

**COMMONS AND COMMUNITY MANAGEMENT:
THE CASE OF MAMANGUA, BRAZIL**

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The challenge for alternatives to counter the prevailing processes that lead to deforestation in Brazilian tropical rainforests has been a matter of intense debate over the last decades. A number of innovative development projects have been implemented on the ground, many of which with important lessons to be learned. However, these lessons have rarely been analyzed on academic fora, incorporated into the scientific literature and incorporated in the process of formulating public policies.

This paper seeks to present a case study of an extractivist communities in the Municipality of Paraty, in the Brazilian State of Rio de Janeiro. These communities live inside two protected areas that overlap. They are descendants of Portuguese settlers that have mixed with Indian and African populations over the past centuries. Comunal property rights are not formally recognized. Most activities are related to native ecosystems,

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marine and terrestrial. We focus our analysis on forest ecosystems. Our objective is to use this case study to discuss the importance of local knowledge in implementing community development projects in areas where communal property rights prevail in tropical rainforest areas. Our thesis is that local knowledge is a critical element in the process of implementing sustainable development strategies.

STUDY AREA AND METHODS

The Mamanguá region is a 9 km long and 1,5 km wide strip of Atlantic ocean limited by a peninsula in the East and the continent in the West (Figure 1). The eastern portion is more isolated than the western portion due to differences in access by land. Both regions are equally accessible by sea. The original vegetation is the Brazilian Atlantic moist forest, which has been subject to a history of disturbances from Amerindians to post-colonial agricultural and extractivist economies. The climate is tropical and humid, with rainfall ranging between 1500 to 2400 mm/year, mostly in summer months.

Post colonial human settlement dates back to the XVII century. In the XVIII century there was intense economic activity, specially related to sugar mills, which drove the local economy and shaped migration and miscigenation patterns. With the decay of the sugar economy in the XIX, remaining populations declined and extractivist activities, mostly fishing, became the predominant source of income (Nogara and Diegues 1994).

Today, local communities are examples "caçara" dwellers, that live off extractivist activities from both forests, mangrove and ocean. The presence of tourists is relatively small, specially in the inner most part of the strip, due

to a high incidence of mosquitoes. The low presence of tourists contrasts with most surrounding areas, in which local caiçara populations have been expelled and given space to wealth tourist facilities.

In 1983 the area was transformed in the Environmental Protection Area of Cairuçú, with very little consultation. Later (1992), part of the area was transformed in an Ecological Reserve. While the objective of the Ecological Reserves includes the "protection of caiçara culture" and the legislation of Environmental Protection Area permits human activities, there are often conflicts between local caiçara populations and the environmental agencies involved.

The research reported here results from 5 field expeditions, including a field course. Data was collected using structured interviews. We interviewed 56 people of two communities, covering about 30% of total adult population.

TRADITIONAL KNOWLEDGE ABOUT FOREST ECOSYSTEMS

Traditional knowledge in the Mamangá area is relatively rich when compared to surrounding areas. The use of forest resources varies among family groups and so does the knowledge about the use and management of plant and animal species. There is a variety of plant species used as sources of food (table 5), medicinal products (table 4); and material for arts, crafts (table 1), boat and canoe (table 3); construction (table 2). This list certainly under-estimates the wealth of knowledge of caiçara communities in the region as new research keeps adding new species and uses. The objective here is not to present an

exhaustive list. Rather, our intent is to show that in this "isle" of traditional culture a rich wealth of knowledge exists.

TABLE 1. Forest plant species used for arts and crafts production .

Species names	Area of greater occurrence	Uses
<i>Caixeta</i>	Flooded forests	Woodcrafts
<i>Palha de brejaúba</i>	Old growth forests	Fan
<i>Bambu gigante</i>	Old growth forests	Fish traps
<i>Taquara lixa</i>	Old growth forests	Fish traps
<i>Taquara açu</i>	Old growth forests	<i>Tapiti</i> (utensil to prepare manioc powder)
<i>Cipó caboclo</i>	Old growth forests, secondary forests	Baskets
<i>Cipó timbupeba</i>	Flooded forests	Baskets
<i>Cipó imbé</i>	Flooded forests, old growth forests	Baskets

TABLE 2. Forest species used for construction.

Species names	Area of greater occurrence	Uses
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	occurrence	
<i>Angelim amargoso</i>	Old growth forests	Structure
<i>Araribá</i>	Old growth forests	Structure
<i>Caixeta</i>	Flooded forests	Doors and windows
<i>Canela</i>	Old growth forests	Woof
<i>Cedro</i>	Old growth forests	Structure
<i>Guaratambu</i>	Old growth forests	Structure
<i>Ipê roxo</i>	Old growth forests	Structure and woof
<i>Jacatirão</i>	Secondary forests	Structure and woof
<i>Louro</i>	Old growth forests	Structure
<i>Pau de mangue</i>	Flooded forests	Structure
<i>Sapê</i>	Secondary forests	Woof

TABLE 3. Forests species used for boats, canoes and oar.

