



Planning of guadua bamboo forests considering both: Conservation and Productivity

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Planning of guadua forests considering both: Conservation and Productivity

1. Context
2. Inventory and forest fragmentation
3. Productivity and sustainability
4. Planning approaches
5. Conservation



1. Context ...



Colombia

Forest is about 50 millions of ha

100 bamboo species ...

Guadua angustifolia commercially more important

Mainly Andean region

2. Inventory and fragmentation



Guadua distributed from sea level up to 2,000 m

About 28,000 ha in the coffee region (2006)

Natural bamboo stands



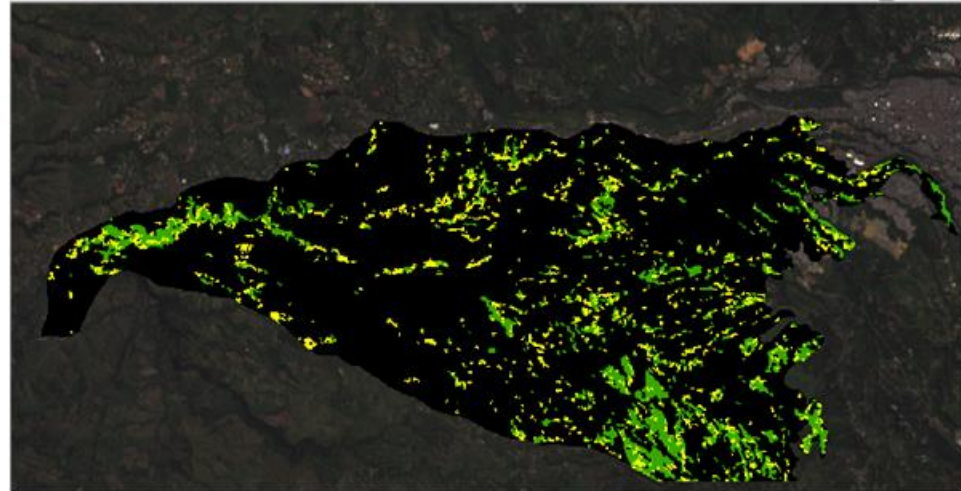
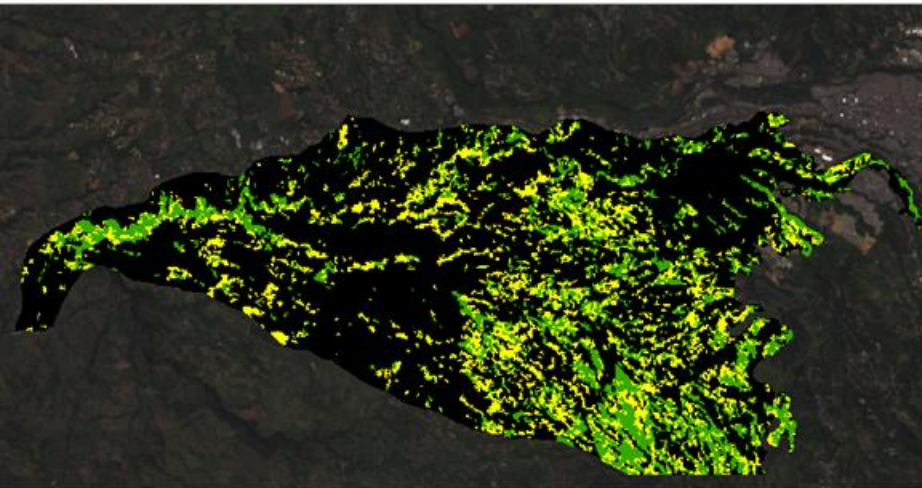


Temporary analyses

2002



2013



- 60 %

A proper management and conservation of bamboo resources requires to know on: what, how much, where, behaviour ...



Threatened?

3. Productivity and sustainability

Definition of ecological limit (threshold) for harvesting (2,500 living culms/ha remain).

