

COOPLANTAR: A Brazilian Initiative to Integrate Forest Restoration with Job and Income Generation in Rural Areas

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ABSTRACT

We describe the process leading to the creation of the Cooperative of Reforestation Workers of Far Southern Bahia (COOPLANTAR), a cooperative that specializes in restoration of the Atlantic Forest in the Monte Pascoal–Pau Brasil Ecological Corridor in southern Bahia, Brazil, and provides job and income for members of local impoverished communities. We discuss the achievements of the cooperative, difficulties it has faced, and its prospects for future sustainability and expansion.

Keywords: Atlantic Forest, Brazil, cooperative, forest restoration, sustainability

Brazil's Atlantic Forest originally covered around 1.3 million km², extending over tropical and subtropical regions. It is a high-diversity biome with many endemic species, including more than 20,000 plants, 261 mammals, 688 birds, 200 reptiles, 280 amphibians, and many more unknown species (Lewinsohn and Prado 2005, Metzger 2009). Approximately 85% of the Atlantic Forest has been lost over the last 500 years (Figure 1), with the highest deforestation rates taking place in the last three decades of the twentieth century (Pinto et al. 2009). The remaining Atlantic Forest is severely fragmented; more than 80% of the fragments are smaller than 50 ha, subject to strong edge effects, and often isolated from each other (Ribeiro et al. 2009). Most of the surviving fragments comprise second-growth forest in early and intermediate stages of succession. Moreover, the current network of protected areas (covering only 9% of

the remaining area of the biome) is considered inadequate to preserve this forest (Metzger 2009, Ribeiro et al. 2009). As a result, the long-term sustainability of ecosystem services that are essential for the Brazilian economy and society is at risk, especially the water supply for residential, agricultural, and industrial activities, as well as for hydroelectric power generation. Compounding these problems, successive economic cycles based on exploitation of former Atlantic Forest areas (sugar cane, coffee, cattle, etc.) have degraded soil productivity over most of the biome and left many rural communities in a state of poverty. This scenario indicates an urgent need for conservation and restoration actions, especially those that combine the restoration of forest cover, establishment of ecological corridors between strategic protected areas, protection of ecosystem services, and generation of work and income for local communities.

The Monte Pascoal–Pau Brasil Ecological Corridor

The Central Corridor of the Atlantic Forest covers the state of Espírito Santo and a strip of land approximately 120 km wide along the eastern coast of Bahia state, south of 13° S (Figure 2). The corridor retains about 18% of its original forest cover (Ribeiro et al. 2009) and is of exceptionally high biological importance, but its forest remnants are extremely fragmented, and protected areas include only about 2% of the remaining forest area (Pinto et al. 2006). Most of the deforestation here took place between 1945 and 1975, as roads were opened in the region and large-scale timber extraction ensued. The surviving forest fragments within protected areas and private lands exhibit very high biodiversity and large numbers of endemic species (MMA 2003, 2006).

The Monte Pascoal–Pau Brasil Ecological Corridor (MPPBEC) covers an area of approximately 94,000 ha adjacent to the largest concentration of protected areas in the Central Corridor of the Atlantic Forest and includes the whole Caraíva River basin

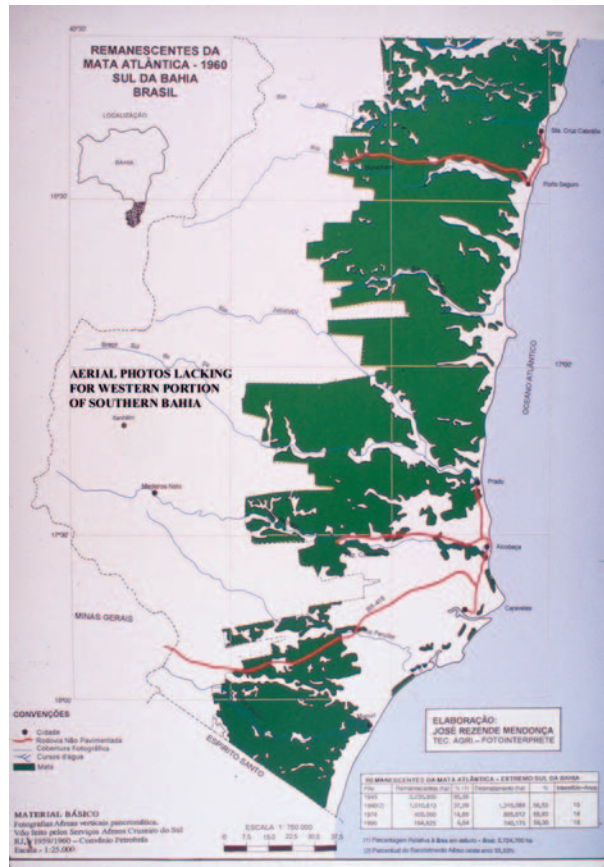


Figure 1. Loss of the original forest cover in far southern Bahia (adapted from Ferreira da Silva and Rezende Mendonça 2000).



