Environmental Leadership & Training Initiative

COURSE REPORT

Tropical Forest Restoration and Agroforestry

September 23–October 27, 2024

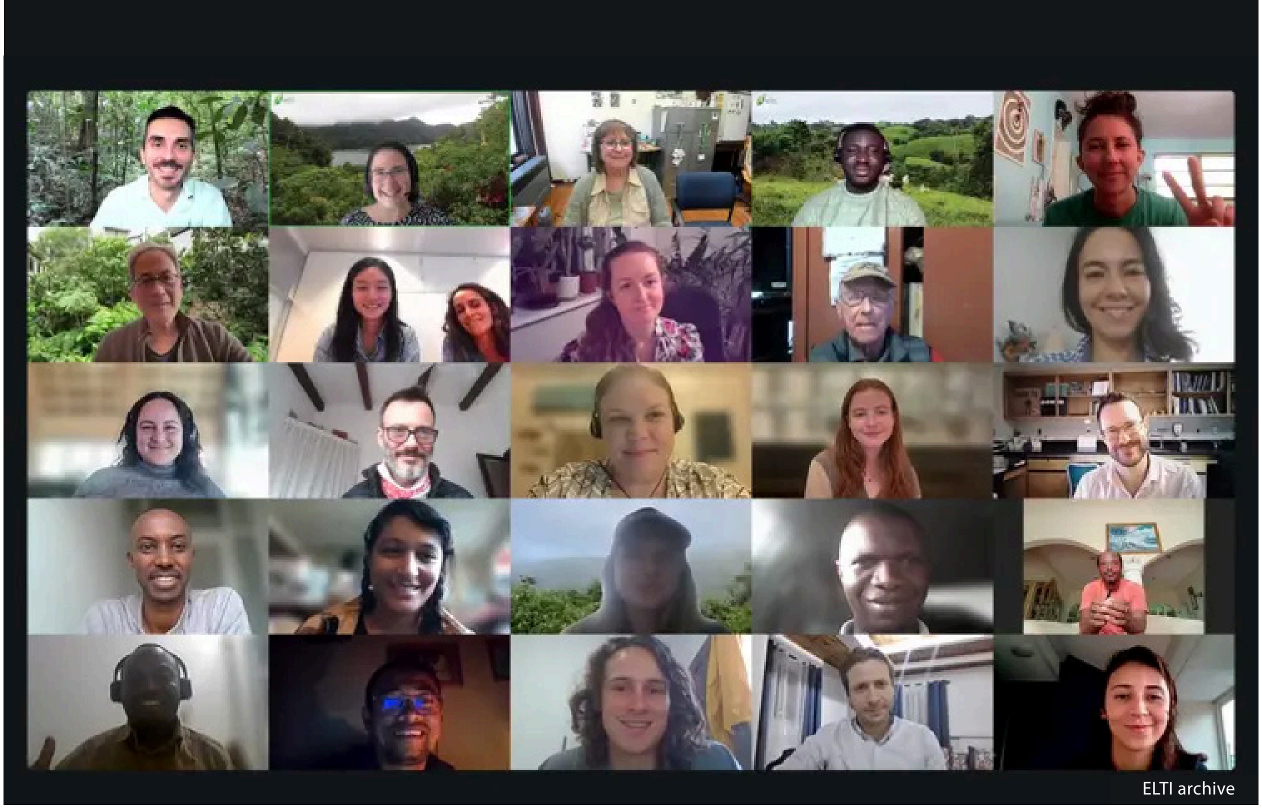
A online course organized by:
Environmental Leadership & Training Initiative (ELTI), Yale School of Environment (YSE)

Mutuluni Hill Forest in Kenya, where course participants Joshua Mutambuki, Mercy Kimani, Edwin Mwiti, and Samuel Muhindo focused their work for their optional project, "Restoration of Mutuluni Hill Forest: Empowering Farmers through Community-Led Reforestation and Sustainable Agroforestry for a Greener Future."

