

TROPICAL TERRESTRIAL ECOLOGY: Three Seas Program- Jamaica, WI
Northeastern University – Boston, MA

Instructor: Dan Bisaccio BIO 1413/3343

February 15- 20, 2004

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! Saturday – February 19.

This will include your field observation notes/ sketches, field problems, and short topic analysis problems assigned in the field.

(Species diversity index, Bromeliad Microhabitat Lab, Insect Data/ Collection, Bird Data Sheets, SI/MAB data sets, Owl Pellet Lab.)

Sunday	DBML	AM Lecture: Tropical Terrestrial Ecology Definition & Dynamics Intro. to Field Methods
Feb. 15		1PM-4PM Field Methods & Problems: (Kaiser Property) "Bush Bash", Leaf Adaptations, Vertical Profiles/ Forest Stratification
		4PM-5PM Intro. Tropical Birds (Kaiser Property)
	7:30	PM Lecture: Biocoloration, Adaptation, & Co-evolution found in tropical flora/ fauna
Monday	DBML	AM Lecture: Bats, Caves, & Karst Topography
Feb.16		FIELD TRIP TO: Windsor Caves; bat ecology, humid forest botany, and "troglobitic" cave critters
	7:30	PM Lecture: Island Biogeography & Jamaica's Endemic Species (How and why they are there?)
		*** PACK / PREPARE for Blue Mountain Trip ***
Tuesday		Depart DBML for BLUE MOUNTAINS!
Feb.17		Afternoon: Stretch & Intro. to Birds & Local Botany PM Lecture: Blue Mt. Geology and Plant Zones
Wednesday		AM Lecture: Epiphytes & Review Field Problems
Feb. 18		CLIMB BLUE MT. / Field Problems(SI/MAB) PM "Fieldwork": Bats, Bugs, Bioluminescent Fungi * Camping Portland Gap Ranger Station
Thursday		AM Lab: Bromeliad Dissection & Species Diversity Index
Feb. 19		AM-PM Complete Field Problems PM Lecture: Tropical Conservation Issues (at Lodge)
Friday		AM Depart Blue Mts. for DBML
Feb. 20		PM Stop / Tour: Botanical Gardens
Saturday		ALL TTE course materials DUE by 9AM!
Feb. 21		

Required Field Journal Notes, Field Problems, and Labs:

- (1) Smithsonian Institute: MAB Field Data Sheets
- (2) Owl Pellet Analysis Lab. Report
- (3) Bird Niche, Trophic Level & Behavior Data
- (4) Tree & Botanical Vertical Profiles (Stratification & Synusae)
- (5) Bromeliad Species Diversity Index/ Microhabitat Data Sheets
- (6) Epiphytic Class Load w/ respect to Abiotic Factors Analysis