Long-time simulation sceneries (definition of a proper harvesting regime)

Possibilities of including different products

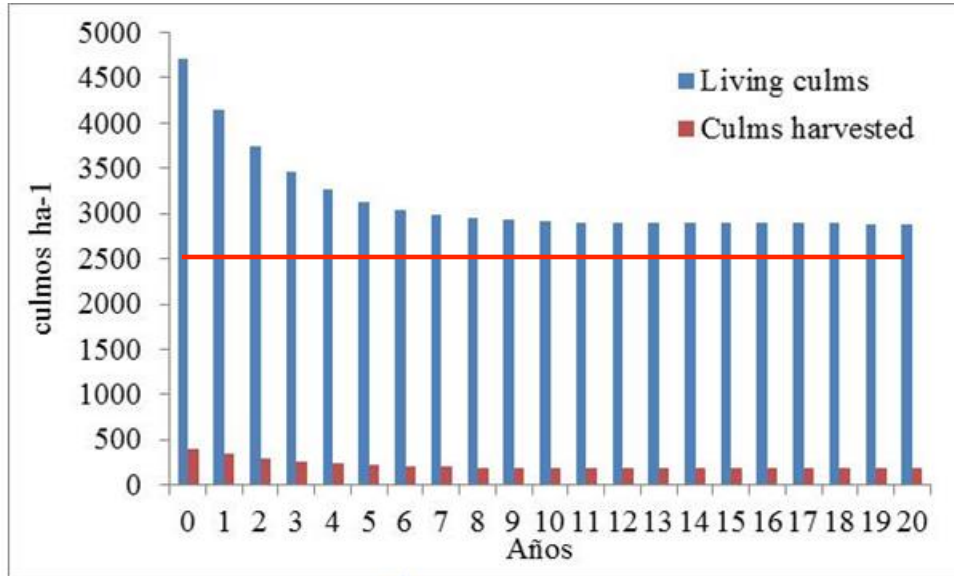
Considering ecological functions



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Defining sceneries of productivity :

