

**COURSE REPORT**

## **Introduction to the Ecology and Strategies for Tropical Forest Restoration in Human-Modified Landscapes**

**July 7 to August 18, 2014**

An online course organized by:

The Environmental Leadership and Training Initiative (ELTI)



**Background:** In Latin America and worldwide, tropical forests are rapidly disappearing and, along with them, a variety of environmental services that maintain the diversity of life on this planet are being lost. As the damaging effects of deforestation are being observed on global and local scales, there has also been increasing interest in the conservation and restoration of tropical forests. However, many restoration projects fail over time because the species and methods employed do not match the biophysical and social conditions of the restoration site. Understanding the ecological processes that relate to forest functioning and the sociopolitical dynamics that affect decision-making can guide the development of strategies for effective forest restoration and sustainable land management.



*Current land-uses the Darién region Panamá where one participant, Yaira Allois, focused her course term paper: "Management Plan for the Restoration of the Piriaque Watershed in the Puerto Lara Community".*

ELTI is an initiative of:

**Yale** SCHOOL OF FORESTRY &  
ENVIRONMENTAL STUDIES

In collaboration with:



Smithsonian Tropical Research Institute



This online course was designed to provide an introduction to the concepts and techniques needed to plan and implement strategies for the restoration of forests and ecosystem services in multiple-use landscapes. The course was offered to practitioners and professionals working for government agencies, NGOs, and the private sector looking to advance their knowledge about tropical forest ecology and restoration. The course provided participants with a series of presentations, discussions, and activities that guide the development of a restoration management plan. Additionally, this course provided the opportunity for participants to meet and share experiences, concepts, and tools with each other, the ELTI facilitators, and guest experts.

**Format:** This six-week course was offered in Spanish and was divided into thematic modules, each one lasting a week. The thematic modules were:

**Module 1.** Ecology and natural regeneration of tropical forests

**Module 2.** Effects of anthropogenic disturbance on regeneration

**Module 3.** Strategies to catalyze restoration in the tropics

**Module 4.** Influence of sociopolitical factors on restoration

**Module 5.** Monitoring and follow-up of restoration projects

**Module 6.** Completion of a restoration management plan

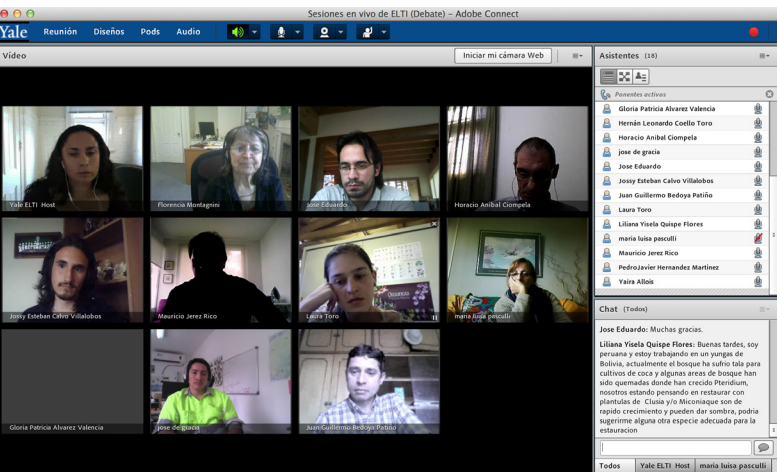
The participants were allowed to complete their assignments according to their own schedules within that week, with assignments due on Sunday night at the end of each week.

**Participants:** From a large pool of applicants, ELTI selected 60 participants for their achievement and potential as environmental decision-makers involved in natural resource management or restoration in Latin America. They came from thirteen countries and work for local and national governments, non-governmental organizations, private companies, academia, and public-private partnerships.





Photocredits: Yaira Allois



Live discussion section using Adobe Connect, which allowed for dialogue between course participants and guest expert Dr. Florencia Montagnini. Yale School of Forestry & Environmental Studies.

