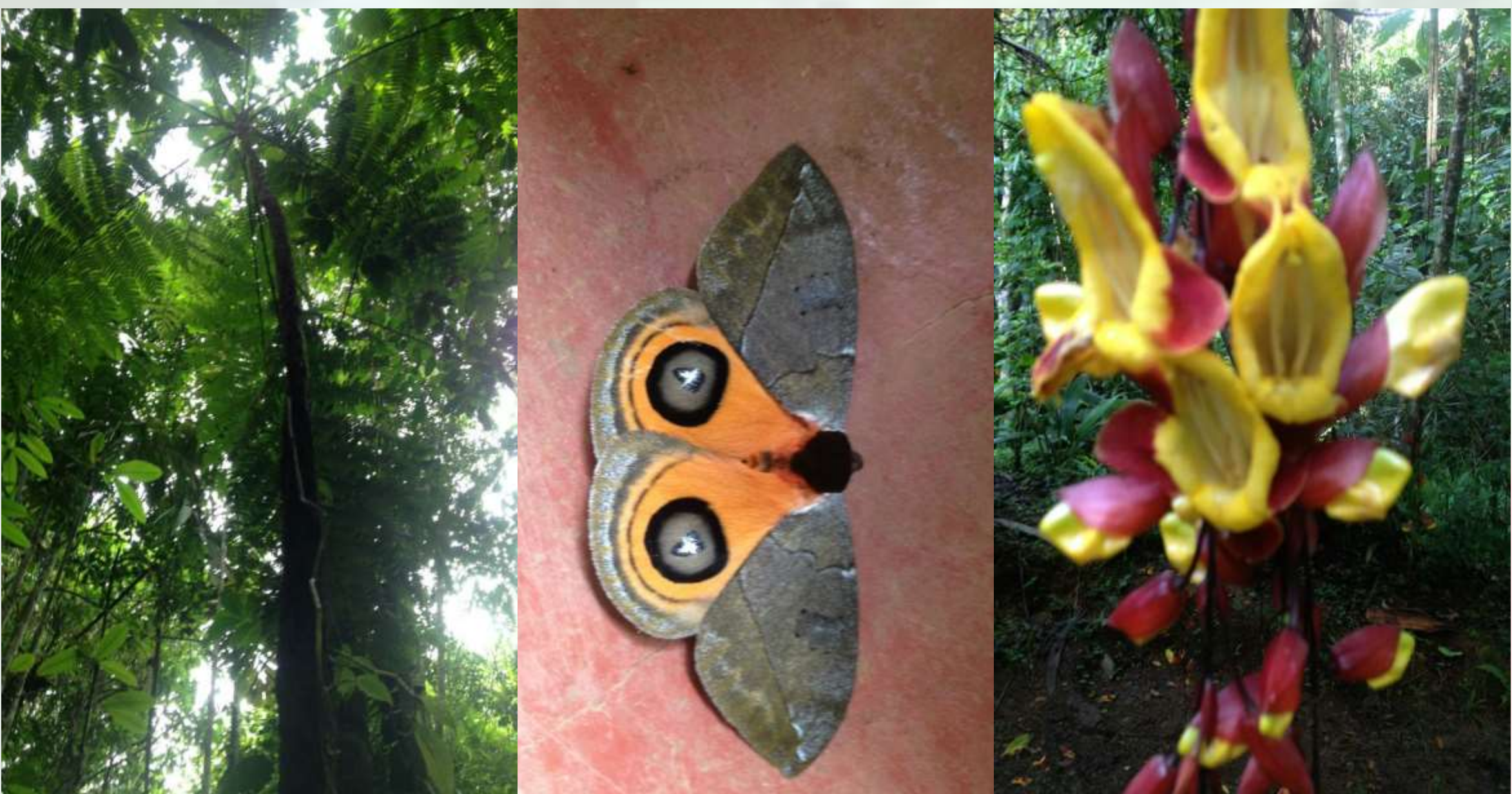


Reforestation in the Alexander Skutch Biological Corridor, Costa Rica

By Camille Delavaux; csd214@lehigh.edu

Abstract

The Reforestation Project in the Alexander Skutch Biological Corridor took place throughout the month of July, 2013. The Alexander Skutch Biological Corridor is situated in Quizarrá, Pérez Zeledón, in southeastern Costa Rica. Many groups and individuals are involved in reforestation efforts in the town of Quizarrá. During this reforestation project, the team identified farms that had recently planted trees for some kind of reforestation, measured the height, diameter at stem base, and tree condition, along with another dozen data points. The goal of this research and data collection is to create a baseline from which future students may evaluate tree growth and success. *Gliricidia sepium*, or "madero negro" as it is commonly known in this area, was by far the most planted in documented farms. This information can be used in the future to improve local reforestation investments and decisions. Reforestation projects in this region support the strengthening of a biological corridor between Quizarrá and the Chirripó National Park to the north.



pictures of ferns, a butterfly and a hanging subtropical plant taken at Los Cusingos

Introduction

Los Cusingos is a bird refuge located within the Alexander Skutch Biological Corridor and is home to an incredible diversity of flora and fauna. White-faced capuchin monkeys, tyra, sloths, armadillos, the cusingo bird, hummingbirds, and herons live on site along with thousands of insects and hundreds of butterflies. Palms, bromelias, and ferns are abundant.

There are 6 tree nurseries in Quizarrá: The Recycling Nursery, The Club Estrella Nursery, The Acodecobi Nursery, The Cocoforest Nursery, The San Francisco Nursery, and The Asocuencia Nursery. Most of these nurseries are on privately owned land, but community managed. All plants from the nurseries are donated free of charge to locals who want to reforest or implement agroforestral practices.