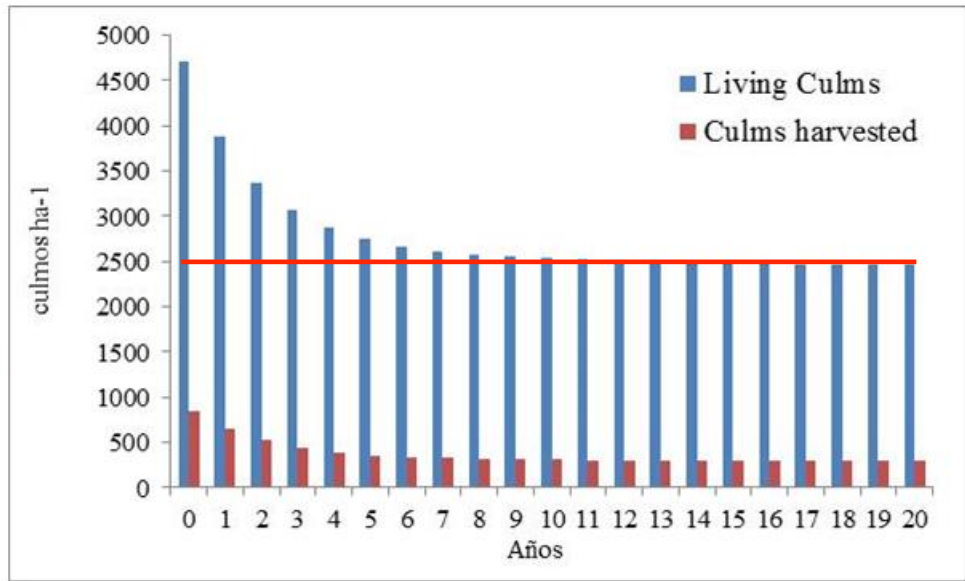
Culms harvested

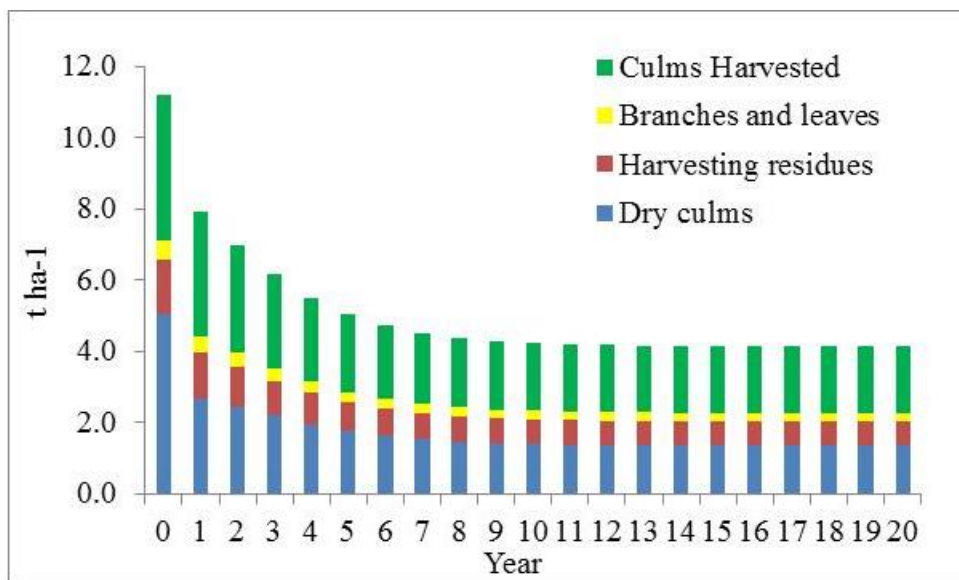
Initial density of 5,211 culms / ha

Scenario 1: Harvest 12% of commercial culms

Scenario 2: Harvest 25 % of commercial culms

— Threshold





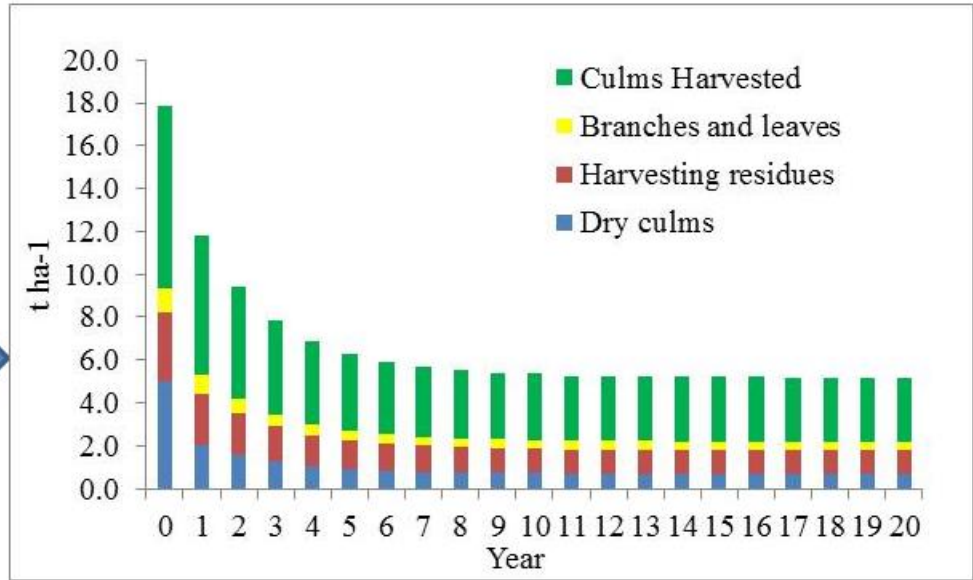
Defining sceneries of productivity :

