

# INTEGRATED SILVOPASTORAL SYSTEMS, RECONVERSION OF CATTLE FARMS FOR LANDSCAPE RESTORATION IN THE BUFFER ZONE OF THE MAYA BIOSPHERE RESERVE, PETÉN, GUATEMALA

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## » Context and challenges

The Buffer Zone (BZ) of the Maya Biosphere Reserve is one of the areas most affected by deforestation due to agricultural practices and mainly cattle raising practices, characterized by inadequate pasture management to control weeds and pests (i.e., overgrazing and burning). The traditional model of livestock production, in addition to animal wear, causes loss of fertility and soil compaction, reduction of the forest massif and loss of biodiversity; generates high costs for the conservation and restoration of pastures and is exacerbated by the effects of climate change. These practices lead to a degradation of the agroecosystem and economic losses that negatively impact the families of local livestock farmers. Due to the large scale of this activity in the region, the decline in forest cover has been accelerated and the

forest landscape in the BZ has become significantly fragmented, impacting on its function to mitigate impacts and anthropogenic threats towards the Core Zones or Multiple Use Zones of the Biosphere Reserve. In this context, the Protection and Sustainable Use of the Selva Maya Project has joint forces with various local institutions to address this problem through a proposal for the intensification and reconversion of cattle farms. The proposal was based on the concept of Integrated Silvopastoral Systems as a strategy to increase productivity and improve the connectivity of the forest landscape, facilitating the implementation of sustainable productive models and the training of replicating agents of this model in the territory.

## Beneficiaries

Producers belonging to cattle ranching committees of the Buffer Zone and surrounding areas, as well as Promoters of Integral Rural Development. Technical representatives of the public institutions that accompanied the process.



## Impacts

- ◆ Formation of a platform for sustainable cattle ranching and silvopastoral systems, constituted by the Ministry of Agriculture, Livestock and Food (MAGA), Municipality of Flores, Pastoral Social, Rainforest Alliance (RA), and Wildlife Conservation Society (WCS).
- ◆ Consolidation and validation of a Sustainable Intensification model for Cattle Ranching, including a participatory replication methodology.
- ◆ 60 sensitized and empowered producers under an intensive livestock management approach in line with the environment, who manage 400 hectares under various sustainable livestock practices.
- ◆ Producers who are aware of the importance of forest conservation define protection and regeneration areas in their plots.
- ◆ Producers with greater productive resilience to adverse climatic effects (prolonged droughts).
- ◆ Farm Plan Adoption as a tool to order the implementation of sustainable livestock practices in the plot.





## ● Design of an Integrated Silvopastoral System Model (ISPSM), sustainable livestock and promotion of inter-institutional coordination

Based on coordinated work and technical support at the inter-institutional level, an Integrated Silvopastoral Systems Model (ISPSM) was designed with the vision of increasing food quality and production on farms, reducing grazing areas, increasing forest cover and improving forest landscape connectivity through: 1) intensive silvopastoral systems, 2) mixed forage banks, 3) management of trees dispersed in pastures, 4) live fences, 5) pasture division, 6) establishment of protection and regeneration areas, 7) manure management, 8) nutritional improvement practices and 9) good water quality management.

**Enabling factors:** Commitment of each participating institution to capacity building and resource allocation. Providing technical advice to a small number of producers per year, facilitated adequate technical support and consolidation of the systems.

## ● ● ● Training methodology

In order to consolidate the processes of training, sensitization, and empowerment for the producers of their sustainable livestock farming schemes, the teaching model "Farmer Field Schools" was implemented, understood as collective learning spaces, in which knowledge is generated from the experience developed by producers in their respective territories and farms.

**Enabling factors:** Due to its participatory and popular education approach, FFS have been spaces for effective collective learning.

## ● ● Socialization of the ISPSM with target groups and participatory selection of producers

The ISPSM was socialized with two cattle ranching committees, located on the routes to the Tikal National Park and the Yaxhá - Nakum - Naranjo National Park. The selection of interested producers was voluntary and participatory, assuming the commitment to participate in the entire training process and its application in the field.

**Enabling factors:** The promotion and socialization of the proposal was carried out from the perspective of improving productivity and performance, crucial elements to provoke the interest of producers.

## ● ● ● ● Technical support

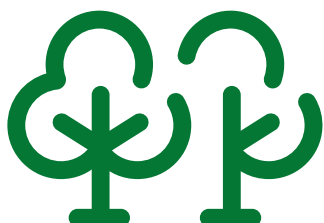
To consolidate the changes, the institutions involved provided continuous technical support. This is relevant both in the implementation phase and in the use of the model.

**Enabling factors:** Adequate inter-institutional coordination. Technicians have been trained through courses and experience exchanges with leading institutions with great professional experience in Mexico and Cuba.

## ● ● ● ● Socialization and escalation of experiences through the "Open Days" initiative

To expand and socialize with farmers who have not initiated these practices, field days or open days are coordinated to exchange experiences and lessons learned from producers who have implemented the practices and obtained results.

**Enabling factors:** Obtaining good productive results in the short term has helped to persuade producers to replicate these practices. Mixed forage banks and silvopastoral systems have proven to be an excellent alternative to cope with food crisis caused by prolonged drought, encouraging other producers to establish these systems.



To empower farmers with farms in a process of reconversion, it was necessary to articulate a proposal inter-institutionally (1), to socialize it afterwards with the groups and select the livestock farmer who would promote it (2). A process of awareness raising and training for this sustainable livestock model was then initiated (3). The technical support (4) of the institutions involved was important for the establishment and monitoring on the farm. Once the first results were obtained, the "Open Days" (5) contributed to the consolidation the process through the exchange of experiences with other producers.

## » Story

**Pedro Mancilla Ruano**, originally from Morales, Izabal and now living with his family on the route to the Purusilha village, 8 kilometers from the municipal capital of Flores, has dedicated himself to meat and dairy farming on his 21-hectare farm. Don Pedro represents a group of producers who have changed their way of seeing and doing cattle ranching, understanding that trees are allies of their farm and their livestock, giving them priority and opportunity for



regeneration. "Trees and the Selva Maya are the foundation of life, they provide shelter, oxygen and food to every living being on this planet. The project has helped us to become aware of the importance of trees and that it is possible to reconcile animal husbandry with environmental protection through silvopastoral systems. These practices have benefited us, obtaining better yields and income for our families, even in times of drought. A key point in this process has been the union and joint work of all supporting institutions."