Background: Tropical forest landscapes provide countless benefits for humans and nature, all of which are threatened by unprecedented biodiversity loss from deforestation and degradation. Forest restoration and agroforestry systems are important strategies to address forest degradation, augment ecosystem services, strengthen climate change resiliency, enhance local livelihoods, 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 landscape restoration (FLR) projects. The course included contributions from speakers around the world and offered opportunities for participants to interact with ELTI's staff, partners, and network of global environmental leaders.

ELTI is an initiative of:
Yale SCHOOL OF THE ENVIRONMENT
The Forest School



Course participants and instructors during a live session with guest expert Florencia Montagnini (top row, center).

Course Objectives: The course objectives were for the participants to:

- Explore basic principles of forest ecology and natural and anthropogenic disturbances and illustrate how disturbances affect regeneration potential.
- Analyze social and cultural factors influencing strategies for involving different stakeholders in restoration and agroforestry.
- Present a suite of restoration strategies and suggest criteria to match project goals and restoration actions to specific biophysical and social contexts.
- Introduce the principles and core components of agroforestry and silvopastoral systems.
- Highlight 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 prerecorded video lectures, live sessions with instructors and guest experts, weekly reflections on discussion forums, case studies highlighting examples from specific projects, and an optional final project to develop a restoration plan.

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. Agroforestry, Silvopasture, and On-Farm Restoration Strategies
Module 5. Restoration and Agroforestry as a Climate Solution

A grassland area with patches of forest near Goroka, Eastern Highlands, Papua New Guinea, that was cleared by local communities for small-scale agriculture. Course participant Vincianna Andrew focused her work here for her optional project, "Rehabilitation of Degraded Grasslands in the Highlands of Papua New Guinea Through Improved Coffee Agroforestry Systems."

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 presented 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.

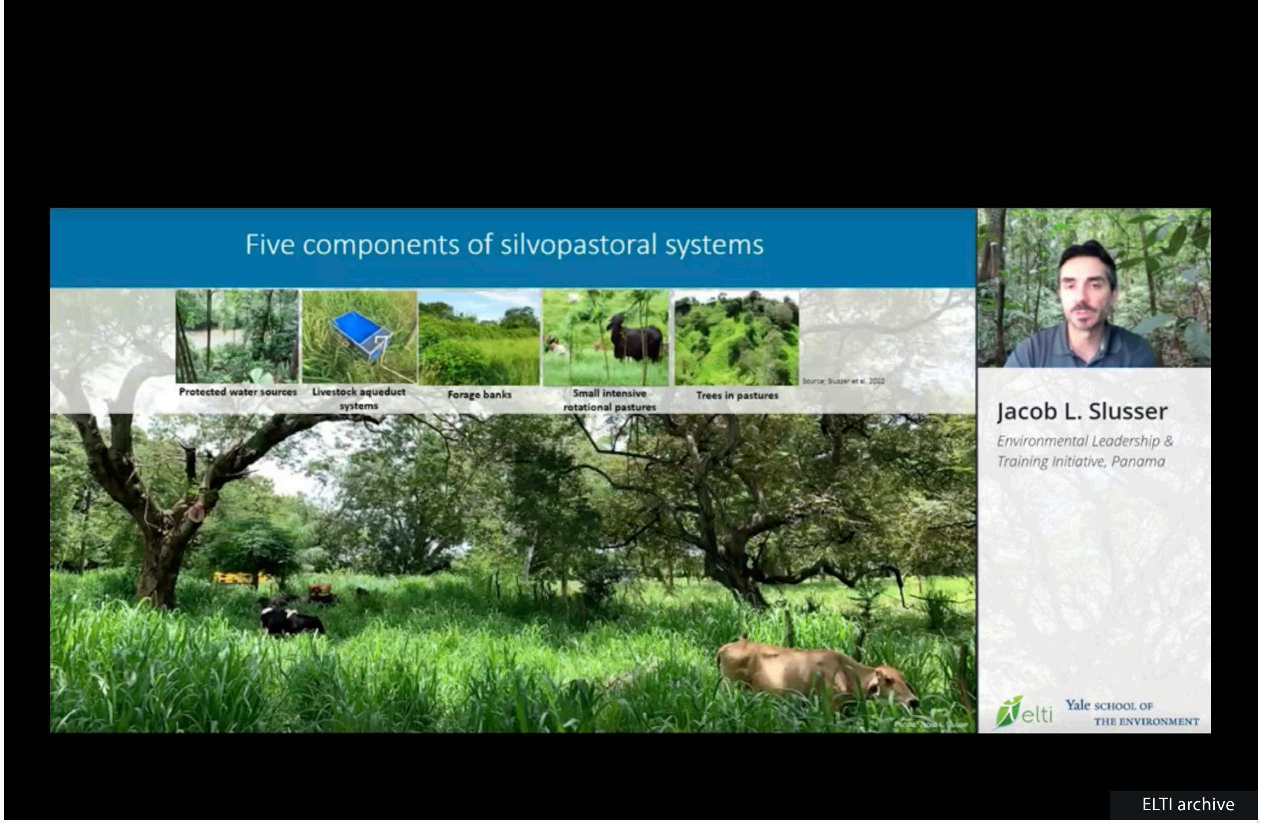
The third module enabled a more detailed exploration of restoration approaches and interventions, including natural and assisted natural regeneration, native species reforestation, applied nucleation, riparian restoration, and restoration at the farm scale. The fourth module introduced strategies of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

