

## COURSE REPORT

# Tropical Forest Restoration in Agricultural Landscapes

September 6 – October 3, 2021

An online course organized by:

The Environmental Leadership & Training Initiative (ELTI)



Photo: Jacob L. Slusser

*A native species timber plantation established on a degraded hillside in the Coclé Province of Panama. Tree species must be carefully selected, to meet both the biophysical limitations of the site as well as the needs of landowners.*

**Background:** Some of the world's greatest biodiversity is located within the tropical forest ecosystems of Latin America. Biodiversity maintains healthy and productive ecosystems to provide humans with a myriad of services required for daily life. Unfortunately, many of these tropical forest ecosystems are degraded due to the strain of conventional agricultural practices that eliminate forest cover and reduce ecological function. As a result, these degraded agricultural landscapes are more fragmented, have less biodiversity, produce fewer ecosystem services and are more vulnerable to the threats of climate change. Unless actions are taken to increase sustainable practices and augment the resiliency of forest landscapes, these degraded systems will fail to sustain both agricultural productivity and ecosystem service production and consequently decrease rural livelihood opportunities.

The restoration of trees and forests into agricultural landscapes provides an opportunity to transform degraded agricultural areas into resilient ecosystems that provide both ecological and social benefits.

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ELTI is an initiative of:

**Yale** SCHOOL OF THE ENVIRONMENT  
*The Forest School*

Within Latin America there is a great need for training opportunities to help guide decision making about the management, use and restoration of tropical forests. There is a wide variety of tools, techniques and approaches to restoration that must be adapted to conduct strategies to meet the different needs in complex landscapes. Understanding the fundamentals of tropical forest ecology as well as the sociopolitical drivers of land use, can guide decision-making and the development of a range of strategies for effective restoration within productive agricultural landscapes.

This online short course provided participants with an introduction to the concepts and techniques needed to plan and implement strategies for the restoration of tropical forests and ecosystem services in multiple-use agricultural landscapes in Latin America. The course aimed to help restoration practitioners find innovative ways to work with relevant stakeholders to design, implement and monitor effective restoration projects that meet diverse restoration goals and enhance the livelihoods for those who depend on the landscape.

### Objectives:

- Present basic principles of forest ecology, natural and anthropogenic disturbances and how these disturbances affect regeneration potential
- Provide a variety of tropical forest restoration methodologies and how the biophysical and socio-economic conditions of a site influence decision-making on which strategies to use
- Help participants analyze social and cultural aspects, history of disturbances and the strategy of involving different stakeholders in restoration
- Introduce the fundamentals of restoration monitoring to evaluate project performance, quantify ecosystem services and allow for adaptive management

**Course Structure:** This four-week Spanish-language course included a series of videos, interactive presentations, discussion forums and live sessions with guest experts, all with a focus on guiding participants to apply the concepts learned to their work on-the-ground. An informal live session was provided for participants to discuss their own restoration experiences with other participants and instructors. Also, individual office hours were offered to participants to discuss their final project individually with the lead instructor.



Course materials included pre-recorded lectures like this case study about prioritizing restoration sites and monitoring restoration activities by Dr. Francisco Roman, from the Consortium for the Sustainable Development of the Andean Ecoregion.

The thematic modules were:

- Module 1: Tropical forest ecology, disturbance and regeneration potential
- Module 2: Strategies to catalyze restoration in the tropics
- Module 3: Social and cultural aspects of restoration
- Module 4: Monitoring and ecosystem services
- Module 5: Development of a restoration management plan (optional)



