



Tropical Terrestrial Ecology
Instructor: Dan Bisaccio

STRI – Bocas del Toro, Panama
Winter, 2012

Field & Course Itinerary

Day 1 20 February

8:30 AM Lectures: 1-Tropical Terrestrial Ecology Dynamics
2-SIMAB & HabitatNet – “Long Term Monitoring”
3- Drawing / Field Sketches “101”

2:00 PM Field Methods & Problems: **STRI**
*Gentry Transect, Canopy Density, & Analysis
*Vertical Profiles/ Forest Stratification
* Bird Behavior

7:30 PM Lecture: Adaptation & Co-Evolution: Tropical Flora/Fauna
& Bio-Coloration

Day 2 21 February

8:00 AM – “Bird Island” (Isla de los Pajaros)/ Bird Behavior

2:00 PM – Depart for “Bat Cave” – dress for field/ wading in stream
(flash lights/headlamp)

7:30 PM – Lecture on Bats & Tropical Symbiosis

Day 3 22 February

8:00 AM - Depart STRI for Quebrada de Sal (Indigenous community)

2:00 PM – Bromeliad Dissection - Species Diversity Index

7:30 PM - Short logistic meeting on “What to pack”

Day 4 23 February

8:00 AM – Depart for Boquete (2 nights): a few stops on the way to observe forests /
and birds.

4:00 PM – short talk on geology followed by bird observations

Day 5 24 February

9:00 AM – Local rain forest / field work followed by bird observations in this eco-
region of Panama.

*Evening “TTE Wrap-up”: Experience Maps ...

Day 6 25 February

Free day – optional hike to summit of Vulcan Baru (18 miles – a strenuous hike)

****ALL TTE course materials DUE to Dan by 10 AM****

This course is designed to give students an overview of tropical ecology through fieldwork and lectures. Emphasis on tropical forest structure and maintenance of diversity through adaptive flora and fauna associations will be examined. In addition, conservation issues surrounding tropical forest preservation will be integrated throughout the course.

Topics:

I. Introduction to the Tropics: geography, biotic/ abiotic characteristics, vertical stratification of forests

II. Tropical Forest Structure & Plant Communities:

A. Adaptations in Tropical Plants; pollination, seed dispersal, herbivory, taxonomy/ identification

B. Forest Structure and Microhabitats; light-gaps, tree diversity and densities

C. Plant Communities; succession, disturbance, topography, life zones

D. Nutrient Cycling and Soils; epiphytic soils, agents of decay, temperate zone comparisons

III. Animal Adaptations and Diversity:

A. Adaptive Coloration and Mimicry Complexes

B. Co-evolution Examples

C. Symbiosis (temporary and long term examples)

IV. Conservation Issues:

A. Causes of Deforestation: mining, logging, ranching

B. Consequences of Deforestations: biodiversity / extinction, global climate changes, legal & ethical rights of indigenous people

C. Solutions: Education & Economic Incentives for Preservation

Text: A Neotropical Companion; John Kricher

Evaluation: **Field Notebook: DUE : End of Course!**

Required Field Journal Notes, Field Problems, and Labs:

- (1) Smithsonian Institute: MAB Field Data Sheets
(Community Similarity w/ respect to invasive species)
- (2) Bird Niche, Trophic Level & Behavior Data
- (3) Tree & Botanical Vertical Profiles (Stratification & Synusae)
- (4) Epiphytic Class Load w/ respect to Abiotic Factors Analysis
- (5) Observation Essay – flora/ fauna (see page 11)
- (6) Notes on articles for Socratic Seminar