

## COURSE REPORT

### Tropical Forest Restoration and Agroforestry

**October 18 to November 22, 2021**

An online course organized by the Environmental Leadership & Training Initiative (ELTI) at the Yale School of Environment

**Background:** Tropical forest landscapes provide countless benefits for humans and nature, all of which are threatened by unprecedented degradation and deforestation. Forest restoration and agroforestry systems are important strategies to address degradation, enhance ecosystem services, strengthen climate change resiliency, maintain local economies, and improve human well-being.

This online course presented the basic concepts of forest restoration and agroforestry with examples that illustrate the planning, implementation, and management of these systems as part of forest and landscape restoration (FLR) projects. The course included diverse contributions from speakers worldwide and offered opportunities for participants to interact with ELTI's staff, partners, and network of global environmental leaders.



*Kabarole District in Western Uganda, within the Rwenzori Mountain area, where three participants from the Catholic Relief Services (CRS), Annet Masika, Ian de la Rosa, and Sharon Biira, focused their work on the optional project plan © Annet Masika*

ELTI is an initiative of the Yale School of the Environment and was created with generous support from Arcadia, a charitable fund of Peter Baldwin and Lisbet Rausing ([www.arcadiahfund.org.uk](http://www.arcadiahfund.org.uk)).





*Lago Dos Bocas, Central Mountain Range (Cordillera Central) of Puerto Rico © Jose Gilberto Martinez*

### Course objectives:

- Explore the basic principles of forest ecology and illustrate how natural and anthropogenic disturbances affect regeneration potential
- Analyze the influence of social and cultural factors on the design of restoration approaches and efforts involve different stakeholders in restoration and agroforestry
- Suggest criteria to match project goals and restoration actions to specific biophysical and social contexts
- Introduce the principles of agroecology and core components of agroforestry and silvopastoral systems
- Illustrate restoration and agroforestry projects in a variety of countries and contexts
- Provide opportunities for participants to network and build a community of practice with other environmental professionals interested in restoration and agroforestry worldwide

**Course structure:** This five-week online course combined a series of pre-recorded video lectures, live sessions with instructors and guest experts, weekly reflections on discussion forums, and case studies highlighting examples from specific projects.

The course had five weeklong thematic modules:

**Module 1.** Ecological principles and the context for forest and landscape restoration

**Module 2.** Sociocultural and political aspects of restoration

**Module 3.** Effective forest restoration practices and approaches

**Module 4.** Introduction to agroecology and agroforestry systems

**Module 5.** Silvopastoral systems and landscape management



*The road through the Sime Darby Berhad palm plantation to the entrance of the Tawau Hills National Park, where course participant Lisa Thieme focused her work on the optional project plan © Shavez Cheema, 1StopBorneo*



The first module explored key ecological principles to set the stage for understanding forest restoration and the role of agriculture in FLR. The second module discussed sociocultural and political aspects of restoration with case studies examining forest governance, forest restoration for social change, intergenerational exchange, restoration policies, and business and innovation.

The third module enabled a more detailed exploration of restoration approaches and interventions including natural and assisted natural regeneration, native species reforestation, applied nucleation, riparian restoration, and restoration at the farm scale. The fourth and fifth modules introduced strategies of agroecology, agroforestry systems, and silvopastoral systems to improve the sustainability of agricultural production across a variety of landscapes and ecosystems.

Participants were encouraged to reflect on the material in weekly discussion postings as well as integrate knowledge from these five modules into optional restoration and agroforestry projects.

*ELTI developed and delivered a new English-language module "Silvopastoral Systems and Landscape Management" to be used for the first time during this online course. The new module features an introductory presentation by Zoraida Calle (ELTI-CIPAV), a guest lecture from Dr. Shibu Jose (University of Missouri), and case studies by Dr. Joseph Orefice (Yale School of the Environment) and Dr. Teresa Pinto-Correia (University of Évora, Portugal) © ELTI Archive*