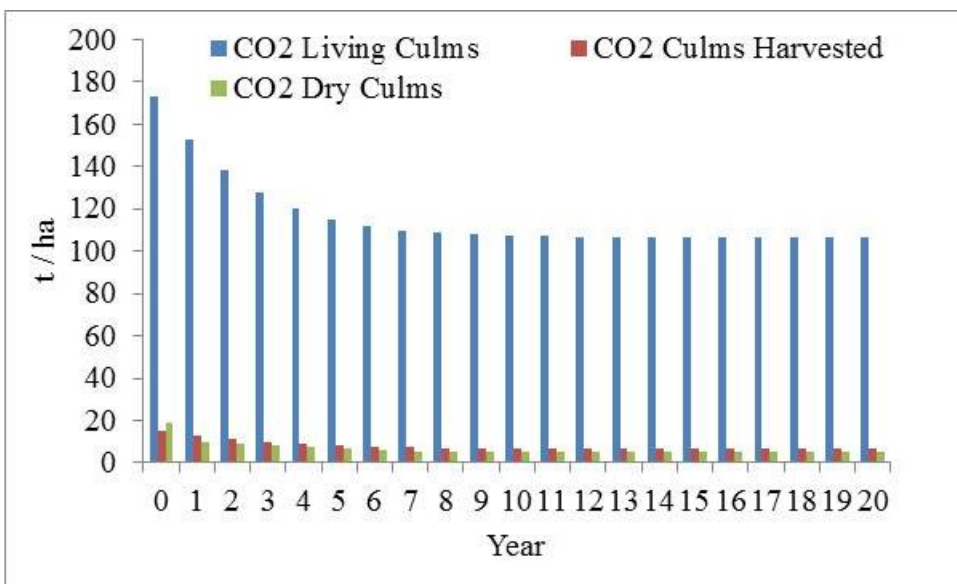
Biomass

Initial density of 5,2 11 culms / ha

Scenario 1: Harvest 12% of commercial culms

Scenario 2: Harvest 25 % of commercial culms





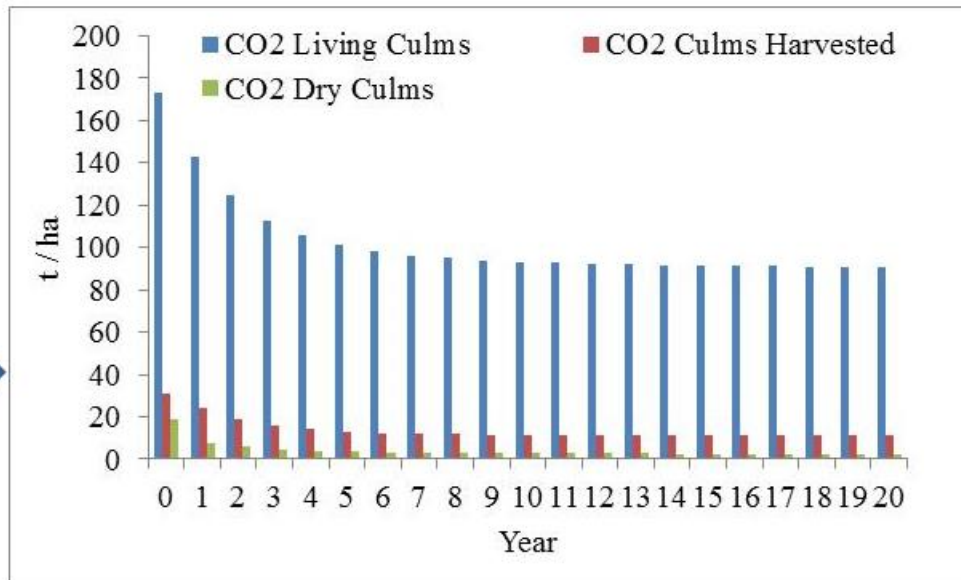
Defining ecological functions:

CO₂ sequestration

Initial density of 5,211 culms / ha

Scenario 1: Harvest 12% of commercial culms

Scenario 2: Harvest 25 % of commercial culms



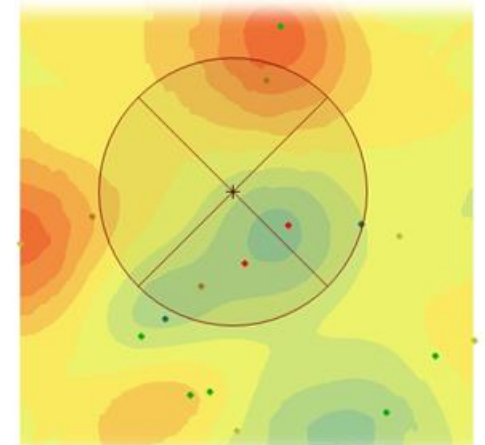
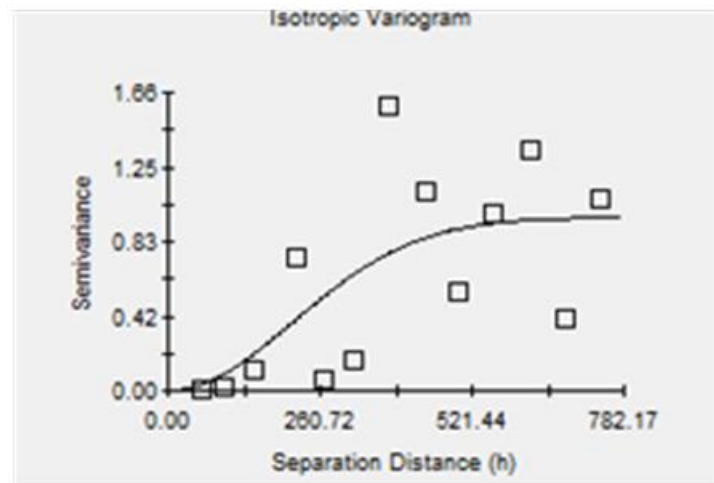
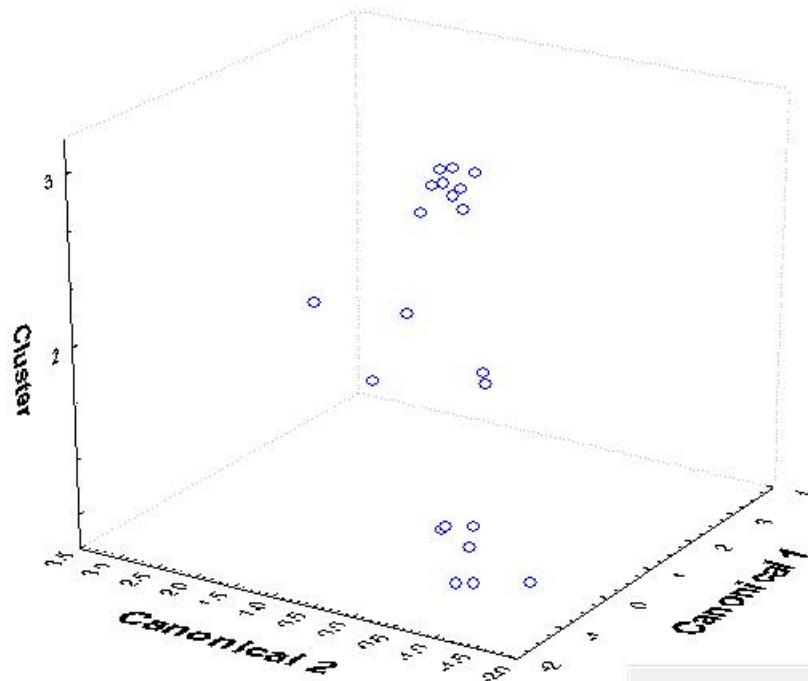
4. Planning approaches