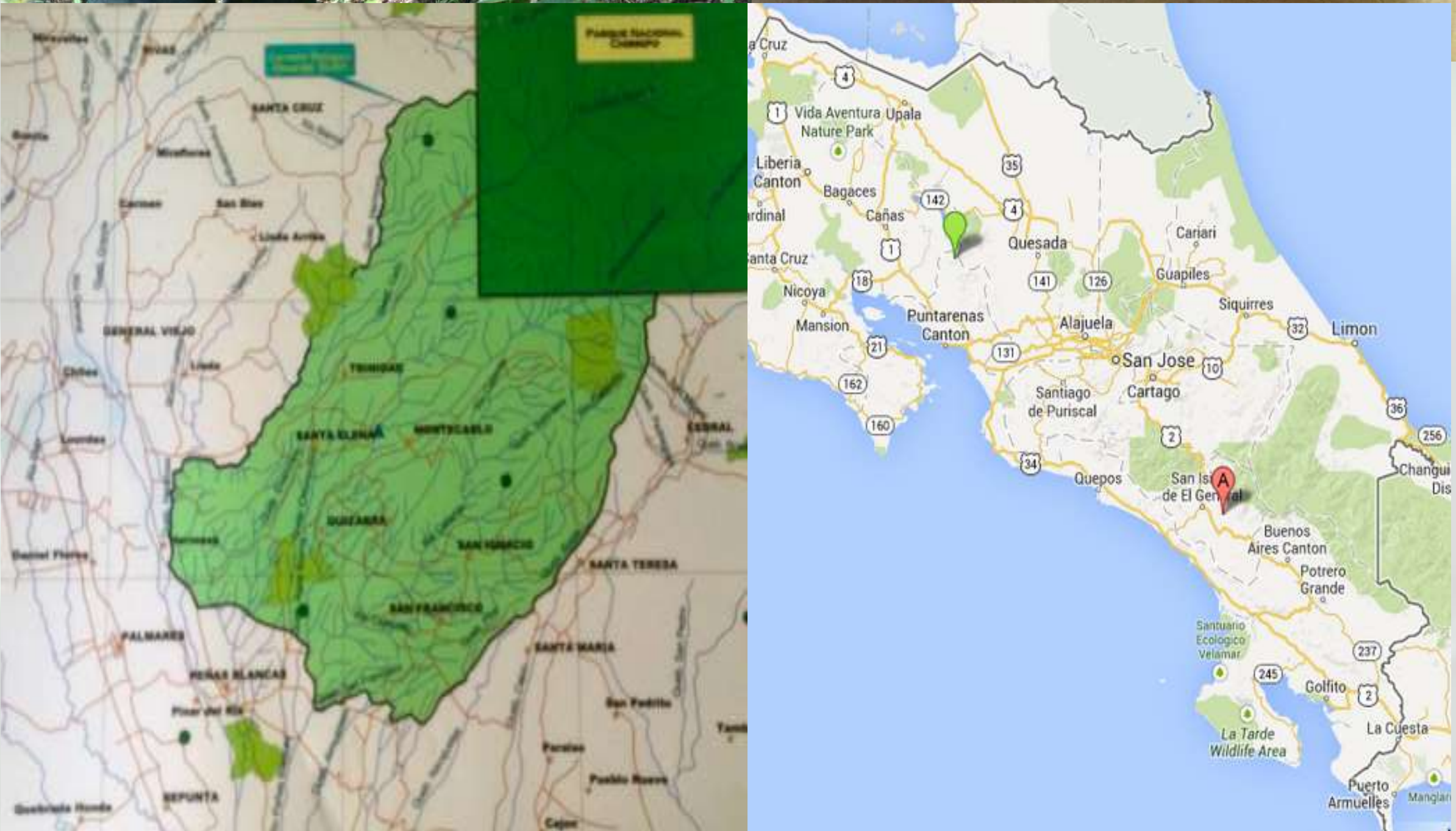
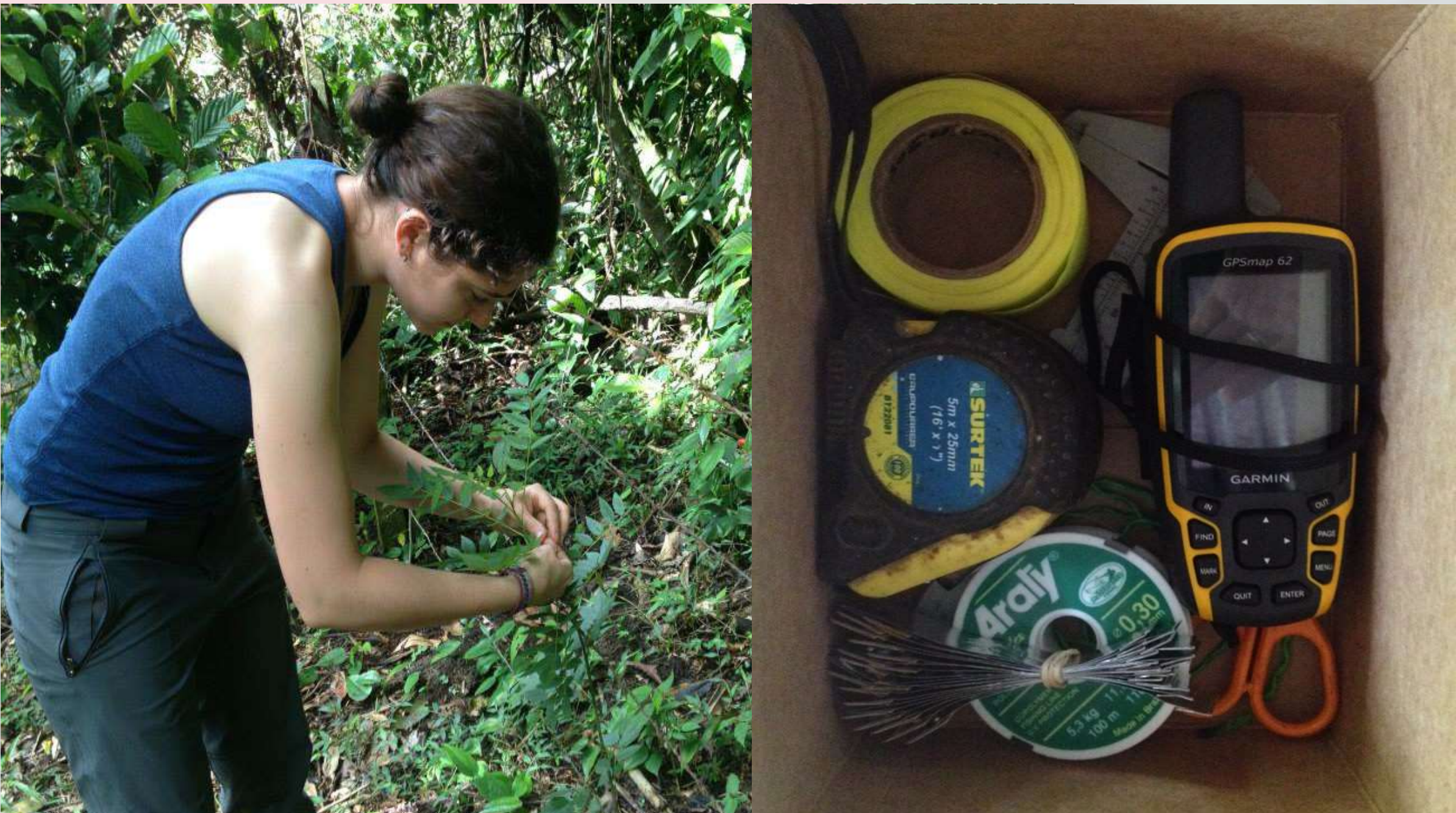
The mission of the Centro Científico Tropical is to, "generate, apply, and diffuse knowledge of socially and environmentally responsible politics and best practices, with emphasis in the tropics". The goal of this research is to establish a baseline assessment of growth rates of different species and in varying land types. This information can serve to track growth changes in the future. From this valuable information, limited financial resources can be used to maximize reforestation success.

