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# Planning of Guadua Forest Based on Land Assessment and Site Quality

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## 1. Introduction

In the Colombian coffee region the woody bamboo species Guadua (*Guadua angustifolia* Kunth) represents an important natural resource traditionally used by farmers for many purposes such as construction, furniture and handicrafts (Londoño 1998). Due to the variety of uses the commercial value of Guadua culms has recently increased (Held 2005). Therefore, this resource has potential productive and protective functions essential for the sustainable development of this important region of Colombia (Camargo 2006).

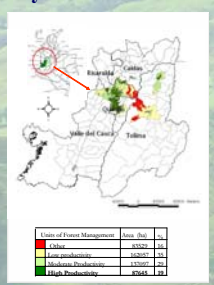
In this work are presented the main issues of the Guadua forest plan carried out as a base to lead forest development and to contribute to an adequate management and promotion of this natural resource in the coffee region of Colombia

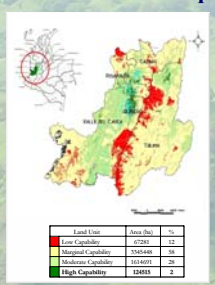
## 2. Material and methods

The definition of land capability for Guadua plantations (LCGP) was carried out in an approximate area of 5.766.397. Guadua stand qualification and consolidation of units of forest management (UFM) were done for 17 municipalities (470.328 ha) previously selected by government institutions due to high commercial activities associated to Guadua. LCGP and the qualification of Guadua stands in terms of productivity were integrated in a simple model by using a GIS. The model allowed to obtain a proposal for consolidating UFM.

To define LCGP 24 variables included within 5 factors which represent site conditions: topography, climate, soils, landscape ecology and socioeconomics. By using a simple decision model based on the above mentioned factors, it was feasible to define 4 classes of land capability: low, marginal, moderate and high.

In order to consolidate the UFM, detailed information on harvest volume and characteristic of Guadua stands related to site quality was included in the model. Thus three classes of UFM were defined according to productivity level: low, moderate an high. The software Arc View 3.3 and its extensions spatial analyst and 3D analyst were used for analyses and model development.




## 3. Results

Merely 2% of the evaluated total area resulted with high capability for Guadua production. This area is located close to urban centers where are sited most of Guadua stands. The main limitation for Guadua production was the lack of roads (to access) and the absence of places for marketing.

UFM defined at the category of high productivity represent 19 % of the total of municipalities analysed. In these areas, it is feasible to develop intensive programs of forest management, since all aspects show a favorable level. Other UFM at the categories of moderate and marginal productivity, could potentially become of high productivity. It is workable only if the volume of harvest increase and some conditions as access are improved.

## 4. Conclusion

The implemented model for forest planning was useful to define LCGP and also UFM. Nowadays, government institutions can lead the planning of Guadua stands based on this model. Also, UFM are an alternative against drawbacks relate to size of Guadua forest and their fragmented pattern because ease the integrated forest management.

## 5. References

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