Syllabus for Agroecology

Alternative Agriculture in Tropical Landscapes

University of California-Education Abroad Program

Introduction

Alternative agriculture offers society a variety of management practices tending towards sustainable or even regenerative agro-ecosystems, as a response to conventional modes of food, fiber and fuel production that provoke environmental degradation. The science of Agroecology, whose explicit goal is to mimic the structure and function of natural ecosystems among farm landscape, and regional scales is guided by a set of principles that reflect a “whole systems” approach towards agricultural production; or in other words, a simultaneous regard for ecological dynamics, environmental and human health, energy resource consumption and socio-economic vitality (Altieri 1995).

Objectives

- To observe agricultural management practices within tropical landscapes of the Monteverde Zone and Costa Rica in general.
- To analyze and discuss different cases and hypotheses of sustainable land use and development

Themes

(1) Producing food in the tropics
(2) Contrasting monoculture and polyculture agroecosystems
(3) Integrating tropical agroforestry and conservation biology
(4) Observing alternative methods of dairy and coffee production
(5) Interfacing ecotourism and agrotourism as a rural development option
(6) Understanding global economic influences upon local land use
(7) Integrating waste management practices in food production
(8) Comparing conservation strategies of ecological restoration and reforestation
(9) Exchanging views by meeting local Costa Ricans who work the land

Field Trips

After the class discussion we visit different farms and local projects. We have lunch in the field that you will prepare with the help of the cooks at the Estación Biológica Monteverde. Pack lightly, notebooks, rain gear, cameras, binoculars, flashlights and some spending money are recommended. Please participate actively, asking questions, exploring and practicing some basic Spanish with locals.

Evaluations

Details of class assignments are explained at the end of each class description. Present assignment 1 and 2 digitally (via e-mail or through USB memory stick) labeled in the following manner: No. of Assignment, Last name, first name initial, type the word -coffee-

(1 Williams.P Coffee.doc)
Final exam is held at the Estación Biológica Monteverde on day 66. It includes material from class presentations, field observations and readings. A maximum of 2 hours is allotted for the exam, which is a multiple choice, short answer test.

Assignments, quizzes and tests have the following percentages:

- Assignment 1  Tropical Fruit/Vegetable Report (due day 24)  5%
- Assignment 2a, 2b Essay on Coffee, photo survey (due day 31)  10%
- 3 Mini quizzes  Evaluation on articles (day 24, day 31, day 38)  15%
- Assignment 3  Community Service Activity- tree planting  10%
- Assignment 4  Essay on Dairy production in Monteverde (due day 38 )  5%
- Assignment 5  Essay comparing Agroecosystems to California (due day 53)  20%
- Final Exam  Day 66, 8:30 am, Estación Biológica Monteverde (EBM)  35%

Lectures 1 and 2
Introduction to Costa Rica
Fruit Diversity Exercise (day 1)

Lecture 3
Of pineapples and oranges.. (day 4)

Lecture 4
Site visit to Mariculture project in Cuajiniquil (day 13)

Lectures 5 and 6 - First agroecology day in Monteverde!
Agroecology of coffee production and Hydroponic culture (day 24).

7:45am  Quiz #1 on assigned readings.
         Depart to Orlando Trejos’ hydroponic farm.
8-10 am  Hydroponic talk-intro and farm visit
10 am    Depart to Guillermo’s farm
10:30 am  Visit Guillermo Vargas’ coffee farm in Cañitas. Intro to Coffee. Learn about planting
          and caring of shade-grown coffee and other crops in Life Monteverde farm
2:00 pm  Return to the Biological Station
          Discussion

Assignment 2a:
Write a short essay (3 pages maximum, 1.5 spacing) on your impressions on the farm. Include aspects on the heterogeneity of the farm’s landscape, diversity of other crops besides coffee, tree species used for shade, and presence of wildlife. Include notes on topography, soil color and texture. Related your nine pictures to your story, and finally include a commentary on the farm owner’s opinions on organic agriculture and local agricultural traditions.

Note: class and excursion dates are subject to change.
Rev: 9/2014
Assignment 2b:
Each student should present 9 digital pictures of the following organisms present in the coffee plantations: 3 pictures of different crops (vegetables, corn, sugarcane) growing within the coffee plants, 3 species of shade trees, and 3 pictures of any wildlife (insects, spiders, worms, frogs, lizards, birds, mammals). All specimen/pictures should be identified to family level or any taxonomic level (order, genera, species when possible). Rename your pictures, for example: From DSC6798 to Carrots Apiaceae, from DSC6799 to Tree Aguacate, Lauraceae, from DSC6735 to Animal Monkey

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<th>Lectures 7 and 8 Of Cattle and windbreaks The Cheese Factory in Monteverde (day 31)</th>
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Assignment 3a:
Write a short essay (3 pages maximum, 1.5 spacing) on your impressions on the farm. Include aspects on the heterogeneity of the farm’s landscape, diversity of crops, tree species used for shade/windbreaks, and presence of wildlife. Include notes on topography, soil color and texture. Related your nine pictures to your story, and finally include a commentary on the farm owner’s opinions on dairy farming and local agricultural traditions.

Assignment 3b:
Each student should present 9 digital pictures of the following organisms present in the coffee plantations: 3 pictures of different crops (vegetables, corn, sugarcane) growing within the coffee plants, 3 species of shade trees, and 3 pictures of any wildlife (insects, spiders, worms, frogs, lizards, birds, mammals). All specimen/pictures should be identified to family level or any taxonomic level (order, genera, species when possible). Rename your pictures, for example: From DSC6798 to Carrots Apiaceae, from DSC6799 to Tree Aguacate, Lauraceae, from DSC6735 to Animal Monkey

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<th>Lectures 9 and 10 Organic Agriculture Bellbird Biological Corridor (day 38)</th>
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Note: class and excursion dates are subject to change.
1:00 pm Tree planting and working in a Farm in Guacimal. The Bellbird Biological Corridor: Bellbird habitat restoration in Monteverde and down the Pacific Slope.

Lecture 11 Subsistence agriculture in a premontane rainforest – the history of Peñas Blancas. By Eladio Cruz.
(During the Peñas Blancas field trip, day 45, 58)

Required readings for class:


Altieri, M. Introduction to Agroecology. Chapter 1. The need for sustainable food production systems. Chapter 1. Altieri, M.


Note: class and excursion dates are subject to change.

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