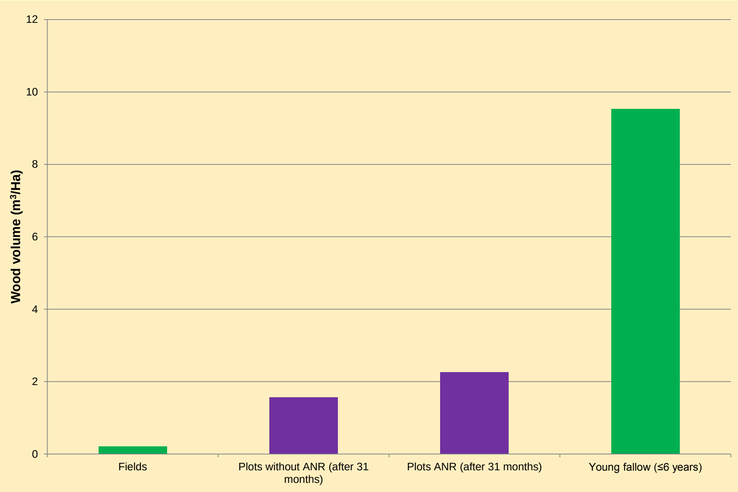
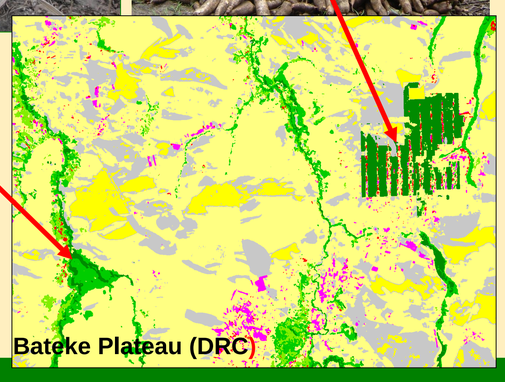


Figure 2: Wood volume per hectare represented by stems of DBH ≥ 3 cm, on control (without ANR) and ANR plots 31 months after conservation of young trees and on different vegetation types inventoried on the Bateke Plateau



Trees conserved (ANR) or planted (PIF) to improve productivity in terms of fire-wood and other forest products accelerate the restoration of soil fertility and block the invasion of savanna pyrophytic vegetation before a new « Slash–and–Charcoal » cycle. In DRC, between 2010 & 2013, over 150 farmers have used ANR and 1700 ha of *Acacia auriculiformis* have been planted.

Discussion

The evolution of the vegetation on ANR plots and on control plots (without ANR) must be monitored over the normal fallow period, i.e. 8 to 10 years. At the end of this period, it will be possible to verify whether ANR has increased biodiversity, biomass, Non-Wood Forest Products (NWFP), and soil fertility, in a sustainable manner.
Finally, we must verify whether farmers extend ANR to other plots and if their land rights are contested.

Conclusion

When supported by land tenure security policies, the use of simple techniques requiring little labour or inputs allows a gradual transition from S&B to more productive and sustainable agroforestry systems (parklands in the Sahel and improved fallow in forest areas).

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