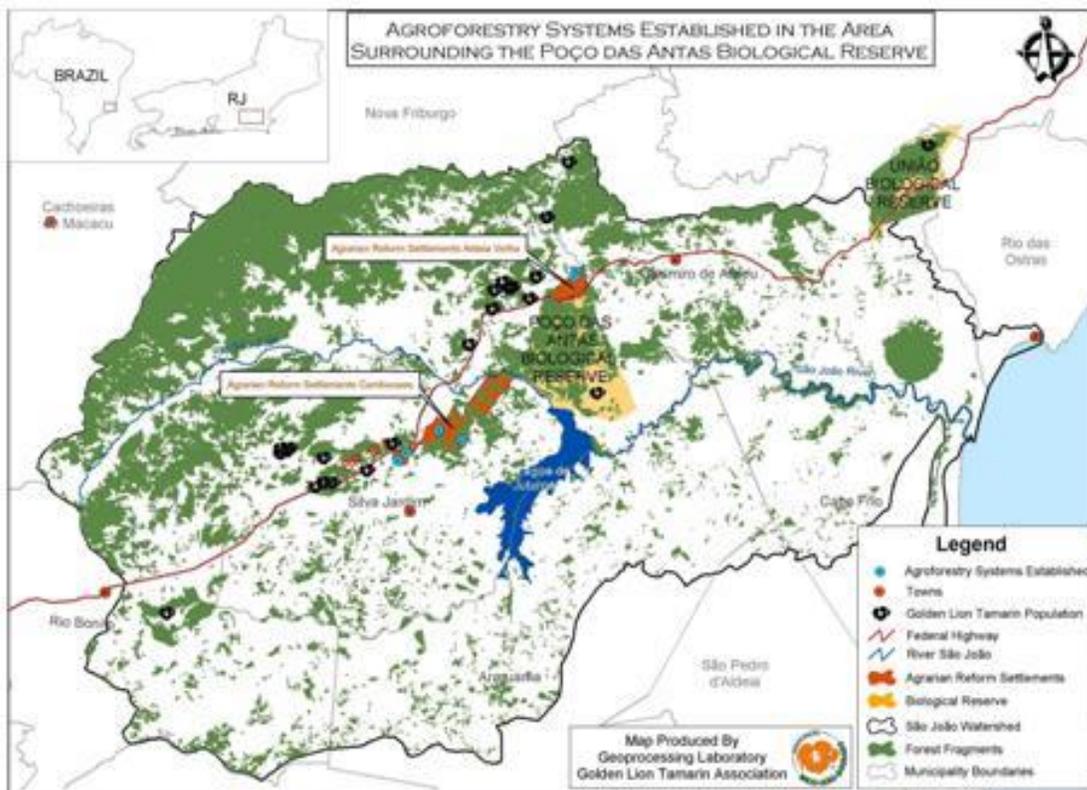


**Project Update: April 2006**

The planned project activities were carried out in two rural agrarian reform settlements (Cambucaes/Olhos D'Água and Aldeia Velha) in the area surrounding the Poço das Antas Biological Reserve/IBAMA, located in the municipality of Silva Jardim in the state of Rio de Janeiro. The activities focused on the establishment of agroforestry systems on six farmers' lots - two in Aldeia Velha and four in Cambucaes. In addition to establishing the agroforestry systems, we trained the farmers in alternative techniques related to agroecology. During this period the community nursery of the Cambucaes settlement produced 5,000 seedlings of native Atlantic Forest species and fruit species. These seedlings were distributed to the six families involved in the project. Having gained the confidence of the families of these rural land settlements, the Golden Lion Tamarin Association (AMLD) in partnership with the farm families is achieving excellent results for the conservation of the Atlantic Forest and its biodiversity, thus seeking sustainable development of the rural communities.



