

Environmental & Productive Sustainability in Rural Properties

June 7, 2021 to April 4, 2022

A blended online and field course organized by:

The Environmental Leadership & Training Initiative, Yale School of the Environment

The Higher School of Environmental Conservation and Sustainability, Institute for Ecological Research

The Pau Brasil Center of Studies in Agroecology and Organic Production, Federal University of Southern Bahia



The productive and natural landscape within the training site at the Serra do Teimoso Private Natural Reserve, Jussari, Southern Bahia. © Maria Otávia Crepaldi

Background:

The Atlantic Forest of Brazil is one of the most biodiverse forests in the world. The region is classified as a biodiversity hotspot and harbors a high number of endemic and endangered species, such as the iconic Brazil-wood (*Caesalpinia echinata*) and the Golden Lion tamarin (*Leontopithecus rosalia*). The Atlantic Forest region also faces an extremely high degree of fragmentation. Only around 12.5% of the original vegetation cover remains, of which only 8.5% is located in patches larger than 100 hectares.

Within the Atlantic Forest region, the Bahia state of Brazil is comprised of many family-managed rural properties, which serve as important producers of food on a national scale. Extension agents play an important role in helping these farmers implement the best practices and techniques of production. The course **Environmental & Productive Sustainability in Rural Properties** was designed to train extension agents that work with small family farmers, as well as traditional peoples and communities, in southern Bahia. The course aimed to benefit not only the direct participants, but also the farmers and the farming systems that the trained extension agents will advise in the future.

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).

Course objectives:

The overall goal of the **Environmental & Productive Sustainability in Rural Properties** course is to provide concepts and tools for the sustainable design of rural properties, considering environmental, social, and economic aspects. The course included theory and examples that showcased how maintaining productivity can be complementary with activities to recover ecosystem services and conserve biodiversity. The specific objectives were:

- To offer a broad perspective on property design for sustainability that comply with Brazilian law
- To present different options for integrating protected areas and sustainable production models
- To explore certification, finance, and management tools available that can add value to sustainable production models

Course structure:

This blended online and field course consisted of 90 hours of materials distributed between distance learning activities and field exercises.

The **online component** included synchronous and asynchronous sessions divided into thematic modules during which participants watched pre-recorded video lectures, completed assignments, and shared their insights with instructors and each other during scheduled live sessions.

The **field component** took place from March 11 to 13, 2022 at the *Serra do Teimoso* Private Natural Reserve in southern Bahia, Brazil.

The course had **ten** thematic modules:

Module 1. Environmental planning and sustainability

Module 2. Rural extension and participatory planning

Module 3. Agroforestry systems

Module 4. Silvopastoral systems

Module 5. Forestry with native species

Module 6. Ecological restoration and connectivity

Module 7. Biodiversity conservation

Module 8. Certification (carbon, organic)

Module 9. Rural business management

Module 10 (Field). Practices in productive and environmental sustainability

*Stairs leading to a platform on the top of a large “pink jequitibá” tree (*Cariniana legalis*) from which participants could see primary forest surrounding the demonstration site. Jussari, Bahia, April 2022. © Maria Otávia Crepaldi*





Participants learning about raising stingless native bees raised in an agroforestry system. Serra do Teimoso, Jussari, Bahia, April 2022. © Maria Otávia Crepaldi

The first two modules focused on property planning in the context of socio-environmental landscapes and rural extension. Modules four, five, and six offered tools and techniques related to models of agricultural production that integrate trees. The following two models dealt with ecosystem restoration and conservation. Finally, the last two online modules explored aspects of property management and income-generating business techniques. The field module showcased the practical application of the course content.

Participants:

The course was delivered in Portuguese for an audience of students and professionals in the agricultural and environmental fields, rural technical assistants, and rural leaders working in southern Bahia.

