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## [Costa Rica: An ecological forest restoration proposal](#)

The Association of Ecologist Communities La Ceiba – Friends of the Earth Costa Rica (Asociación Comunidades Ecologistas La Ceiba- Amigos de la Tierra Costa Rica - COECOCEIBA- AT), which includes members from various social sectors (academics, professionals, ecologists and peasants), considers that it is time to creatively develop new models of forest cover restoration. It is time to give the opportunity to autochthonous reforestation models based on some of the basic principles that the country's main natural ecosystem itself -the tropical forest- is silently teaching us. It is time to give an opportunity to the creativity and experience already existing in the communities and to try out models that are sounder in environmental terms and more participative and fair in social terms.

In this respect, they highlight the experience of the Diaz Alvarado family and its ancient pineapple grove in the Northern Zone of Costa Rica, combining natural regeneration enriched with sowing and/or management of valuable forest species and offering productive opportunities integrated in a complementary manner into peasant economy. This type of experience generates good quality environmental services for the whole of Costa Rican society.

Twenty-two years ago the Diaz Alvarado family (Doña Eduviges, Don Felix, their two daughters and one son) arrived at Castelmare de Saíno de Pital, a small community located in the middle of the warm and humid San Carlos plain, on the banks of the Tres Amigos River, one of the San Carlos River's main tributaries in the Northern Zone of Costa Rica. The average rainfall in this zone is between three and four metres, distributed regularly throughout the year and in general, the soils are medium to poorly fertile, clayed and red in colour.

At the time of their arrival, their plot of land consisted of some 9 hectares of wooded grazing land, crossed by a small stream along which grew a small protective forest. Some enormous almond trees (*Dipteryx panamensis*) had survived together with a few older trees, remnants of the primary forest. During the first few years, the family transformed the grazing land into a pineapple grove where laurel trees (*Cordia alliodora*), coral oaks (*Terminalia amazonia*), manga larga (*Laetia procera*) and other species that sprouted naturally were allowed to grow.

Meanwhile, in neighbouring sites, some big companies started acquiring land for vast monoculture tree plantations. First of all, these companies planted laurel and eucalyptus, and later after the tremendous failure of the monoculture plantations of these two species, they went on to plant gmelina (*Gmelina arborea*), framire (*Terminalia ivorensis*) and acacia (*Acacia mangium*). On several occasions, company technicians and the Diaz Alvarado family had clashes, some times because the companies wanted to evict them from their property, other times because the companies filled the streams with strippings or simply because, together with other neighbours, the family protested and lodged complaints about the destruction caused in the forest by sowing monoculture tree plantations.

Some years later the Castelmare community had become smaller, the land was in the hands of a few people and the vast monoculture tree plantations made it impossible for the community to develop in the way peasant settlers had done in other areas of the region. The absence of good roads making it possible to transport products from the plots to sell them and the lack of a school for their children

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obliged the family to move to Saíno de Pital, a small village but with some better living conditions. It was 1984 and the family decided to keep the plot and launch a forestry project to show the technicians in the area who were planting trees as a monoculture, how to produce timber in a natural way and without so much damage. At the same time, this enabled the family to “save” for the future. Labour was available in the family to complement the forestry project and in spite of the fact that transportation to the plot from their new location was not easy – nine kilometres along a poor road with no public transport – the family kept its project going.

At that time, they started visiting the plot twice a week and maintained the pineapple grove. Between them, they started planting saplings that they took from neighbouring forests and cared for those that germinated naturally at the site. As they maintained the pineapple grove they occasionally did some tilling, always respecting the small trees, particularly the commercial species or those of some value in terms of precious woods or trees that contributed to wildlife.

Furthermore, as part of the maintenance tasks, a pruning programme was started to shape trees for timber. At the end of the nineties, they began a programme planting rare or endangered species and fruit trees in the clearings left by fast-growing, short-living pioneer species (i.e. the *Trichospermum* sp).

It is now over 20 years since the experiment started and on coming of age, it shows us some very interesting results in terms of diversity protection, support to recreation, self-esteem, education and peasant economy.

The Diaz Alvarado family’s forest shows a structure similar to any 15-20 year old secondary forest in the humid tropics of the Northern zone. Its canopy reaches some 25 metres and has a complete cover. In the unmanaged sectors, the understory is rich in plants of the Rubiaceae, Piperaceae, Heliconiaceae, Zamiaceae, Smilacaceae families and others. Together with the aforementioned plants in the understory, many saplings are developing: some are offspring of the large precious wood trees remnants from the primary forest still present along the banks of the stream. In the north section, the understory has been managed to allow for a combination of ancient pineapple plants, ornamental species, medicinal species, and saplings of slow-growing species.

As in other secondary forests in the same region, tree density is about 500 individuals per hectare, and the composition of their species is also similar.

According to the Diaz Alvarado family and to some of their neighbours, the stream that springs up in their plot has gradually increased its flow, leading us to think that groundwater regulation must have improved as the forest cover and the understory were consolidated in the protection area.

It is important to note that the aim of this forest is not timber production in the fastest way and through clearcutting. On the contrary, the restored forest was proposed as a complement to the family economy and the family intends to remove fallen timber or the trees that have reached maturity following a management plan in which every year some mature trees will be removed during the dry season. In this way, forest conservation over time is guaranteed.

The experience – not unique, there are probably similar cases in different tropical regions – has the merit of responding to the monoculture tree plantation model that has destroyed forests, concentrated vast stretches of land in a few hands, dried out wetlands and been one of the main causes of the loss of biodiversity in the Northern zone of Costa Rica.

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