Figure 2. Location of the Monte Pascoal-Pau Brasil Ecological Corridor, Bahia, Brazil.

and parts of the Frades and Trancoso river basins, as well as microbasins of small creeks discharging into the Atlantic Ocean (Figure 3). The most important urban areas within the corridor are Monte Pascoal, a district of the municipality of Itabela, with a population of about 6,000; Montinho (population of about 1,200); Caraíva and Nova Caraíva (combined population of about 1,400); and the Indian villages of Barra Velha (population of about 2,500) and Boca da Mata (population of about 1,100), as well as smaller villages.

When Monte Pascoal National Park was created in 1961, it covered 22,500 ha, including an important dense, lowland ombrophilous (high-rainfall tolerant) forest around Mt. Pascoal (thought to be the first point of Brazil sighted by Portuguese navigators in 1500). There are at least 17 threatened vertebrate species (14 birds and 3 primates) in the region, including the howler monkey (*Alouatta guariba guariba*), which was once common and is now considered in critical danger of extinction in the Atlantic Forest. A 1991 agreement between the Brazilian government and the Pataxó Indian communities living in the park converted 8,600 ha previously belonging to the park into the Barra

Velha Indian Land, which today has a population of 400 Pataxó families.

The Pau Brasil National Park, located in the municipality of Porto Seguro (a major tourist destination in Brazil), was created in 2000, as part of the celebrations of the 500-year anniversary of Brazil's "discovery" by the Portuguese. The park has an area of about 11,500 ha and is home to the largest surviving population of Brazil-wood trees (*Caesalpinia echinata*). Both national parks are among the largest and most biologically relevant surviving forest fragments in the Central Corridor of the Atlantic Forest.

Until the mid-1990s, the predominant land uses in the MPPBEC were extensive cattle farming (mostly with low productivity) and cultivation of perennial crops. By the end of the 1990s, silviculture, largely eucalyptus (*Eucalyptus* spp.) plantations, expanded in the region, as part of a strategy to secure a supply of raw materials by the large cellulose manufacturer Veracel, which is a joint venture between the Swedish-Finnish company StoraEnso and Fibria, a Brazilian company. Currently, eucalyptus plantations and cattle farming are the predominant land uses in the region,

with cultivation of coffee and papaya still significant. Highly degraded pastures and *boqueirões* (valleys enclosed by steep walls) are predominant in the fragmented landscape (Figure 4).

Recent analyses by Instituto BioAtlântica (unpub. data) indicate that the region between Monte Pascoal and Pau Brasil National Parks contains mostly private properties and Indian lands, with less than 25% of its original forest cover. The situation is even more critical if we consider the high degree of fragmentation of the surviving forests. There is great variation in the degree of degradation of land areas within the MPPBEC, but rural landowners who are willing to restore forest areas have no funding opportunities for this kind of effort.

In this paper, we describe a successful effort that combines forest restoration with job and income generation in the MPPBEC. This strategic project is designed to restore ecological connections between the Pau Brasil and Monte Pascoal National Parks. Local communities living near the mouths of the Caraíva and Frades Rivers used to live on fishing but saw their income decrease in recent decades as the basin's environmental conditions, especially