There were 20 participants from 10 organizations:

- Arapyau (1)
- Ciclos-Sustentabilidade e Cidadania (1)
- Universidade Federal da Bahia/Projeto Desenvolvimento Socioambiental para a Agricultura Familiar (7)
- Instituto Mãe Terra (1)
- Instituto de Pesquisas e Estudos Florestais (2)
- Floresta Viva (1)
- IPÊ - Instituto de Pesquisas Ecológicas (2)
- Programa Arboretum (2)
- Rede de Agroecologia Povos da Mata (2)
- Governo do Estado da Bahia (1)

Students, coordinators and the field instructor in the field site at Serra do Teimoso – Jussari – Bahia, April 2022. © Maria Otávia Crepaldi



Instruction team:

The course was developed and delivered by the Higher School of Environmental Conservation and Sustainability (ESCAS) at the Institute for Ecological Research (IPÊ) and the Environmental Leadership & Training Initiative (ELTI) at the Yale School of the Environment (YSE), through a partnership with the Pau Brasil Center of Studies in Agroecology and Organic Production (NEA-PB) at the Federal University of Southern Bahia (UFSB)



Maria Otávia Crepaldi and **Simone Tenório** (Brazil Coordinators of the ELTI/ESCAS partnership) coordinated the development and delivery of the course. **Luciana Jacob**, **Fernando Rabello**, and **Anna Gabriella Agasi**, assisted with course facilitation, with support from **Gillian Bloomfield** (Coordinator, ELTI Online Training Program) and **Saskia Santamaria** (Associate, ELTI Neotropics Program).

Dr. Carlos Klink (Professor at the University of Brasília, former Secretary of Climate Change and former Executive Secretary of the Ministry of Environment), **Dr. Claudio Pádua** (Co-founder of IPÊ, Professor at ESCAS-IPÊ), MSc. Helena Carrascosa (Project Coordinator at Secretaria de Infraestrutura e Meio Ambiente do Estado de São Paulo), **Dr. Miguel Calmon** (Senior Consultant at the World Resources Institute, Brazil), and **Dr. Maria Jose Brito Zakia** (Professor at ESCAS-IPÊ and Universidade Estadual Paulista) presented lectures and engaged with participants during live sessions.

The pre-recorded content was delivered by 48 renowned professionals from 34 Brazilian institutions, including universities, research centers, NGOs, consultancy companies, agribusinesses, and public agencies. They contributed with pre-recorded lectures specially prepared for this course.

In addition, **Dr. Florencia Montagnini** (Senior Research Scientist at YSE), **Dr. Mark Ashton** (Professor at YSE), **Dr. Miguel Altieri** (Professor at University of California-Berkeley), and **Dr. Clara Nicholls** (Researcher and lecturer at University of California-Berkeley) presented pre-recorded lectures in English and Spanish with Portuguese subtitles added by the instruction team.

Participants learning how to estimate cocoa productivity in a planting in Serra do Teimoso – Jussari – Bahia, April 2022. © Maria Otávia Crepaldi



Outputs and outcomes:

By the end of the course, participants were required to submit an “end-of-course project” tailored to the context where they work. These projects guided participants to put their newly acquired knowledge into practice and implement improvements to existing initiatives.

They could choose to develop an environmental sustainability plan, a production plan, or business management plan. The projects could be delivered as either a) a written plan to solve a real problem in the field, or b) a communication piece (folder, guide, article) aimed at a real target audience. The projects were mandatory for the participant to obtain their certificate of completion.

The participants focused their projects on 11 themes:

- From farmer to farmer: An intervention project for organic compost production.
- Participatory monitoring of the ecological restoration in the Cantareira System.
- Rural extension as tool for forest restoration in permanent preservation areas of the Miramar Association in Eunápolis, Bahia.
- A proposal to increase the offer of organic foods in Bahia.
- Participatory construction of a system to monitor the metrics of socioenvironmental development among communities in the DSAF project.
- Women as the owners of their narratives.
- A Guidebook on the best practices of nature conservation to improve the quality of life in rural environments.
- Agroforestry systems for the recovery of environmental services, self-sufficiency, and social empowerment: strategies for ecological restoration.
- Adaptability evaluation of agroforestry systems to the Pataxó culture and monitoring of systems’ effectiveness for “Restinga” restoration in the Indigenous Community of Novos Guerreiros, Porto Seguro – BA.
- Educational campaign for the prevention of wildfires.
- A literature review on the methodologies for the social, economic and ecological analysis of productive gardens.

Fifteen of the 20 participants received their certificate of completion. In the end of course survey (n=13), participants ranked the course 4.5 out of 5. Participants appreciated the quality of the content, diverse instructors, and practical field component. Some expressed difficulties maintaining active participation during the online component due to the high workload. The participants who completed the blended experience confirm that it has added to their knowledge about agroecology, agroforestry, property planning, and rural extension.

For more information:

Contact Maria Otávia Crepaldi, ELTI Brazil Program Coordinator, (mariaotavia.crepaldi@yale.edu).