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Yale SCHOOL OF FORESTRY & ENVIRONMENTAL STUDIES
Smithsonian Tropical Research Institute PANAMA



**Karen Holl, Ph.D.**  
Universidad de California, Santa Cruz,  
Estados Unidos

**Restauración de Bosques Tropicales Mediante la Siembra de Islas de Árboles**

**Karen Holl, Rebecca Cole, Leighton Reid, Juan Abel Rosales, Federico Oviedo, Rakan Zahayvi, y muchos otros**

[www.holl-lab.com/tropical-forests.html](http://www.holl-lab.com/tropical-forests.html)    [kholl@ucsc.edu](mailto:kholl@ucsc.edu)



*Prerecorded Video of Dr. Karen Holl, University of California - Santa Cruz, who presented on the "Restoration of Tropical Forests by Establishing Tree Islands".*

## Instructors and Coordinators:

**Gabriela Doria**, M.Phil, M.S., a Colombian scientist and alum of the Yale School of Forestry & Environmental Studies (F&ES), facilitated the delivery and management of the course with supervision from **Gillian Bloomfield**, ELTI's Web-Based Training Program Coordinator with an M.F.S. from Yale F&ES.

The following guest experts provided detailed feedback on the participant's preliminary management plans and participated in live videoconferences:

- **Francisco Román**, Ph.D., Associate Researcher, University of Florida, Madre de Dios Consortium, Peru.
- **Felipe Melo**, Ph.D., Professor, Federal University of Pernambuco, Brazil.

Videoconferences were also delivered by:

- **Karen Holl**, Ph.D. Professor of Restoration Ecology, Environmental Studies Department, University of California, Santa Cruz, United States.
- **Florencia Montagnini**, Ph.D., Yale University, School of Forestry & Environmental Studies, United States.

Additional content support by:

- **Mark Ashton**, Ph.D., Yale University, School of Forestry & Environmental Studies, United States.
- **Alicia Calle**, MSc, Program in Environmental Studies, University of California Santa Cruz, United States.
- **Zoraida Calle**, MSc, Center for Research in Sustainable Agricultural Production Systems (CIPAV), Colombia.
- **Eva Garen**, Ph.D., Environmental Leadership and Training Initiative at Yale University, United States.
- **William Laurance**, Ph.D., School of Marine and Tropical Biology, James Cook University, Australia.

The Yale Broadcast Center provided recording and editing support for the pre-recorded guest lectures.

### **Educational Tools:**

- Interactive presentations that provided a synthesis of the core concepts of each week;
- Pre-recorded guest lectures that simultaneously depicted the video and audio of the guest speaker, along with the PowerPoint slides;
- Optional and required readings to complement the presentations;
- Case studies providing restoration examples from Colombia, Costa Rica, Mexico, and Panama;
- Optional discussion sections conducted live with guest experts;
- Weekly short answer assignments, which evaluated the participant's understanding of the content; and
- Discussion forums for individual and group work towards the creation of a final project: a preliminary management plan for restoration on a site of professional interest.

In addition to the discussion forum, participants also had to complete the following assignments for the final project: one site visit, feedback from the guest expert, the peer-to-peer exchange of drafts, and literature searches using ELTI's Tropical Native Species Reforestation Information Clearinghouse ([reforestation.elti.org](http://reforestation.elti.org)). At the end of the course, each participant who completed all of the course requirements received a certificate of participation.

### **Course Objectives:**

- Present the basic principles of forest ecology, natural and anthropogenic disturbances to tropical forests, and how those disturbances affect the potential for regeneration;
- Provide the knowledge to evaluate and compare an array of tropical forest restoration methodologies and how the biophysical and socioeconomic conditions of a site influence the decision-making about which strategies to utilize;
- Allow participants to analyze the ecological conditions, disturbance history, sociopolitical factors, and monitoring plans for the adaptive management of a specific restoration site; and
- Provide the opportunity for participants from different Latin American countries to meet and share experiences, concepts, and tools with each other, the ELTI facilitators, and guest experts.

**Outcomes and Follow-up:** The majority of participants were actively engaged throughout the course. Forty-nine of the participants (82%) successfully completed their preliminary management plan and benefited from the feedback they received from the instructors and their peers. In the months following the course, ELTI will follow-up with the participants to see how the course and the term paper have influenced their professional development and management of their individual restoration sites.

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*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.*