Restoration Monitoring Course

ELTI Training Landscapes
November 27, 2023–January 20, 2024

An online course organized by:

- The Environmental Leadership & Training Initiative (ELTI), Yale School of the Environment
- Instituto de Pesquisas Ecológicas (Institute for Ecological Research [IPÊ])
- Sociedade Brasileira de Restauração Ecológica (Brazilian Society of Ecological Restoration [SOBRE]), through Dispersar, Programa Nacional de Formação Inicial e Continuada em Restauração de Ecossistemas (Dispersal, National Program for Initial and Continued Training in Ecosystem Restoration)


Instructors during the course's opening live session.

Background: Brazil is one of the most biodiverse countries in the world, hosting a wide array of vital ecosystems such as the Amazon, the Cerrado, the Atlantic Forest, the Pantanal, and the Caatinga. These ecosystems provide crucial environmental services, including climate regulation, maintenance of the hydrological cycle, biodiversity preservation, and timber and nontimber forest products. However, these ecosystems have been seriously degraded by human activities such as deforestation, mining, agriculture, and urbanization, which have resulted in biodiversity loss, climate change, and soil degradation. Brazil faces a significant challenge when it comes to environmental restoration.

ELTI is an initiative of:

Yale SCHOOL OF THE ENVIRONMENT

The Forest School
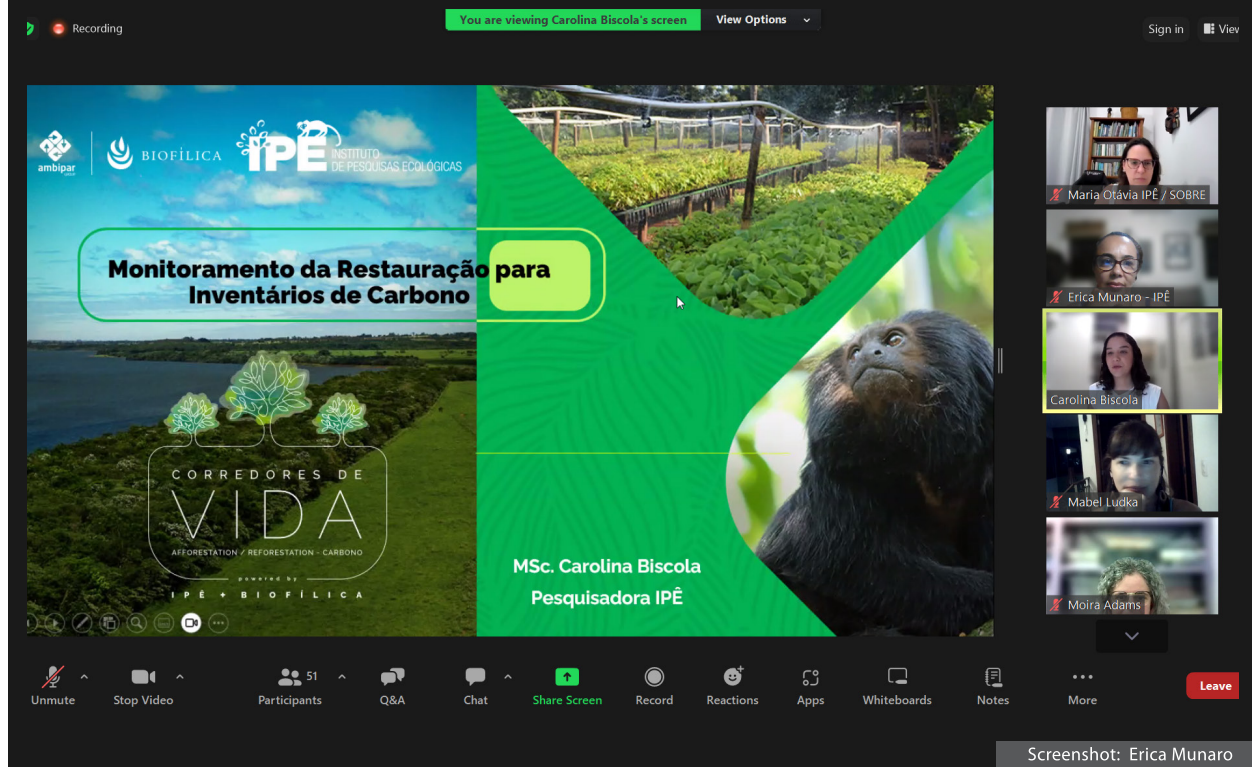
Carolina Biscola speaks during the third live session.

