

TROPICAL BIOLOGY FOREIGN STUDY PROGRAM: 1991

**DARTMOUTH COLLEGE
DEPARTMENT OF BIOLOGICAL SCIENCES**

Edited by Tara Grabowsky and Gregory York

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PARTICIPANTS FROM THE 1991 TROPICAL BIOLOGY PROGRAM

Professors

John Gilbert
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Todd Young '91	

SCHEDULE FOR DARTMOUTH TROPICAL BIOLOGY PROGRAM - COSTA RICA 1991

		<u>Morning</u>	<u>Afternoon</u>	<u>Evening</u>
3 Jan		Travel	Travel	Arrive San Jose
4 Jan	In San Jose	Shopping, etc	OTS/orientation	
5 Jan	To Palo Verde	Travel	Orientation	Lec: Hist & Orig. (ET)
6 Jan	At Palo Verde	Orientation	"20 questions"	Lec: Mtce. Diversity (ToG)
7 Jan	At Palo Verde	FP - 1 (Acacia Ant)	Stats lab	Lec: Primates (GY)
8 Jan	At Palo Verde	FP - 2	Plant lab	FP-1 seminars
9 Jan	At Palo Verde	FP - 2	Vertebrate lab	Lec: Plant sampling
10 Jan	At Palo Verde	SIFP - 1	Insect lab	FP-2 seminars
11 Jan	At Palo Verde	SIFP - 1	SIFP - 1	Lec: Social Insects (TaG)
12 Jan	At Palo Verde	Comp Proj	Comp Proj	SIFP-1 seminars
13 Jan	To Santa Rosa	Travel	Orientation	Field/Turtle disc
14 Jan	At Santa Rosa	Field	Field	Discussion
15 Jan	To San Jose	At Santa Rosa	Travel to SJ	
16 Jan	In San Jose	R & R	R & R	Lec: For. Mgmt (Eg,GG)
17 Jan	To CATIE/serp.	CATIE	CATIE	Lec: Envir. Devt.
18 Jan	To Palmar	Travel	Travel	
19 Jan	To Corcovado	Travel/orientation	Orientation	Lec: Trop For. Dyn (DG)
20 Jan	At Corcovado	Orientation	Organism labs	Lec: Bird Soc. Org (AM)
21 Jan	At Corcovado	FP - 4 (leaf-cutter)	FP - 4	SIFP proposals
22 Jan	At Corcovado	SIFP - 2	SIFP - 2	Lec: Poll/dispersal (GK)
23 Jan	At Corcovado	SIFP -2	Data analysis	Lec: Anim. methods (VV)
24 Jan	At Corcovado	FP-5 (primates)	FP -5 (primates)	FP-4 seminars
25 Jan	At Corcovado	Comp Project	Comp Project	FP-5/SIFP-2 seminars
26 Jan	To Palmar-LC	Travel	Tour Las Cruces	Lec: TBA
27 Jan	At L.C., to SJ	Las Cruces	Travel to SJ	
28 Jan	In San Jose	R & R	R & R	
29 Jan	To Monteverde	Travel	Orientation	Lec: TBA
30 Jan	At Monteverde	Orientation	Orientation/SIFP plan.	SIFP proposals
31 Jan	At Monteverde	SIFP - 3	SIFP -3	Lec: Coevol/mutual (AS)
1 Feb	At Monteverde	Comp proj.	Comp proj./SIFP-3	Lec
2 Feb	At Monteverde	Reconnaissance	Data Analysis	SIFP seminars
3 Feb	To LaSelva	Travel via Arenal	Travel	Lec: TBA
4 Feb	At La Selva	Orientation	SIFP plan/proposal	Lec: Aquatic Ecol (TY)
5 Feb	At La Selva	SIFP -4	SIFP-4	Lec: Conserv. Biol (JK)
6 Feb	At La Selva	SIFP -4	Final proj. planning	Final Proj proposal
7 Feb	At La Selva	Final Project	Final Project	Data analysis
8 Feb	At La Selva	Final Project	Final Projects	SIFP-4 seminars
9 Feb	At La Selva	Comp project	Comp project	Data analysis
10 Feb	At La Selva	Final Projects	Data analysis	Data analysis/writing
11 Feb	At La Selva	Final projects	Comp proj. reports	Final project seminars
12 Feb	To San Jose	Reconnaissance	Travel	
13 Feb	In San Jose	R & R	R & R	Group dinner
14 Feb	Depart for Jamaica			

Orientation = instructor-led site survey
Reconnaissance = indiv. site survey
FP = field research projects
SIFP = student initiated field research projects
R & R = rest and recreation
TBA = To be announced

(initials) = student whose critical review presentation is before or after lecture on date shown

INTRODUCTION

The Dartmouth Tropical Biology Foreign Study Program (F.S.P.) provides 15 undergraduates with the opportunity to study tropical ecology in Costa Rica and Jamaica during winter term under the direction of three professors, one for each of three courses taught sequentially, and two graduate students. Working alone or in small groups, the students develop research questions, then proceed to seek answers by designing experiments, recording observations, conducting statistical analyses, and drawing conclusions from the results. The formal conclusion to each project consists of an oral presentation and a written report; as the only permanent record of these projects, the written reports will serve as the link between the F.S.P. group and other researchers interested in learning about and understanding the project work.

This book contains the complete written reports for all projects the 1991 F.S.P. group conducted in Costa Rica and the abstracts from our final projects conducted in Jamaica. Hopefully it will serve as a valuable reference to future F.S.P. groups (good luck, everyone!) and to other researchers at Dartmouth and at the various field stations in Costa Rica.

SITE DESCRIPTIONS

Costa Rica is renowned for the tremendous diversity of habitats within its borders, and each field site provided us with a new and different ecosystem to explore. Our first research site, The Palo Verde National Wildlife Refuge and National Park, is a 4,757 hectare area containing wetlands and tropical dry forest. Both Palo Verde and our second stop, Santa Rosa National Park, are located in the northwest (Guanacaste) region. Santa Rosa National Park is a 10,300 hectare tropical dry forest; sea turtles and powerful ocean waves are among its other natural attractions. In the Osa Peninsula in the southwest, Corcovado National Park is a 35,000 hectare tropical wet forest that experiences some of the seasonality characteristic of Palo Verde and Santa Rosa, but with a much less extreme dry season. