

COURSE REPORT

International Agroecology and Ecological Restoration Course:

Developing Resilient Sustainable Agricultural Landscapes

El Hatico Natural Reserve, El Cerrito, Cauca Valley, Colombia
July 21 – 25, 2015

A field course organized by:

The Environmental Leadership & Training Initiative (ELTI), the Center for Research in Sustainable Systems of Agriculture (CIPAV), the Latin American Scientific Society of Agroecology (SOCLA) and the El Hatico Natural Reserve



AGROPASAJES SOSTENIBLES CON RESILIENCIA

Background: While modern agriculture via the green revolution has brought increased production to feed millions in the developing world, it is an input intensive system, which has degraded ecosystem function and leads to many negative environmental and public health consequences. Furthermore, as climate change continues to challenge agricultural systems with erratic climatic conditions, monoculture systems often fail in this context due to their lack of ecosystem integrity to buffer itself against these pressures. In order to form more resilient agricultural landscapes, agroecology systems have been shown to conserve natural resources and produce to meet human consumption, while minimizing the negative environmental and socio-economic impacts (SOCLA 2015). Agroecology also shares many similarities with other sustainable productions systems such as agroforestry and silvopastoral systems, which integrate production with forest restoration. Therefore, this course was developed to communicate the application of agroecology principles to practitioners working in a diversity of mixed-use landscapes.

ELTI is an initiative of:

Yale SCHOOL OF FORESTRY &
ENVIRONMENTAL STUDIES

In collaboration with:

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Jacob L. Slusser - ELTI



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Objectives: The overall objective of the course was to teach participants how the application of agroecological principles can improve environmental and socio-economic conditions in agricultural and ranching landscapes by creating production systems that are resilient to climate change.

Field-Course Format: This course took place over five days at the El Hatico Natural Reserve and the El Vetiver Farm, both located in the Cauca Valley of Colombia. The El Hatico Natural Reserve, a historical farm owned and operated by the Molina Family for nine generations, demonstrated a variety of agroecological practices in the production of livestock and sugarcane. The El Vetiver Farm, owned by a small producer in a marginal mountainous region outside of Cali, Colombia, illustrated the use of agroecology and terracing to produce annual crops in highly sloped land, often prone to erosion.

Over the course of five days, participants had a space for learning, dialogue and an opportunity to meet and exchange experiences, concepts and practical tools with instructors and international experts. Lectures provided a theoretical basis for course themes, field visits consisted of observations and exercises and discussion sessions provided more time for participants to reflect and exchange ideas.



Jacob L. Slusser - ELTI

Day 1:

The course began with introductions from the different course facilitators and the participants. ELTI's Panama Coordinator, Jacob Slusser provided an introduction to ELTI's Training Program in the Neotropics and ELTI's On-Line Program Coordinator Gillian Bloomfield discussed ELTI's On-line Program. Dr. Miguel Altieri and Dr. Clara Nicholls introduced basic themes about agroecology: (1) the scientific basis and principles of agroecology; (2) comparisons between agricultural systems and natural ecosystems; (3) agroecological management of soils (4) ecological management of crop pests and diseases; and (5) methods of integrating agroecology practices into conventional systems. To complement the use of ecosystem function in agroecology systems, Dr. Florencia Montagnini, Zoraida Calle and Dr. Julián Chará presented on the importance of restoring the forests that provide ecosystem services, by discussing the following themes: (1) principles of forest ecology and dynamics; (2) restoration in productive landscapes; and (3) watershed management.

In the afternoon, Dr. Florencia Montagnini provided an overview of agroforestry systems, to demonstrate their abilities to integrate conservation and production into a system that meets restoration objectives and agricultural demands. To illustrate practical approaches, the day concluded with a field trip to El Hatigo's agroecological sugarcane systems, which differ drastically from the conventional practices conducted throughout the monoculture systems in the Cauca Valley. El Hatigo's practices, for example, focus on agroecology principles such as; (1) conserving soils by not burning nor using agrochemicals; (2) utilization of cover and intercropped green manures; (3) intercropping high value palm species; and (4) utilizing sheep to control weeds instead of herbicides. In addition, participants visited a restored native species forest corridor, which connects El Hatigo's mature forest with other gallery forests, providing increased flora and fauna movement throughout the diversified agricultural and livestock systems in the farm. Representatives from the Providencia Sugar Mill were invited to provide an overview of their operations and efforts to increase production of organic sugar, which was replicated from the El Hatigo sugarcane systems.