Reforestation Methods

To prepare for this project, metal tags were labeled in ascending order. Next, various farms were contacted to discuss their current reforestation activities and their willingness to participate in our study. A few of the tree nurseries were visited, the tree species noted, and each species' profile was studied. Valuable information such as optimum soil conditions, light preferences, tolerances, common names, human use, native area, and growth rates was collected. and their willingness to participate in our study. A few of the tree nurseries were visited, the tree species noted, and each species' profile was studied.

Data collection:

- farm owners name
- soil use history for land where trees will be planted
- any treatment of soil (fertilizer brand, contents if home-made)
- soil analysis
- past reforestation efforts in same soil
- origin of trees to be planted (nursery)
- slope of area where trees to be measured will be
- date when trees were planted (day, month, year)
- time trees have been planted on current location (days)
- date of data collection by project team (day, month, year)
- tree age (days)
- GPS location
- Scientific and common name
- Height and diameter at stem base
- Current health condition (good, bad, dead)



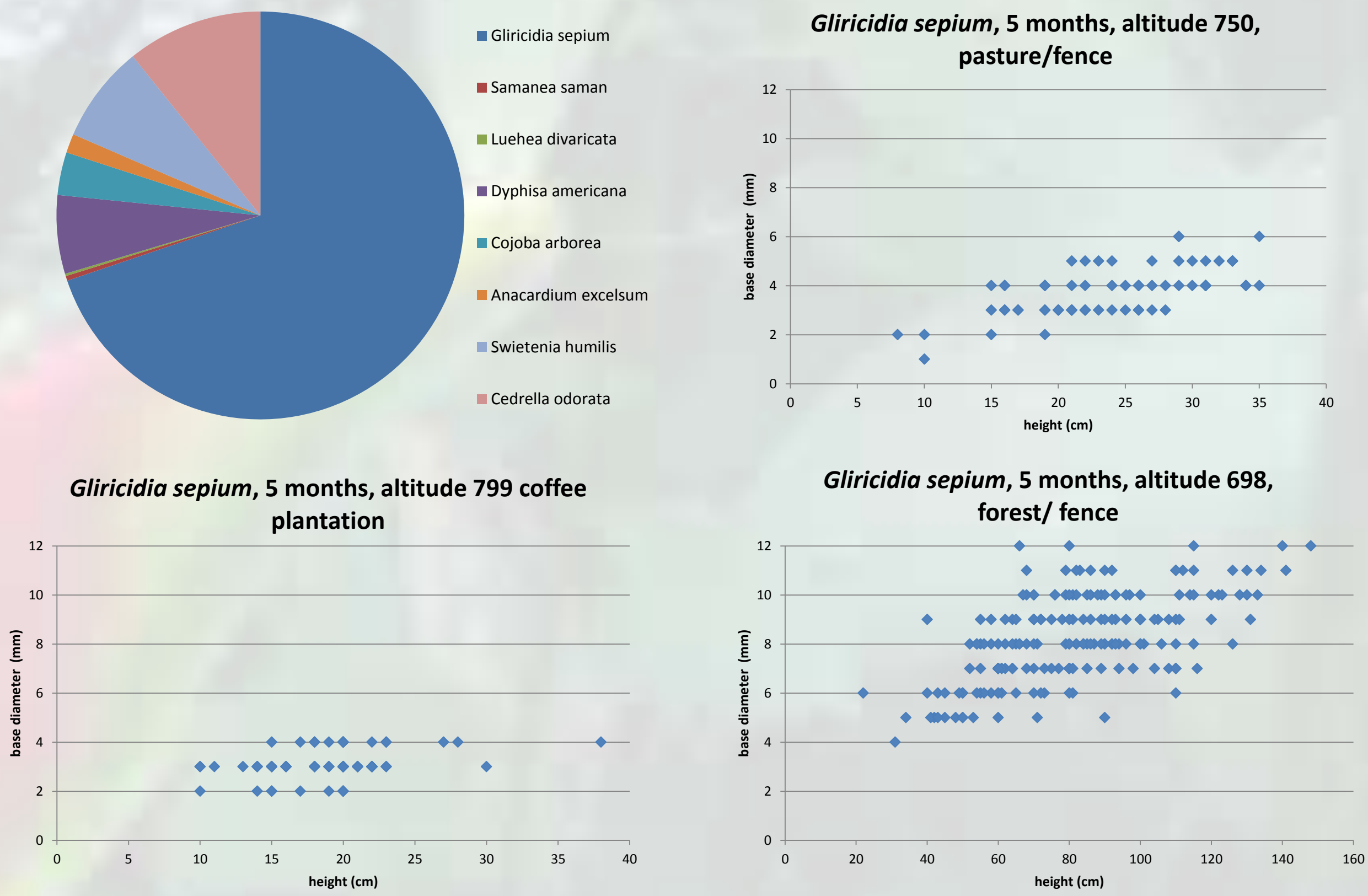
top left: Camille Delavaux tagging a tree; top right: materials for field work; bottom left: a map of the biological corridor; bottom right: general map of costa rica indicating corridor location.



picture of a *Gliricidia sepium* with a labelling tag; picture of the San Francisco Nursery

Results