## How are intensive silvopastoral systems managed?

### Efficient grazing and high carrying capacity

Paddocks are subdivided into grazing strips

Brief grazing of paddocks (12 – 24 hours) followed by long periods of recovery

High animal load

Clean water available in the paddock: mobile troughs or drinkers

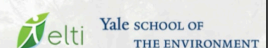


Brangus 3H Ganadería. Rafael Buenahora. Aguachica, Cesar, Colombia. 2017



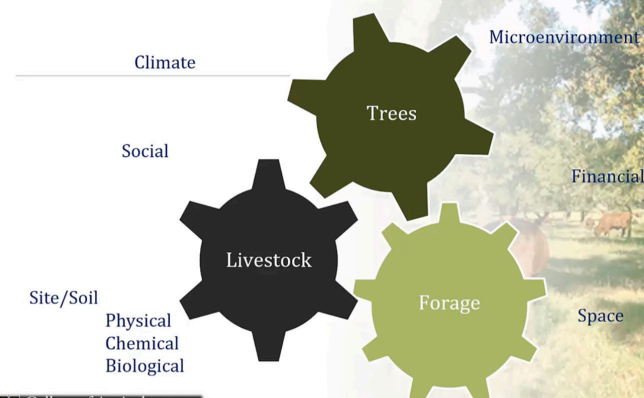
### Zoraida Calle

Environmental Leadership & Training Initiative, CIPAV, Colombia



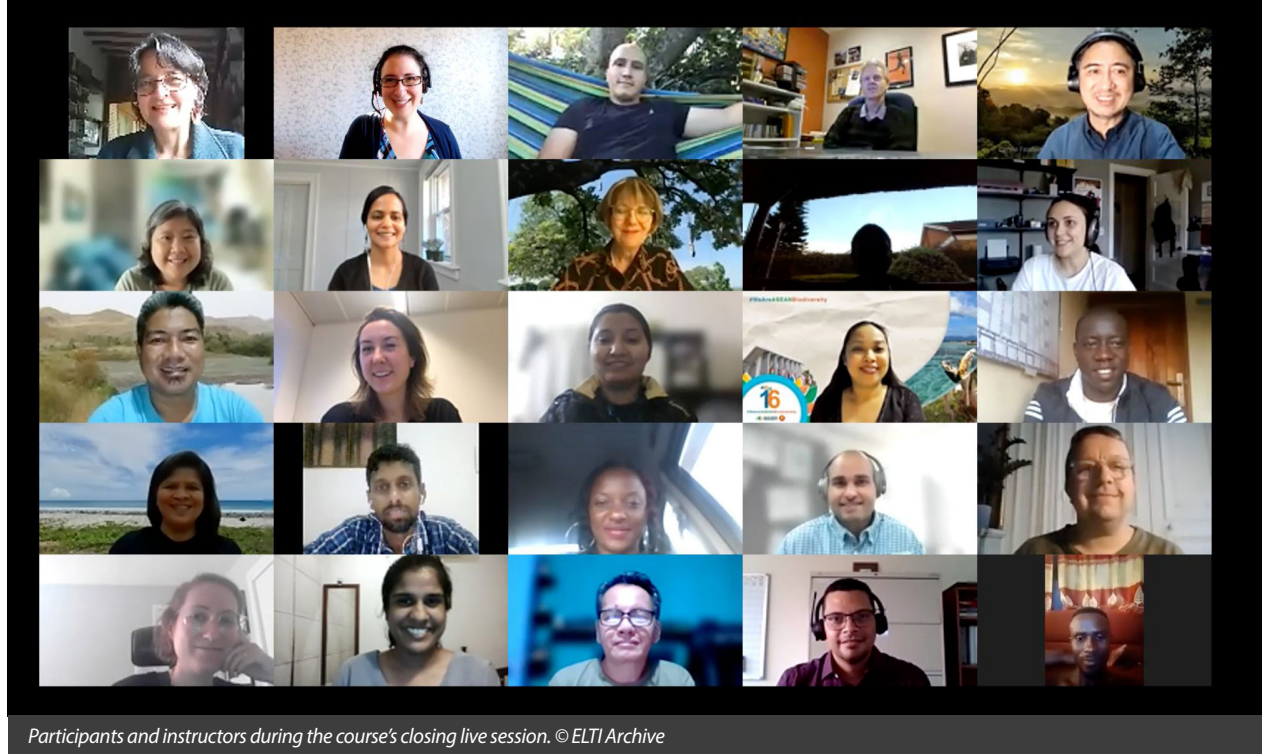
## It's A Complex System: Manage it as Such!

### An Integrated Three-Prong Approach



### Shibu Jose, Ph.D.

Associate Dean, College of Agriculture, Food and Natural Resources, University of Missouri



**Participants:** The course was delivered in English to 67 participants from 24 countries. These participants represented a range of disciplines and professions. Several participants came without prior experience in the environmental field and sought to learn the basics of restoration and agroforestry to start or improve restoration projects.

**Instruction team:** The teaching team for the course included **Gillian Bloomfield**, ELTI Online Training Program Coordinator based at the Yale School of the Environment, **Zoraida Calle**, ELTI Colombia Program Coordinator based at the Center for Research on Sustainable Agricultural Production Systems (CIPAV), and **Joyita Ghose**, an independent consultant and a recent graduate from the Yale School of the Environment.

Pre-recorded lectures and case studies were presented by 25 international speakers. Additionally, guest instructors Dr. Alicia Calle (The Nature Conservancy), Dr. Eva Garen (ELTI), Dr. Meredith Martin (North Carolina State University), Dr. Florencia Montagnini (Yale School of the Environment), Dr. David Neidel (ELTI), Emily Sigman (recent graduate Yale Jackson Institute for Global Affairs), Jacob Slusser (ELTI), Karin Bucht (ELTI), Joy Compendio (ELTI), and Maria Otavia Crepaldi (ELTI) joined the live sessions for feedback and exchange.

**Outcomes:** In a post course survey (n=56), participants rated their learning experience in the course as 4.6 out of 5. All respondents (100%) indicated that they are likely to the knowledge, skills and insights learned from this course. In particular, participants said they had increased knowledge about ecological and socio-political aspects, the wide suite of restoration strategies that can be used to achieve restoration objectives, and the importance of monitoring restoration projects.

Twelve participants chose to submit nine optional projects which served as unique restoration plans for sites in India, Madagascar, Malaysia, Mexico, Philippines, Puerto Rico (US), and Uganda.

#### **For more information:**

Contact Gillian Bloomfield, ELTI Online Training Program Coordinator, ([gillian.bloomfield@yale.edu](mailto:gillian.bloomfield@yale.edu))