COURSE REPORT

Ecological Restoration in Cattle Ranching Landscapes

Manizales, Caldas – Colombia
June 1-6, 2014

A field course jointly organized by:
Environmental Leadership & Training Initiative (ELTI)
Colombian Cattle Ranching Association (FEDEGAN-FNG)

Background: While conventional cattle ranching is often considered one of the main drivers of deforestation and land degradation, there are strategies that can help to make this practice more sustainable. Silvopastoral systems (SPS) are agroforestry-based systems that have been proven to be a successful approach to sustainable ranching by increasing productivity per hectare and providing environmental goods and services (Calle et al., 2013)[1]. Research by the Center for Research on Sustainable Agriculture Production Systems (CIPAV) indicates that real change to the dilemma of tropical cattle ranching will only occur if SPS are adopted at the landscape scale.

An example of scaling-up SPS is currently underway in Colombia. The Colombian Cattle Ranching Association (FEDEGAN-FNG), in partnership with CIPAV, The Nature Conservancy (TNC) and The Environmental and

[1] Zoraida Calle, Enrique Murgueitio, Julián Chará, Carlos Hernando Molina, Andrés Felipe Zuluaga & Alicia Calle (2013). A Strategy for Scaling-Up Intensive Silvopastoral Systems in Colombia, Journal of Sustainable Forestry, 32:7, 677-693.

Childhood Action Fund (FPAA), is implementing the Mainstreaming Biodiversity in Colombian Cattle Ranching project (known as GCS). This seven-year project (2010-2017) focuses on five geographic regions of the country: (i) Cesar River Valley Region; (ii) Lower Magdalena Region in the department of Atlantico and northeast of the department of Bolivar; (iii) dairy regions of Boyacá and Santander (related to the Oak Corridor); (iv) Coffee Growing Ecoregion and Terraces of Ibagué; and (v) the Orinoco Piedmont.

The objectives of the GCS project strive to make cattle ranching contribute to the sustainable use of natural resources by adopting environmentally friendly production systems that enhance livestock productivity, conserve globally significant biodiversity and reduce soil degradation. Additionally, the GCS project aims to increase the connectivity between natural ecosystems embedded within the productive landscape matrix. To achieve these objectives, the GCS expects to conserve 5,495 hectares of forest, while transforming 51,000 hectares of pasture into diverse SPS. FEDEGAN-FNG's technical team is implementing this ambitious endeavor with support from 80 professionals who provide technical assistance to approximately 3,000 cattle ranchers in 83 municipalities encompassing an area of 175,000 hectares (Calle et al., 2013)[1].

Given the complexity of the GCS project, building the capacity of their staff and training them in relevant areas is vital to the project's success. To meet this goal and to learn from existing experiences in Latin America, the GCS approached the Environmental Leadership and Training Initiative (ELTI) to identify capacity building priorities for the project's technical staff and develop a training strategy for 2014.

As a result, ELTI worked with FEDEGAN-FNG to design two field-based training-of-trainers courses. The first course (and the focus on this report) was entitled, *Ecological Restoration in Cattle Ranching Landscapes*. This course introduced FEDEGAN-FNG's technical team working in the Coffee Growing Ecoregion to the basics of forest ecology, forest's natural and anthropogenic disturbances and the principles of ecological restoration.

The overall objective of the course was to provide these practitioners with the knowledge needed to evaluate and compare methodologies for restoration of tropical forests that are adapted to the biophysical and socio-economic conditions of the region where they work. For that reason, the course was delivered simultaneously in three primary regions and tailored to the specific context of the regions that the technicians represented: (i) Manizales for the technical teams in the Coffee Growing Ecoregion and terraces of Ibagué; (ii) Valledupar for the technical teams in the Cesar River Valley and Lower Magdalena Region; and (iii) Villavicencio for the technical teams working in Boyacá and Santander and the Orinoco Piedmont.