Brazil has set a goal to restore 12 million hectares of forests by 2030. This target is part of Brazil's commitment to the Paris Agreement and the United Nations Decade on Ecosystem Restoration (2021–2030). In attempts to fulfil this commitment, various initiatives have been implemented to restore degraded areas, involving both public and private sectors as well as NGOs and local communities. It is unclear, however, how much has been achieved to date as many of these projects were halted by the previous regime.

Monitoring of environmental restoration is an essential tool to ensure the success and effectiveness of restoration initiatives. It allows the assessment of restoration progress, identification of failures, and adjustment of strategies as needed, ensuring that ecological, social, and economic objectives are achieved. However, to date there has been insufficient monitoring of restoration initiatives across Brazil. Monitoring is generally treated as an afterthought, and many conservation professionals lack a strong understanding of the science and practice of monitoring. To start addressing this problem, IPÊ-ELTI and its partners developed this Portuguese-language online course for a wide array of conservation professionals and other stakeholders directly involved in restoration projects.

Course Objectives: The course aimed to contribute to the effective monitoring of restoration projects by providing a comprehensive overview of ecological restoration monitoring, from its theoretical foundations to practical applications. Participants learned about the importance of monitoring, the different types of monitoring, and how to develop a monitoring plan for a specific restoration project. The course also covered the use of biophysical and social indicators to track the progress of restoration projects.

Course structure: The online course was offered from November 27, 2023, to January 20, 2024, with a workload of 12 hours, in both synchronous and asynchronous formats. Participants engaged with pre-recorded video lectures, completed assignments, and shared their insights with each other. They also had the opportunity to exchange knowledge with instructors during three live sessions. A situation problem

Alessandra Nasser Caiafa speaks during the second live session

with photos and relevant information about a restoration area was presented at the end of the course, and participants were required to answer key questions about the problem and apply what they had learned to propose a solution.

The synchronous and asynchronous sessions were as follows:

Synchronous sessions

Live session 1 (November 28, 2023): Introduction to the Course and Orientations.

Live session 2 (December 5, 2023): Biophysical Indicators of Restoration (Alessandra Nasser Caiafa)

Live session 3 (December 19, 2023): Monitoring Restoration Projects for Carbon Inventories (Carolina Biscola)

Asynchronous content

Rehabilitation of Degraded Areas: Concepts and Experiences (Maria Otávia Crepaldi)

Monitoring of Restoration Actions: Theoretical Principles and Field Indicators (Caiafa)

Monitoring of Restoration in the Context of Public Policies (Rafael Chaves)

Monitoring of Restoring Areas: What, When, and How to Evaluate in the Field (Natalia Guerin)

Monitoring of Social Indicators (Aurélio Padovezzi)

Optional Content 1: Monitoring of Fauna: The Use of Camera Traps (Andressa Gatti)