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

Participants: The course trained 54 people, 45 of whom participated online using Yale's Canvas learning management platform and nine of whom participated offline through groups in Madagascar. Catholic Relief Services and Bôndy International in Madagascar worked with ELTI to pilot this new way to support learners who do not have strong internet access. As part of this collaboration, two participants with Canvas access hosted in-person learning sessions for the nine participants without regular internet access so they were able to watch the videos and session recordings, discuss the course themes, and prepare group reflections on the content.

Instruction team: The teaching team for the course included Gillian Bloomfield (online program associate director, ELTI, based at YSE), Jacob L. Slusser (ELTI's global training landscapes manager, based at the Water Center for the Humid Tropics of Latin America and the Caribbean [CATHALAC] in Panama), Fredrick Addai '23 MF (ELTI postgraduate associate, based at YSE), and YSE student fellows Laurenz Dodge '26 MEM and Maya Dutta '26 MEM.

ELTI managed the delivery of 31 prerecorded lectures and case studies that featured 25 international speakers. Additionally, guest instructors Eva Garen (director, ELTI) and Florencia Montagnini (senior research scientist, YSE) joined the live sessions for feedback and exchange.



The course featured two new lectures from Jacob Slusser on silvopastoral systems and model farm networks.

Outcomes: In a postcourse survey (n=42), participants rated their learning experience in the course as an average of 4.5 out of 5. All respondents (100%) indicated that they are likely to implement the knowledge, skills, and insights learned from this course. In particular, participants said they had increased their knowledge of ecological and sociopolitical aspects of TFL and agroforestry, the wide range of strategies that can be used to achieve restoration objectives, and the importance of monitoring restoration projects.

One participant stated, "My favorite part of the course was the live sessions! Seeing everyone bring in their questions and favorite pieces of information, having everyone share their own experiences and brainstorm on solutions together, and having all of the experts from Yale get to weigh in on those things was such an enriching experience. And it helped make the knowledge I was learning each week far more tangible and easier for my brain to digest and remember all of the lectures."

Six participants chose to submit three optional projects that served as restoration plans for sites in Kenya, Russia, and Papua New Guinea.

For more information: Contact Gillian Bloomfield at gillian.bloomfield@yale.edu
This course was made possible by Arcadia and FedEx, whose environmental conservation grants support programs that protect and enhance biodiversity and conduct field training and scientific research.

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