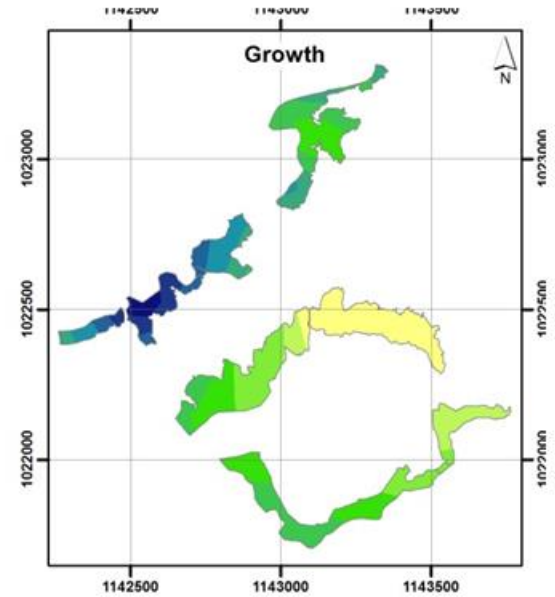
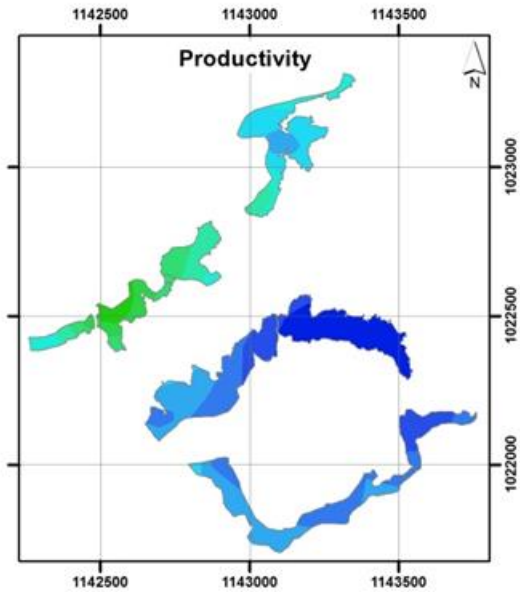
Defining productivity and quality...

Multivariate (Cluster & Canonical)

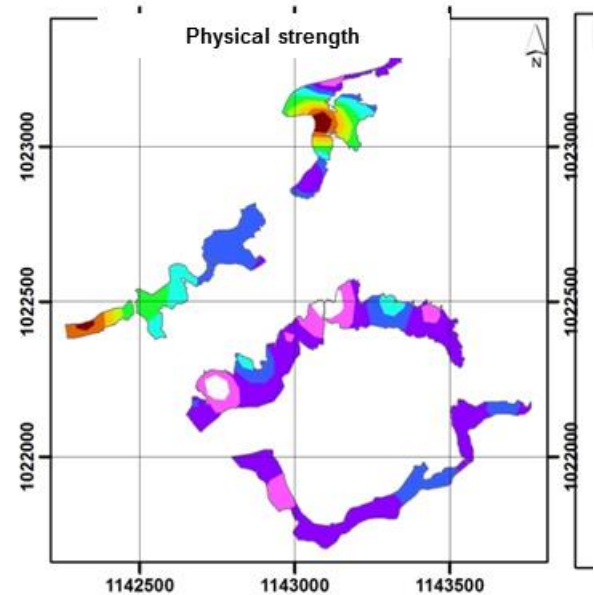
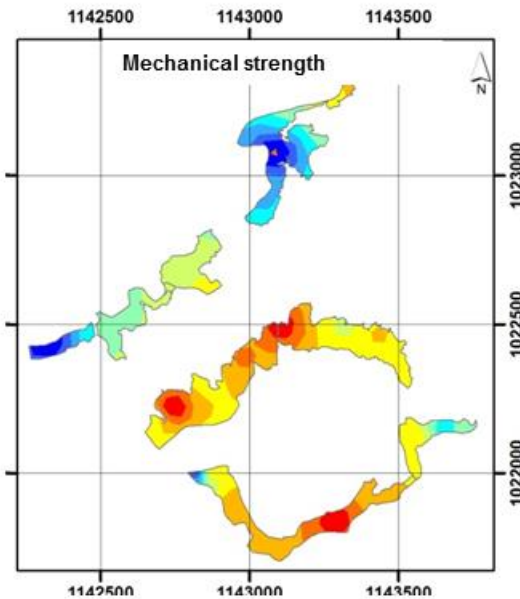
Geostatistical (Kriging)



Maps of growth, productivity and quality:



for making
better
decisions...



5. Conservation ...

Improving ecological functions at landscape level



Biodiversity conservation...





We may really contribute to conservation and a sustainable productivity...