Objectives:

- Introduce the basic concepts of conservation and the relationship of these concepts to the provisioning of environmental services (ES), specifically in cattle ranching landscapes in Colombia;
- Review the concept of sustainable cattle ranching, emphasizing its potential contribution to environmental and productivity goals;
- Present the basic principles of forest succession, ecological restoration in agricultural landscapes and the technical aspects of implementation;
- Explain the different stages of a restoration project and illustrate them through practical exercises;

Field-Course Format: This course took place over six days and was divided into four modules. Each module included a series of lectures and case studies, as well as field visits and exercises to illustrate the concepts presented in the classroom. The course also included a session during which participants presented the restoration diagnostics and land use planning strategy their group designed for one of the farms that they visited. The objective of this activity was to provide participants with the opportunity to incorporate the new concepts learned during the course into their activities and to receive feedback from instructors and peers.

The following are the thematic modules of the course:

- **Module 1.** Introduction to conservation and ecosystem services focused on cattle ranching landscapes in five regions of Colombia;
- **Module 2.** Sustainable cattle ranching: exploring its contributions to the environment and productivity of the system;
- **Module 3.** Fundamentals of forest ecology and forest restoration in cattle ranching landscapes and the experiences from the GCS project;
- **Module 4.** Environmental, social and financial dimensions of sustainability and their relevance for the restoration of cattle ranching landscapes.

Instructors and Coordinators: Juan Carlos Gómez, Technical Coordinator of the GCS project, facilitated the delivery of the course, in collaboration with Cecilia Del Cid-Liccardi, ELTI's Neotropics Program Coordinator. Yerly Barón and Karen Ayala (FEDEGAN-FNG) and Saskia Santamaría (ELTI) organized the course. Instructors covered different topics according to their expertise, including:

• **Juan Carlos Gómez** (GCS) provided a framing talk explaining the cattle ranching context for the region. He also explained the ecological importance of the native tree species that the project is including in its conservation and restoration strategy;

• **Dr. Patrick Lavelle** (Université Pierre et Marie Curie VI) introduced the themes of ecosystem services, including services related to soils and agricultural landscapes. Dr. Lavelle also facilitated a field exercise about the indicators related to the ecosystem services that he introduced;

• **Zoraida Calle** (CIPAV) provided the context for conservation and restoration in productive or agricultural landscapes, participatory research, participatory monitoring of biophysical variables and training community members to participate in the monitoring process. She also shared case studies related to these topics;

• **Jacob Slusser** (ELTI) delivered a case study on the experience of the Smithsonian Tropical Research Institute (STRI), ELTI and the Native Species Reforestation Project (PRORENA) using native tree species for restoration;

• **Dr. Sergious Gandolfi** of the Laboratory of Ecology and Forest Restoration (LERF) and **Dr. André Nave** (Bioflora) presented the fundamentals of forest ecology and succession, disturbance regimes, the principles of ecological restoration and the technical aspects of restoration (such as seed collection and nursery production). They also discussed a variety of ecological restoration models during lectures and in the field;

• **Carlos Pedraza** (TNC) explained why connectivity and biodiversity conservation are at the center of the GCS project;

• **Álvaro Zapata** (CIPAV) presented why and how sustainable cattle ranching can be utilized as a restoration strategy in productive landscapes.

Participants: This training course was offered to 23 professionals. This course was specifically aimed at the technical team of the GCS project from the Coffee Growing Ecoregion. The participants represented a variety of disciplines, including biology, environmental engineering, veterinary medicine and agronomy.

Course Follow-Up: Participants were actively engaged throughout the course and benefited from the practical exercises and also from the feedback that they received from instructors and their peers. ELTI's Leadership Program (LP) was presented during the event and generated interest among participants. The goal is to work with FEDEGAN-FNG to monitor the impacts of the trainings on their staff. Additionally, ELTI will follow-up with participants through a survey to determine the influence that the course may have had on their professional development and implementation of projects.

This event was possible thanks to Arcadia Fund, whose Environmental Conservation grants support programmes that protect and enhance biodiversity, and provide field training and academic research.