

## COURSE REPORT

# Ecological Restoration Strategies in Agricultural Landscapes of Panama

Province of Herrera, Panama  
September 8-9, 2016

A field course organized by:  
The Environmental Leadership & Training Initiative (ELTI)  
and the United States Peace Corps



**Background:** The Republic of Panama is known for providing a critical link in global trade via the Panama Canal, as well as its impressive economic growth in Latin America during the past decade. Despite this increase in progress, Panama suffers from stark economic disparities. Extreme poverty is still high in rural areas at 27%, while indigenous territories are above 40%<sup>1</sup>. Economic opportunities in rural areas are sparse and landowners

1. World Bank Panama Profile: <http://www.worldbank.org/en/country/panama/overview>

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often rely on conventional agriculture and cattle ranching practices that involve the cutting and burning of forests to plant annual crops and pasture grasses. When practiced on marginal, steeply sloped land, soils quickly erode and lose fertility, leading to low agricultural production, decreased ecosystem integrity and few social benefits. As a result, the FAO (2014)<sup>2</sup> estimates that 27% of Panama's agricultural lands are dry and degraded, which severely impairs the ability of these areas to generate the range of ecosystem services necessary to support sustainable production systems, including soil fertility, provision of water, carbon sequestration and biodiversity.

Given this context, rural landholders can benefit from capacity building and access to information about more sustainable land use practices, especially in light of changing climatic conditions. Invited by the Panamanian Government, the United States Peace Corps helps to address this need by sending professionals to "serve as Peace Corps Volunteers (PCV), who work at the grassroots level toward sustainable change that lives on long after their service<sup>3</sup>." Volunteers are assigned for a two-year period to rural communities that request Peace Corps support. The cultural exchange and development assistance that PCVs provide is critically important for improving human capacity and providing better opportunities for rural people.

To strengthen the technical background of PCVs in their role as environmental conservation extension agents, ELTI delivered a "training of trainers" course, which was facilitated as part of the Peace Corps Panama's "In-Service Training," a two-week technical training offered to PCVs after serving six months in their respective communities.

**Objectives:** The general objective of this course was to provide PCVs with the basic knowledge and skill sets needed to conduct forest restoration strategies with community counterparts in their host sites. Since the communities are comprised of a mosaic of agriculture and cattle ranching systems, the goal of the course was

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2. Panama America (11/20/2014): <http://www.panamaamerica.com.pa/economia/27-de-deterioro-registran-algunas-tierras-del-pais-953263>

3. United States Peace Corps Website: <https://www.peacecorps.gov/volunteer/>

to introduce a range of strategies that can help to restore ecological function in order to create landscapes that are more resilient to climate change. The specific course objectives were to:

- Provide an overview of the drivers of forest degradation in Panama and teach PCVs how it has affected the provision and regulation of ecosystem services in human modified landscapes;
- Demonstrate how to develop an effective and economical restoration strategy by learning to diagnose the degradation and restoration potential of an agricultural landscape that accounts for both biophysical and social contexts;
- Demonstrate the methodology to reproduce native tree species via an overview of phenology and construction of a small scale tree nursery;
- Demonstrate best practices to establish silvopastoral and reforestation systems.

**Field-Course Format:** The material was divided into three thematic modules, which included an introductory lecture with corresponding field-based observations and exercises. Field visits were conducted in the following sites: (1) mature gallery forest; (2) degraded pasture; (3) natural forest regeneration area; (4) community tree nursery; and (5) reforestation plot. Modules and the specific activities conducted in each are listed below:

### **Module 1:**

#### **Forest ecology and the provision and regulation of ecosystem services**

- Introduction to tropical forest ecosystems of Panama and identification of species
- The provision of ecosystem goods and services
- Introduction to tropical forest dynamics

### **Module 2:**

#### **Deforestation and forest degradation**

- Introduction to regional drivers of tropical forest deforestation and degradation
- Ecological and social consequences of degradation and barriers to restoration

### **Module 3:**

#### **Strategies for the restoration of ecosystem services in human-modified landscapes**

- Introduction to the use of a conceptual framework to design efficient and economical restoration strategies
- Tailoring restoration strategies to the socio-economic and cultural contexts of local people
- Best practices in the establishment of a nursery and the propagation of native tree species
- Reforestation system design, tree planting methods and monitoring protocols



**Participants:** This course was developed for 28 Peace Corps Panama Volunteers serving as extension agents in the Community Environmental Conservation sector. These PCVs serve for over two years in Panama as local resources in their respective communities by assisting landholders and local groups to design, plan and implement biodiversity conservation and forest restoration practices.

The course was developed and facilitated by Jacob Slusser, ELTI's Neotropics Training Program Panama Coordinator, with the assistance of Peace Corps Panama staff and local landholders.

**Outcomes and Follow-up:** Participants were actively engaged throughout the course and were grateful for the opportunity to receive practical training on the topic, which is of high interest in their communities. Many PCVs also showed interest in attending a week long course in ELTI's Focal Training Sites with a community counterpart. Numerous PCVs also invited Jacob to their communities to facilitate short trainings on forest restoration topics, which will be conducted via the Leadership Program.

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