Optional Content 2: Monitoring of Primates (Gabriela Rezende)
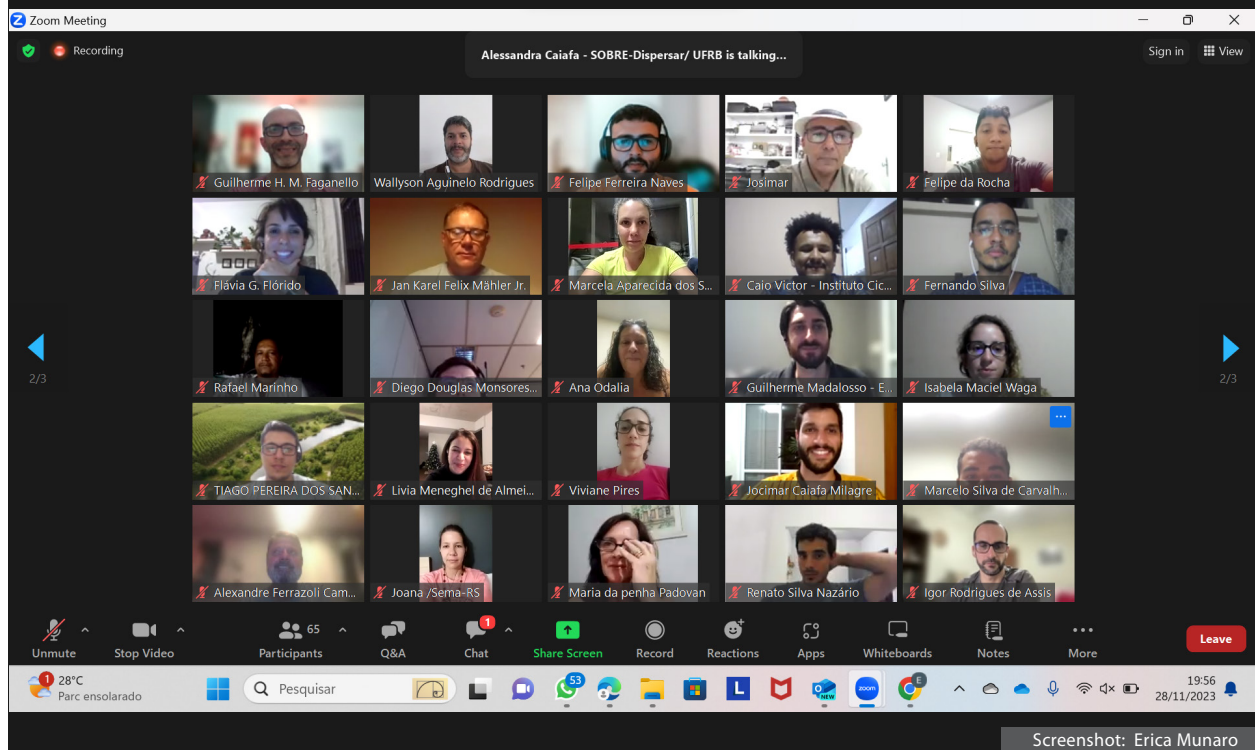
Course participants during the opening live session.

Participants: The 72 participants were chosen from 414 applicants. Participants were professionals from across Brazil who are members of SOBRE, IPÊ partners, and Bahia Forest Forum members from southern Bahia. They were environmental practitioners, rural extensionists, students, academic professors, and indigenous leaders involved in environmental restoration. Of the 72 participants, 71 hailed from 15 Brazilian states and one was a Portuguese speaker from Ethiopia, a member of the African Union, who learned about the course through the ELTI website. An equal number of males and females participated.

Maria Otávia Crepaldi (Brazil program coordinator, ELTI) conceived and coordinated the course. Mabel Ludka (Brazil program assistant, ELTI) organized, edited, and structured the course for the Canvas LMS platform and was also the online tutor. Gillian Bloomfield (online training program coordinator, ELTI) and Sabrina Weber (Brazil program administrative assistant, ELTI) provided administrative support. Alessandra Nasser Caiafa (coordinator, SOBRE-Dispersar, and professor, Universidade Federal do Recôncavo Bahiano) and Mariana Pardi (executive secretary, SOBRE) assisted in promoting the course, developed promotional materials, and managed the registration process. Caiafa also participated in development of the situation problem. Live session instructors were Alessandra Caiafa and Carolina Biscola (Biofílica). Asynchronous content instructors were Crepaldi, Caiafa, Rafael Chaves (analyst, Environmental Protection Agency of São Paulo State), Natalia Guerin (board member, SOBRE), Aurélio Padovezi (researcher, University of Padua), Andressa Gatti (associate researcher, IPÊ), and Gabriela Rezende (associate researcher, IPÊ).

Outcomes and follow-up: By the end of the course, 50 of the 72 enrolled participants had fulfilled all requirements and received the certificate of completion. In the end-of-course survey, participants (n=50) rated the overall course experience 4.7 out of 5.