

Eco-Exchange

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Woodworkers Build Model Forestry Project for Extractive Reserves in Brazil's Amazon

Extractive reserves have been touted as a sustainable solution to conserve the Brazilian Amazon since the 1980s, when Chico Mendes fought for rubber tappers' rights and his cause became internationally known after he was murdered by cattle ranchers. The movement has had major success in convincing the Brazilian government to set aside forested land in the Amazon; to date, there are 25 extractive reserves that encompass 9,386,000 acres (3.8 million hectares), and 154,000 people. However, there are relatively few examples of extractive reserves where residents are making a living that is environmentally sustainable.

One success story is the Caboclo Workshop of the Tapajós-Arapiuns Extractive Reserve in western Pará, Brazil. The Workshop is an example of smallholder community groups sustainably managing their forest resources by harvesting wood for small-scale furniture production. In addition to local markets, the furniture is sold to stores throughout Brazil, including such leading national furniture retail chains as Tok Stok.

The Tapajós Community Forest Reserve, a precursor to the extractive reserve, was created in the 1980's when communities living along the banks of the Tapajós River organized to protest the encroachment of commercial logging companies. The Instituto Nacional de Colonização e Reforma Agrária, the government agency that administers land titles, granted an 8-mile by 40-mile (13-km by 64-km) forest reserve along the western shore of the Tapajós River. In the mid-1990s, the communities in the Tapajós Reserve joined with communities living along the Arapiuns River, a tributary of the Tapajós, to appeal for an extended Tapajós-Arapiuns Extractive Reserve, encompassing the lands lying between the two rivers. In 1998, they were granted a 1,666,993 acre (674,611 hectares) reserve, a swath of tropical forest bordered to the north and west by miles of white sand beaches during the low water season. The reserve is home to a people of predominantly indigenous descent who make their living from the forest as farmers, hunters, and forest product collectors. Their masterfully crafted basketry and canoes are in much demand throughout the region.

To help address the communities' concerns that the forests they had fought so hard to protect were not providing them with any economic benefits, David McGrath, a geographer with the Federal University of Pará, Brazil, and the Woods Hole Research Center in the U.S., introduced simple furniture production to the communities as an economic and environmentally sustainable activity. After connecting with Antônio José Mota, a sociologist and community organizer in the reserve, the Workshop was launched in 1998 with the Nova Vista, Nuquini, and Surucuá communities. Charles Peters, a plant ecologist with the New York Botanical Garden, then joined the team to develop a forest management plan consistent with timber demands and the Workshop participants' technological know-how.

Named for the local *caboclo* peoples of mixed European, African, and indigenous descent, the Caboclo Workshop participants began making stools, cutting boards, and other small household objects by collecting and using the dead wood that was left in agricultural clearings; no trees had to be felled. McGrath, a hobbyist woodworker, explains that besides being environmentally friendly, dead wood is much more suitable to furniture making, as it is already dry and is less susceptible to cracking and shrinking.



photo by Caboclo Workshop

"One of the important aspects of this project is that it's very technically simple," McGrath says. "It doesn't require fancy machinery or a new set of skills, so while the activity is new, it's done in ways that integrate fairly easily into the communities' existing lifestyle and the way they're used to doing things."

Using dead wood has enabled groups to continue furniture production while they develop management plans so they can begin to harvest standing timber. In order to fell trees in extractive reserves, the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA), Brazil's environmental ministry, requires that a management plan be submitted and approved. With support from the Overbrook Foundation, Peters trained the Caboclo Workshop participants in methods for collecting the data they needed to produce a management plan for IBAMA. The project also receives funding from US Agency for International Development (USAID), Fundo Brasileiro para a Biodiversidade (FUNBIO), and Promanejo in Brazil.

Developing a management plan requires collecting baseline information, including a forest inventory, or a measure of how much wood is in the forest, and a growth study, or how much new wood the trees produce in a year. A sustainable harvest level is one where only the number of trees that equal the amount of new wood grown in a year are logged.

Conducting a forest inventory involves counting and measuring the diameter and height of a sample of trees, which gives the volume of wood and of which species is present in that forest. To conduct growth studies in the Tapajós-Arapiuns Reserve, Peters trained the caboclos to use vernier dendrometer bands, an instrument that wraps around the trunk of a tree like a belt and can measure growth to the hundredths of a centimeter. At the beginning of the growth study, a mark is placed on the vernier band at the current width of the tree, and this is repeated every year. As the tree grows, the distance between the two marks grows larger -- the difference from one year to another indicates the volume of wood that tree grew in a year. This figure is then multiplied by the number of trees of that species in the forest. The resulting number indicates the volume of wood that can be sustainably harvested each year. Only the amount of wood that grew in the forest in that year is cut.