**Table 1:** Settlements, number of families, occupied areas, area of forest, and number of agroforestry systems established during the project period in the area surrounding the Poço das Antas Biological Reserve (Silva Jardim/RJ)

Settlement	Number of families	Total area	Area of forest	Number of families with agroforestry systems
Aldeia Velha	41 families	250 ha	30 ha	02
Cambucaes/Olhos D'Água	106 families	1.636 ha	327 ha	04
<b>Total</b>	<b>147 families</b>	<b>1.886 ha</b>	<b>357 ha</b>	<b>06 families</b>

To establish the agroforestry systems in these areas, we carried out the following steps:

**Preparatory meeting of the families:** Using a participatory methodology we conducted three meetings with the farmers of the community with the objective of organizing community work days and planning the establishment of the agroforestry systems. We presented a video of ongoing agroforestry experiments in Barra do Turvo, São Paulo, to stimulate a discussion of the principles and practices related to agroforestry systems and to create a greater understanding of the proposed work.

**Demarcation of the areas for the agroforestry systems:** The AMLD team made technical visits to each lot to identify with the farmer the areas for establishing the agroforestry systems. Together with each family we mapped each area and conducted planning to select the forest and fruit species to be used. A plot size of approximately 20m x 20m was established. One of the criteria for selection of the plots was the existence of previously planted tree species so as to be able to enrich the area with more forest species and green fertilizer (plantings of leguminous species which enrich the soil with nitrogen; some producing edible beans as well) as well as serve to improve the soil for production of the species already established. The selected plots had steep slopes with some planted tree species as well as bananas and pineapple.

**Selection and distribution of the seedlings and seeds to be planted:** We made a schematic drawing to guide the planting of the agroforestry systems, based on the tree and fruit species available in the community nursery on the Cambucaes settlement and on the annual crops most planted by farmers of the region. Using these drawings, we distributed the seedlings and corn, okra, bean, and rice seeds in each of the properties involved in this project.