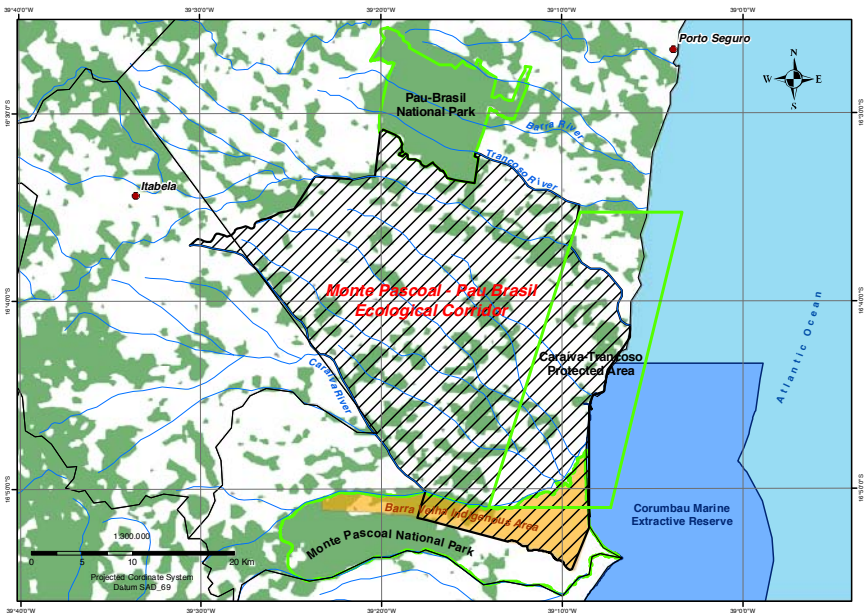


Figure 3. The Monte Pascoal-Pau Brasil Ecological Corridor (MPPBEC) covers an area of approximately 94,000 ha adjacent to the largest concentration of protected areas in the Central Corridor of the Atlantic Forest.



Figure 4. Typical landscape in the Monte Pascoal–Pau Brasil Ecological Corridor, dominated by pastures and eucalyptus plantations. Photos by Ana Elisa Brina

water quality, deteriorated. The project described here employs various forest restoration strategies in order to establish ecological corridors between the two national parks and simultaneously protect water resources. Besides producing environmental benefits, this project aims to empower local people by including them in technical and political decisionmaking, offering concrete opportunities for job and income generation to communities with high

proportions of poor families, making useful knowledge and technology available to these communities, and introducing formal employment relationships, which are not the rule in the MPPBEC's communities.

The Project's Beginnings

In 2004, the Native Association of Caraíva, the Nova Caraíva Community Association, Instituto Cidade (a

regional planning and sociodevelopment organization based in Belo Horizonte, Brazil), and Grupo Ambiental Natureza Bela (a local environmental organization) obtained funding from the Critical Ecosystem Partnership Fund for their project "Restoration of the Atlantic Forest and Protection of Water Resources in the Caraíva River Basin." This project's main objective was to start a sustainable process of environmental restoration and conservation in the Caraíva River Basin, under the basic premise that the participation of local citizens and organizations is essential for achieving long-lasting conservation results.

Local communities participated actively in the choice of areas to be reforested, seeking to protect riparian zones in the basin and also taking the first steps toward the establishment of an ecological corridor connecting Pau Brasil and Monte Pascoal National Parks. Community members (especially those connected to the Native Association of Caraíva) played key roles (Figure 5).

An important component of this project was planting native trees on rural properties, in order to create "Permanent Preservation Areas" and to promote the direct engagement and commitment of rural landowners. This initial process resulted in the reforestation of 35 ha in the MPPBEC, of which 5 ha were restored through volunteer work events and 30 ha were restored by hiring people in local communities. As a consequence of their participation in forest restoration activities, rural workers and members of the Caraíva basin's communities began to realize that providing such services could become a new, viable opportunity for job and income generation. Community members also recognized that forest restoration activities improved the quality of the environment where they lived.

As a result of these processes, the community started a series of discussions to build, in a collective, democratic, and independent fashion, a formal community organization that



Figure 5. The first reforestation effort in the Monte Pascoal–Pau Brasil Ecological Corridor in Bahia, Brazil, relied on community participation. Photo by Beto Mesquita

could generate work opportunities by restoring forest areas in the Caraíva basin. In early 2005, the goal was to establish a cooperative of Mata Atlântica reforestation workers. Next, the community started forming partnerships that could help them acquire the knowledge, information, and professional qualifications to pursue this goal. After a year of hard work, many public debates, and a course on cooperativism taken by members of the Caraíva community, the Cooperative of Mata Atlântica Reforestation Workers of Far Southern Bahia (COOPLANTAR) was founded, with an initial membership of 45 (Figure 6).

The local organizations involved in the initial 2004 forest restoration project and the creation of COOPLANTAR invited other organizations such as Instituto BioAtlântica, Conservation International, and the Nature Conservancy to help them overcome the obstacles they faced, especially in learning about forest restoration technology. Between August and November 2006, these groups partnered to present a course on forest restoration in Caraíva (Figure 7).

Since then, the partner organizations of the MPPBEC project have continued to provide technical support, both in field work and in cooperative management techniques, and to seek opportunities for COOPLANTAR to perform forest restoration work in the region. The course provided the local community with an advantage over local private companies involved in reforestation activities. These service providers have no specialization in forest restoration techniques and regard forest restoration as a secondary activity in their businesses. However, they were typically hired by Veracel to establish and maintain its eucalyptus plantations, and to plant native species in Permanent Preservation Areas as well as on properties belonging to the company as required by the Brazilian Forest Code. In 2007, COOPLANTAR signed its first contract with Veracel for the restoration of 30 ha of forest. This contract served as a “real-world” evaluation of the cooperative’s costs per unit restored area, and also to expose members to the actual demands of private-sector clients.