This research resulted in collecting data for about 700 individual trees. Interpretation of this data is not particularly applicable to reforestation methods as of this year. This project is meant to create baseline data so that similar research can be conducted in the future to compare growth and survival rates of certain tree species, mainly *Gliricidia sepium*. Future research might also include measurement of varying species to have more comparable baseline information. The National University of Costa Rica is also a great resource to keep in mind to run soil sampling. Throughout the project, findings should be communicated regularly with local stakeholders: farmers and nursery workers. This is research that must involve community participation and inclusion if it is to be truly successful.



top left: a pie chart showing relative amounts of species in research sample; others graphs: variety in growth rate of *Gliricidia sepium* on sites with different past land uses

Discussion

The purpose of this research is to keep track of different growth rates in varying tree species and land types in the town of Quizarrá. This information is invaluable to help build the biological corridor between Quizarrá and Los Cusingos to the Chirripó National Park. Through knowledge of where what species of trees grow best, local and national organizations can more efficiently use financial resources to strengthen this habitat.

Awknowledgements

Firstly, thank you to the EI-STEPS Summer Research Program for funding most of this experience; without this financial support, I would not have been able to participate in this program. Thank you to Professor Donald Morris for setting up the internship at Los Cusingos with CCT. Next, thank you to the entire Los Cusingos staff and Brian Perry for being a supportive and helpful team to work with!