Peters recalls, "Government foresters told me an extensive growth study had been done 10 years earlier, on the other side of the river in the Tapajós National Forest, and I should just use that data. However, that data is 10 years old and was collected on the other side of the river. Rather than just telling the communities what number to use for annual growth, I wanted to empower them to calculate the number themselves. The forestry department was unsure the caboclos could be trained to collect such data, but of course they can. They learned how to do it in one day."

After collecting three years of growth data, the Workshop participants compared their numbers to those collected by the forestry department, and learned that the trees in the extractive reserve were growing faster than the trees on the other side of the river. According to Peters, this is

because 15 years earlier, a fire went through the extractive reserve, opening the forest canopy and allowing the trees to grow more rapidly. "These findings meant that the allowable cut is larger than it would have been if we had used the data from the government, and now the caboclos also know where this growth information comes from," he says.

Another advantage to the Workshop's growth study is that by leaving the verniers on the trees, it is possible to measure how growth rates change when the forest canopy is opened by felling a few trees. As a few trees are selectively removed, the remaining trees should grow faster, increasing the volume of wood that can be sustainably harvested. Peters recently spent a week analyzing the data and training participants in how to calculate the allowable cut and select which trees to fell. As a result, two communities have produced and submitted management plans to IBAMA.

By calculating the amount of wood in a caboclo-crafted cutting board, Peters determined that a tree that is 5 feet (1.5 meters) in diameter by 150 feet (45 meters) tall has enough wood to produce more than 50,000 cutting boards. Felling two trees provides enough wood to keep the Workshop participants busy



Photo by Caboclo Workshop

As the project's co-coordinator, Antônio José Mota's role is to ensure that the community members themselves direct the project's progress. McGrath notes, "The project is focused on organizational development so that the Workshop members never feel like things are moving too fast for them to figure out what's going on, or that somebody else is making decisions for them. This project is something that they own."

The project began with the participants, mostly manioc farmers, working one week a month; this has increased to two weeks a month. While furniture production provides an additional income source, it doesn't displace their basic subsistence system. McGrath explains, "So far, they have chosen to expand the size of the group, rather than increase the amount of work per group. We don't want to put them in a

situation where they become dependent on an activity that is not able to support them at the level they need it to. It's a very delicate balance, and we're encouraging them to figure out what makes the most sense for them. With this kind of simple production, they can easily adjust the rhythm of work to their own needs."

Meanwhile, the Brazilian government has begun to legislate the management protocols for extractive reserves. The Caboclo Workshop project is seen as a model of successful production and sustainable forest management . Two years ago the coordinators were asked to lead a group to develop a management plan for the entire extractive reserve, based on the Caboclo Workshops' methodology. The Workshop coordinators hope that this approach to community forestry will be replicated and eventually play an important role in Amazonian forestry. "Fifteen years ago, people thought that extractive reserves were already at the level of sophistication that some are now finally reaching," McGrath says. "The concept was way ahead of the capacity to put the idea into practice. I think we're beginning to see how they can become successful, and I see this project as a part of that model."

As other residents in the Tapajós-Arapiuns Reserve have learned about the project, the Workshop has grown to include six communities from the initial three. McGrath believes that the project is especially attractive to the communities because new groups began by making furniture, so participants quickly see the practical end product. This makes new concepts like forest management and marketing less abstract. In fact, he says, sustainable forestry is now well

understood among the caboclo communities. Workshop participants, some of whom cannot read, now discuss forest inventories and growth studies, and because they have spent three weeks counting and measuring trees, they are deeply invested in caring for the reserve.

--Melissa Krenke

Contacts: Charles Peters, New York Botanical Gardens, Bronx, New York 10458, tel: +718/817-8727, fax: +718/220-1095, cpeters@nybg.org, www.nybg.org. David G. McGrath, Instituto de Pesquisa Ambiental do Amazônia, Avenida Rui Barbosa #136 CEP 68100-005; Santarem, Brazil, tel: +55-91-522-5538, dmcgrath@amazon.com.br, www.ipam.org.br.

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