Challenges and Responses

As expected, achieving standards of quality and efficiency in a community-based enterprise directly managed and operated by people with almost no previous experience is clearly a non-trivial task. Another issue was how to ensure that the cooperative would be self-sustaining and profitable. Without previous experience in business management, the first elected board of directors scrambled to mobilize and coordinate the field team, understand the cost spreadsheets built with the help of forest engineers from the partner organizations, and negotiate the first forest restoration contracts. As the first client to hire COOPLANTAR’s services, Veracel was one of the project partners and early supporters of the creation of the cooperative. Successfully executing this first contract proved to be a significant challenge and also served as a critical test of the cooperative’s viability.

Veracel is the largest landowner in the MPPBEC and has a number of environmental obligations, which its stockholders and other investors require it to fulfill. These obligations include the restoration of 400 ha of Atlantic Forest per year. Once COOPLANTAR was established and members were trained in forest restoration, the cooperative was quickly regarded by Veracel as a very convenient solution, not only to improve the quality of its forest restoration program, but also to add value to the company’s social responsibility program. However, for a large export business like Veracel, subject to frequent auditing by its clients and by demanding certification bodies (such as the Forest Stewardship Council, FSC), hiring an inexperienced cooperative with little familiarity with international rules and requirements was a risky endeavor. With assistance from partner organizations, the cooperative signed its first contract with Veracel for the restoration of a 30 ha area (Figure 8). The reforestation took about six months,



Figure 6. Founders of the Cooperative of Reforestation Workers of Far Southern Bahia (COOPLANTAR) pictured here in 2006 in Caraiá, Brazil. Photo by Paulo Dimas

at the end of which the contract was extended to include restoration of another 70 ha area and maintenance work on the first restoration, such as ant control and removal of all vegetation growing within a 50 cm radius around each planted seedling.

By 2007, COOPLANTAR appeared to be firmly established; however, the cooperative's administrators realized that the prices that had been negotiated with Veracel were not sufficient for the cooperative to meet all the technical, operational, health, and safety requirements mandated by Brazilian law and Veracel's internal regulations. As a consequence, the cooperative began to neglect some of these requirements, including worker health and safety standards, which resulted in several nonconformities being found on the first FSC audit. Veracel made it clear that the contract with the cooperative could not be maintained unless it could satisfy all the requirements of the FSC certification. On the other hand, having a contract which resulted in concrete opportunities for work, income generation, and professional qualification of autonomous community groups was a positive factor for Veracel in maintaining the FSC certification. Because of these factors, the organizations involved in the MPPBEC project (including Veracel itself) took upon themselves the job of identifying the main problems and bottlenecks that affected the cooperative's operations, so that it could satisfy all the requirements and meet FSC requirements.

A detailed review of the cooperative's budget revealed that the major deficiency was a lack of circulating capital, a basic element for the viability of any business that had been neglected by the enthusiastic founders of COOPLANTAR. It became very clear that goodwill and a fighting spirit would not be sufficient to take the cooperative forward. The cooperative was successfully providing restoration services of good quality (as recognized by the same FSC audit that found problems in worker health and safety), but strong investment in management training and business planning would be necessary to avoid the cooperative's demise.

Another measure taken at that time was to replace some members of COOPLANTAR's board of directors, some of whom had been essential for community mobilization leading to the creation of the cooperative, but more recently had great difficulty in keeping up with their new managerial functions. A new board was elected in mid-2008. There was no rupture or splitting of the cooperative into separate groups during this process, which was a natural step in the evolution of the organization as the role of each member became better understood and adjustments were made so that functions were assigned to the individuals best prepared to execute them. In 2007, Instituto BioAtlântica coordinated a workshop on strategic and administrative planning, aimed at supporting COOPLANTAR and other community-based businesses in the MPPBEC. The workshop synthesized the development of cooperative members and laid the foundations on which COOPLANTAR has been carrying on its work and management since.

Opportunities identified during the workshop included increasing income through new contracts with rural businesses in the region, the possibility of starting new projects aimed at strengthening the organization and supporting the structure of the cooperative, and the desirability of seeking

certification as a way to enhance the cooperative's credibility and add value to its services. Weaknesses ranged from pessimism of cooperative members, to the need for better qualified personnel to carry out administrative and field work, to enforcing procedures and rules. The main threats were dependency on a single contract and lack of support from many cooperative members.

