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

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Abstract

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

Planning of *Guadua* bamboo forest is still a priority for government institutions responsible of giving principles for forest management. However, information collected in inventories and forest plans usually are unarticulated. Consequently, institutions can not provide a good guide to an adequate management of *Guadua* bamboo forest in the Colombian coffee region.

A general spatial decision model based on land evaluation process was developed to define potential areas for establishing *Guadua* plantations in five states of the Colombian coffee region. Thereafter, areas so called units of forest management (UFM) were defined for sixteen municipalities. To develop spatial decision model was used information from *Guadua* forest inventories and a baseline information on soils, climate conditions, geomorphology, environmental services and socioeconomic aspects. The software Arc View 3.3 and its extensions spatial analyst and 3D analyst were used. Also the extension Model Builder included within spatial analyst 2.0 provided tools to develop the model.

UFM represent areas with highest potential for establishing *Guadua* plantations. In addition, *Guadua* stands located within each nucleus were qualified in terms of productivity, quality and their potential to conform protected areas. Plans of management and strategies of marketing are now done according to the specific characteristics of nuclei.

The issues of this work are an important tool for planning *Guadua* forest and contribute to an adequate management of this natural resource in the Colombian coffee region. Also this experience could be replied in areas with fragmented forests.

Keywords: Forest planning, site quality, units of forest management