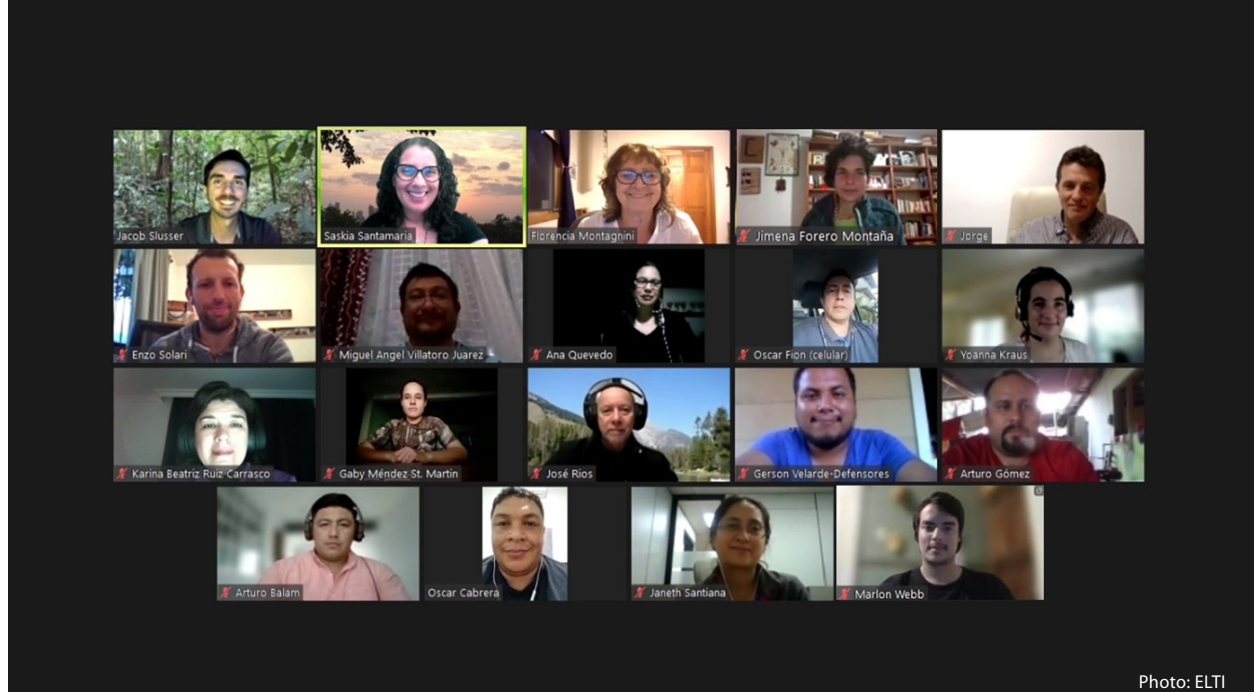


Photo: ELTI

*A group discussion between participants, ELTI instructors and guest expert, Dr. Florencia Montagnini.*

**Participants:** The course was offered in Spanish to seventeen restoration practitioners from nine different countries in Latin America, representing a variety of sectors including government, non-governmental organizations, and private companies.

**Instructors and Coordinators:** Jacob L. Slusser (Panama Coordinator, ELTI's Neotropical Training Program) served as the lead instructor for the course. Saskia Santamaría (Associate, ELTI's Neotropical Training Program) facilitated the delivery of the course, with assistance from Gillian Bloomfield (Coordinator, ELTI's Online Training Program). Dr. Alicia Calle (TNC-Colombia), Dr. Eva Garen (ELTI), Dr. Florencia Montagnini (Yale University), Dr. Dylan Craven (University Mayor of Chile), and Dr. Francisco Roman (Consortium for the Development of the Andean Ecoregion) served as guest experts invited to the live sessions. Additionally, 10 international speakers presented theory and case studies in pre-recorded lectures that comprised the course modules.



Photo: Ana Mercedes Quevedo

**Outcomes and Follow-up:** All participants were actively engaged throughout the course and benefited from the feedback they received from the instructors, guest experts and their peers. Six participants (35%) completed the optional restoration management plan and received comments from the lead instructor. The course received an overall 4.8 rating (out of 5) from participants, with most participants expressing interest in participating in field-based training opportunities for 2022.

*El Tambor Paramo, located in Mérida, Venezuela, featured in the "Forest Restoration Plan in a Cloud Forest of the Venezuelan Andes" by course participant Ana Mercedes Quevedo. This restoration management plan was a product of the optional project assignment, where newly acquired knowledge is put into action.*

*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.*