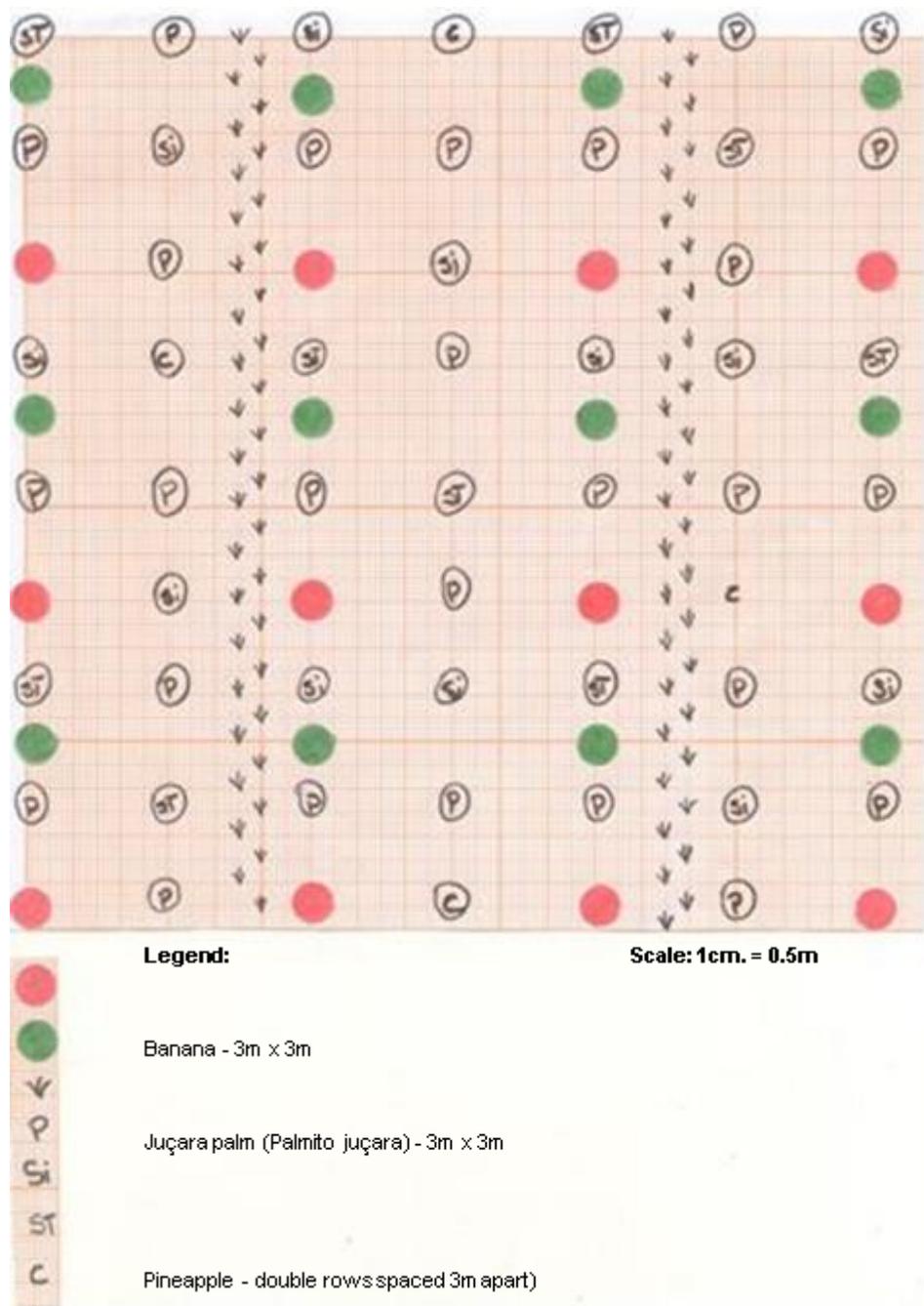
**Establishment of demonstration units of agroforestry systems:** We established the agroforestry systems using a system of community work days, helping each farmer with the planting, especially of the seedlings. The farmers were happy with this way of working, and the planting was completed without any great problems. We found that the community work days served to build the capacity of the farmers, providing opportunities for sharing of experiences among the participants, as well as helping them to better adapt to the new practices. All the seedlings indicated on the schematic drawings were established, with the exception of the pineapple because of the degree of shade found in the area. Weeding was carried out after the planting of the seedlings, during dryer weather, for the later planting of black-eyed peas with a spacing of 0.40 x 0.40m. Each farm family is individually responsible for the management and the harvesting of the annual crops planted. During this period, the project team made regular technical visits to guide the management of the areas. Each farmer demonstrated much interest and care for his/her plot.



Area of agroforestry system established on the lot of Senhora Cenira Tavares, Aldeia Velha Land Reform Settlement. May 2005



Area of agroforestry system established on the lot of Senhora Marlene Assunção, Aldeia Velha Land Reform Settlement. December 2005