As a result of this assessment and realizing the need for constant improvement in operational procedures, a new training period was initiated, this time concentrating on forest restoration techniques. Funding for these activities was provided by Veracel. The training was divided in three modules with distinct objectives and activities. The first, taught by Instituto BioAtlântica personnel, reviewed the concepts and principles of cooperatives and introduced ideas of planning and entrepreneurship. A booklet was prepared and distributed among cooperative members, describing concepts and examples of successful cooperatives, as well as the bylaws of COOPLANTAR.

The second module taught seed collection and seedling production techniques, as well as restoration techniques. Since cooperative members already possessed significant experience in the field, most of this module was taught in the field, visiting areas that had been reforested at different times and discussing the strong and weak points of the methodologies employed at each area. This module was presented by a team from the Ecology and Forest Restoration Laboratory at the University of São Paulo. The third module consisted of a business management consultant advising the board of directors on financial management for 12 weeks.

Achievements and Lessons Learned

By the end of 2009, COOPLANTAR had restored more than 200 ha of forest on Veracel's properties, local



Figure 7. The first course on forest restoration practices given to COOPLANTAR members in 2006 attending a course on forest restoration taught by University of São Paulo staff and funded by Veracel. Photo by Beto Mesquita

farms, and Corridor projects. These restored areas connect forest fragments and form a contiguous parcel with an area of more than 4,000 ha. Contracts signed in 2010 will allow COOPLANTAR to expand its reforestation work (at least 500 ha will be reforested over the next four years) and increase the number of cooperative members directly involved in reforestation work. The cooperative will also become responsible for collecting seeds and producing and distributing seedlings, becoming active in all stages of the production chain of forest restoration (previously the cooperative had been purchasing seedlings from commercial nurseries). This will require the establishment of a new nursery, to be located in Itabela, with an estimated production rate of 200,000 seedlings per year.

In addition to its significant evolution in terms of management and forest restoration practices, COOPLANTAR has been significantly improving the lives of its members. The cooperative's leaders, already seen as natural leaders by their communities, have been showing an increasing social autonomy in a regional context, exemplified by their participation in the Regional Forest Dialogue

(an initiative of the Brazilian Forest Dialogue), where they are able to voice their opinions on the region's social and environmental issues, providing a valuable complement to the views of other organizations.

The forest restoration work carried out by COOPLANTAR has provided a more stable income to its members, who previously depended on sporadic or seasonal income sources such as fishing, work on rural properties, and employment in hotels and other tourism-related activities. Besides providing services to private companies, COOPLANTAR partners with various projects and initiatives within the Atlantic Forest Central Corridor, such as the carbon project in the MPPBEC, which recently received the Golden Certification from the Climate, Community and Biodiversity Alliance and will include the reforestation of 1,000 ha of Atlantic Forest between Monte Pascoal and Pau Brasil National Parks. Another positive result of COOPLANTAR's activities is an increase in awareness of global environmental problems (especially climate change) among local populations, and of how forest restoration efforts can counteract these problems. This should allow local community members to make

better decisions regarding their lives, their region, and the planet.

Three years after it started, besides having restored more than 200 ha of Atlantic Forest in partnership with rural landowners and in key areas for the establishment of corridors between national parks, COOPLANTAR has been recognized as a model for integrating forest restoration with income generation for local communities. This status became even more important after the formalization of the Pact for the Restoration of the Atlantic Forest in April 2009 (Rodrigues et al. 2009). The pact, led by the most important organizations working on the Atlantic Forest conservation, tries to involve federal, state, and municipal governments, businesses, rural landowners, and researchers in the protection and restoration of ecosystem services, in enforcement of the Brazilian Forest Code (which requires that every rural property must keep at least 20% forest cover, not counting the riparian zones), and in regional socioeconomic development. The pact aims to restore 15 million hectares by 2050.

The risks presented by climate change and the increasing concerns of many people in society about the protection of ecosystem services



Figure 8. The first formal job by COOPLANTAR: to restore 30 ha of forest for Veracel, a company that produces cellulose from eucalyptus plantations and is the largest landowner in the region. Photo by Beto Mesquita

(especially storage and regulation of water resources) indicates that there are increasing opportunities for the establishment and continuity of groups such as COOPLANTAR. The formation of specialized and qualified community cooperatives presents a viable and sustainable alternative for landscape-scale forest restoration. The initiative of the MPPBEC's communities to create a forest restoration cooperative overcame economic uncertainty and an initial lack of specialized knowledge and skills. Their success demonstrates that this kind of effort can be replicated in other places. This initial experience also reveals how a small cooperative can successfully participate in a forest restoration market dominated by larger, established companies.

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