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Day 2:

The second day began with a short presentation from CIPAV researchers Karen Castaño and Adriana Giraldo (both ELTI Alumni), who are conducting a study on the growth and mortality of mahogany trees (*Swietenia macrophylla*), a valuable tropical timber, which is commonly infested in the Neotropics by the mahogany shoot borer (*Hypsipyla grandella*). In order to control the shoot borer infestations and improve growth and form, the researchers have intercropped mahogany with *Mimosa trianae*, a native, nitrogen fixing species, in corridors within cattle pastures and in addition released a predatory wasp. These practices illustrated how functional biodiversity can help improve production of high quality timber within a silvopastoral system.

After the field visit, Dr. Enrique Murgueitio, Carolina Giraldo and Juan José Molina provided an overview of silvopastoral systems and how the reintegration of ecological processes provides productive, ecological, economic and social benefits in cattle ranching landscapes, which are very common throughout Latin America. Silvopastoral systems were illustrated as a method of integrating restoration and agroecology practices in the traditional rural socio-economic context of cattle ranching.

Day 3:

To complement the presentations on agroecology from day one, a field trip was taken to visit the farm of Jesús Gómez, a small farmer, who has established a model farm in a marginal, steeply sloped area in the Cali River Watershed. Mr. Gómez explained his gradual transition from conventional agriculture to agroecology practices over the past twenty years. His farm, which produces food crops for a local organic market in Cali, demonstrated a variety of agroecology strategies that protect soils and water sources, by constructing terraces, use of cover crops and crop rotations. After the farm visit, course facilitators and participants further discussed the successes and challenges of replicating the different strategies used on the farm with Mr. Gómez.



Day 4:

In order to strengthen the concepts of sustainable cattle ranching, course participants visited the intensive silvopastoral systems at the El Hatico Natural Reserve. The two Molina brothers who administer El Hatico (part of the 8th generation of the family) explained the history of the farm in terms of historical land use and degradation drivers. The Molinas described how they were able to preserve their family's history on the farm through the integration of silvopastoral systems and forest restoration, which helped to improve production from conventional practices.

In order to further compliment the need to develop interdisciplinary solutions to the complex biophysical and socio-economic contexts found within agricultural landscapes, Jacob Slusser, along with two ELTI Alumni from Panama invited as participants to the course, Belgis Madrid and Zolio Vergara, leaders of the first legally recognized sustainable ranching association in Panama (APASPE), formally presented a case study on the adoption of sustainable ranching and forest restoration strategies in the dry forest region of the Azuero Peninsula of Panama. Their presentation illustrated how an empowered community association of small farmers had benefitted from ELTI's capacity building and leadership training and the potential for an empowered group of small farmers to implement landscape change. Furthermore, their participation in the course also reminded the professional practitioners attending the course of, the cultural and economic constraints that small producers face when attempting to adopt agroecological practices.





Day 5:

The final day focused on reviewing and discussing the different themes of agroecology, ecological restoration and agroforestry systems presented during the course. Participants were split up into groups and asked to reflect about potential synergies between the course concepts and methods of transmitting and scaling up successful practices in their own international, diverse contexts. Each group presented on how the training had improved their understanding to integrate practices to improve the resilience of productive landscapes.

The course concluded by Jacob Slusser providing a presentation about ELTI's Leadership Program and discussing the various opportunities for ELTI alumni to receive follow up support to put course themes into action. In addition, course organizers from CIPAV, SOCLA and El Hatico Natural Reserve provided further closing words and issued certificates.

Instructors and Coordinators: The course was facilitated by staff from ELTI (Jacob Slusser and Gillian Bloomfield), the Yale School of Forestry and Environmental Studies (Dr. Florencia Montagnini), CIPAV (Dr. Enrique Murgueitio, Zoraida Calle, Dr. Julián Chará and Julián Giraldo), SOCLA (Drs. Miguel Altieri and Clara Nicholls), and El Hatico Natural Reserve (Juan Pablo Molina, Juan José Molina, Carlos Hernán Molina, Carlos Hernando Molina and Enrique José Molina). In addition other guest speakers delivered presentations, especially ELTI Alumni and current researchers who had conducted scientific investigations at El Hatico Natural Reserve.

Participants: This course was offered to 21 international participants, mostly professional practitioners in the natural and biological sciences as well as two small producers/community leaders with interest in applying agroecology in agricultural and livestock systems. Participants ranged from public and private organizations and came from eight different Latin American countries (Cuba, Mexico, Puerto Rico, Panama, Colombia, Peru, Ecuador and Chile).

Course Follow-up: Participants were actively engaged throughout the course and shared rich experiences from their diverse regions. Many potential collaborations for future opportunities were discussed with ELTI Staff, especially with ELTI's first three Cuban alumni. ELTI will conduct a follow up with alumni to quantify their application of course concepts as well as need for support from ELTI's Leadership Program.

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.