**Schematic drawing of the agroforestry system demonstration units established**

## Species used in the agroforestry systems established:

### 1. Tree species

POPULAR NAME	SCIENTIFIC NAME	SUCCESSIONAL GROUP
01. Albízia	<i>Albizia polycephala</i>	Pioneer
02. Ameixa	<i>Prunus doméstica</i>	Climax
03. Amora	<i>Morus nigra</i>	Pioneer
04. Angico	<i>Anadenathera macrocarpa</i>	Initial Secondary
05. Araribá	<i>Centrolobium tomentosum</i>	Initial Secondary
06. Aroeira	<i>Schinus terembinthifolius</i>	Pioneer
07. Cambucá *	<i>Plinia edulis</i>	Late Secondary
08. Carrapeta	<i>Trichilia hirta</i>	Initial Secondary
09. Cedro rosa	<i>Cedrela fissilis</i>	Late Secondary
10. Crindiúva	<i>Trema micrantha</i>	Pioneer
11. Embira de sapo	<i>Lonchocarpus guilleminianus</i>	Initial Secondary
12. Graviola	<i>Annona miricato</i>	Late Secondary
13. Grumixama *	<i>Eugenia brasiliensis</i>	Climax
14. Goiaba *	<i>Psidium guajava</i>	Late Secondary
15. Guapuruvú	<i>Schizolobium parahyba</i>	Pioneer
16. Ingá de metro *	<i>Inga Edulis</i>	Initial Secondary
17. Ingá de quina *	<i>Inga uruguensis</i>	Initial Secondary
18. Ipê Roxo	<i>Tabebuia heptaphylla</i>	Late Secondary
19. Jaca *	<i>Artocarpus heterophyllus</i>	Late Secondary
20. Jambo *	<i>Syzygium malaccense</i>	Late Secondary
21. Jatobá	<i>Hymenaea coubaril</i>	Climax
22. Jequitibá rosa	<i>Cariniana legalis</i>	Climax
23. Orelha de macaco	<i>Enterolobium timbouva</i>	Initial Secondary
24. Paineira rosa	<i>Chorisia Speciosa</i>	Initial Secondary
25. Pau jacaré	<i>Piptadenia gonoacantha</i>	Pioneer
26. Sibipiruna	<i>Caesalpinia peltophoroides</i>	Late Secondary
27. Tamararindo *	<i>Tamarindus indica</i>	Climax
28. Urucum	<i>Bixa olerana</i>	Initial Secondary

\* Food species utilized by golden lion tamarins

### 2 Principal Cash and Food Crops:

- Juçara Palm/Palmito Juçara (*Euterpe edulis*). This is a native Atlantic Forest species, highly prized for heart of palm. Although the cutting of Atlantic Forest species is prohibited, a government regulation permits the harvesting of individual plants when the planting has been officially registered -Instrução Normativa n.05 de 25-10-99/IBAMA);
- Banana (*Musa sp.*);
- Pineapple/Abacaxi (*Ananás comosus*).

### 3 Annual crops for sale, family food, and to enrich the soil:

- Feijão de porco/beans;
- Guandu/a tropical woody-stemmed legume (*Cajanus cajan*);

- Feijão de corda/black-eyed peas;
- Milho/corn;
- Mandioca/manioc.

## **Conclusion**

The use of a production system to achieve environmental sustainability must show the way to solutions to environmental problems, in addition to being socially just and economically viable. Within the array of production systems presented to farmers as alternatives, agroforestry systems are frequently seen as a production alternative capable of alleviating poverty and stopping deforestation which, considering the aspects of forest preservation and tree planting will be also contributing to the absorption and sequestering of carbon from the atmosphere.

Agroforestry systems are not and should not be presented as a magic solution to resolve all environmental and social problems caused by agriculture, but they are important tools and should be used in situations where it is necessary to reincorporate abandoned fields, correct activities in permanent preservation areas and legal reserves (areas of private property where maintenance of the forest is required by law), or even when new production alternatives are needed. Farm families in Brazil have had many deceptions with “ready-made technical packages”. In contrast, agroforestry systems are excellent ways to put into practice the knowledge of each local reality.

Agroforestry practices have contributed to the conservation of forest remnants of the region and to the environmental services that these remnants provide, as well as to the preservation of an incalculable list of species, headed by the golden lion tamarin. The agroforestry systems we have established, in addition to providing useful products for sale and for food for the human families involved, include many forest species such as cambucá, grumixama, goiaba (guava), ingá de metro, ingá de quina, jambo, jaca (jackfruit), tamararindo that serve as food for the lion tamarin.

Today, as a result of this project, the participating families are much more aware of the need to seek alternatives that minimize the pressures on the forest remnants. This small project has been a first step, but this question continues to be a challenge for the local communities and for the AMLD. Finding effective solutions will require a continuing long-term effort.