Species names	Area of greater occurrence	Uses
<i>Bacubixaba</i>	Secondary forests	Oar
<i>Bicuíba</i>	Secondary forests	Canoe
<i>Caixeta</i>	Flooded forests	Canoe and boats
<i>Canafístula</i>	Old growth forests, secondary forests and flooded forests	Canoe and boats

<i>Canela</i>	Old growth forests	Boats
<i>Cedro</i>	Old growth forests	Canoe and boats
<i>Cobi</i>	Old growth forests	Canoe
<i>Guacá</i>	Secondary forests	Oar
<i>Guapuruvu</i>	Secondary forests	Canoe
<i>Guarana</i>	Old growth forests	Oar
<i>Ingá</i>	Old growth forests	Canoe
<i>Ipê</i>	Old growth forests	Canoe and boats
<i>Jequitibá</i>	Old growth forests	Canoe
<i>Louro</i>	Old growth forests	Canoe and boats
<i>Figueira parda</i>	Old growth forests	Canoe

TABLE 4. Medicinal forest plant species.

Species names	Area of greater occurrence
<i>Cipó abuta</i>	Secondary forests
<i>Cipó caboclo</i>	Secondary forests and old growth forests
<i>Cipó cravo</i>	Secondary forests
<i>Cipó guaco</i>	Secondary forests
<i>Embaúba</i>	Secondary forests
<i>Ipê roxo</i>	Secondary forests
<i>Jequitibá</i>	Secondary forests

TABLE 5. Forest plant species used as source of food.

Species names	Area of greater occurrence
<i>Araçá</i>	Old growth forests, secondary forests and flooded forests
<i>Bacupari</i>	Secondary forests
<i>Baubu</i>	Old growth forests
<i>Brejaúba</i>	Old growth forests, secondary forests and flooded forests
<i>Candiuba</i>	Secondary forests
<i>Coco mamona</i>	Old growth forests, secondary forests and flooded forests
<i>Fruta abuta</i>	Old growth forests, secondary forests and flooded forests
<i>Indaiá</i>	Old growth forests, secondary forests and flooded forests
<i>Ingá</i>	Old growth forests and

	flooded forests
<i>Jambo</i>	Old growth forests
<i>Jaqueira</i>	Old growth forests
<i>Palmeira Natal</i>	Old growth forests, secondary forests and flooded forests
<i>Palmito</i>	Old growth forests
<i>Pixirica</i>	Secondary forests
<i>Sapucaia</i>	Old growth forests

The use of forest areas by caçara communities in the Mamanguá region varies according to a diverse set of factors. It depends on the economic returns of these activities compared to others. As fishing becomes less attractive for whatever reason (prohibition, weather, etc), forest resource uses become more attractive. It also depends on the structure of families. As families demand greater presence at home (e.g. young or ill children), woodwork for crafts can become more attractive. Forest resources are also important to support other activities, specially fishing. Forest provide wood for boat, canoe and roof construction.

There are a number of other benefits for community development projects derived from incorporating local knowledge in the process of project design and implementation, including: (i) quality of information, (ii) speed to obtain information, (iii) cost of information, (iv) impacts on empowerment, (v) and

rights, (vi) control illegal harvest of natural resources by external groups, (vii) enhancing self confidence, (viii) identification of problems and potentials, and (ix) strengthening social organizations. Many benefits observed in this case seem to be of general validity for similar situations where traditional communities live in tropical forest areas.

THE IMPORTANCE OF TRADITIONAL KNOWLEDGE

The existing caiçara knowledge is important for various reasons. As ethnobiological and knowledge, this information can enhance the value of native biodiversity for conservation and sustainable development initiatives. The justification for this is quite well established in the literature (Alexíades 1996, Martin 1995).

The ethnobiological knowledge is important for conservation of cultural diversity. As such, it supports the reproduction of cultural traditions and habits that depend on utensils and resource management practices that are critical for the maintenance of traditional cultures, specially as they are threatened by other cultural pressures (Levi-Strauss 1987).

The focus of our attention is on the importance of local knowledge in defining land tenure patterns and rights. This is an issue that deserves special attention in many tropical forest areas. Which is the area actually used by traditional populations? Which type of land ownership is more appropriate for different communities? How different land ownership patterns contribute or not to sustainable development?

The forest area used by traditional caiçara population varies considerably among family groups and within family groups among different periods and years. Forest resources range from a small importance to mainly fishing families to a great importance to woodworkers. The forest area used is quite varied: it includes flooded forests, secondary forests and old growth forests (table 6).

TABLE 6. Number of plants species for different uses of forest products from different forest types.

Uses	Forest type		
	Flooded	Old growth	Secondary
Arts and crafts	4	6	1
Construction	2	9	1
Canoes, boats and oars	2	10	5
Medicinal plants	0	5	3
Food plants	7	12	7

If conventional land use patterns are assigned to these communities (square or rectangular small family lots), traditional resource use will inevitably become impossible. Caiçara populations need to have access to a variety of forest types. They include at least the three forest types discussed here. Other vegetation types such as mangroves are also important to caiçara economies.

CONCLUSIONS

Local knowledge is a critical element to secure communal property rights. This includes demarcation of land rights using patterns of resource use. Spatial patterns of resource use offer a concrete reference to discuss land tenure. Forest resource management practices are critical to harvest forest products on a sustainable basis.

Securing land tenure is a critical element to promote sustainable development strategies. Traditional resource use of caiçara communities suggests that a land tenure regime that combines individual property rights with communal property rights may be more appropriate for long term economic, cultural, social and ecological sustainability than conventional ones.

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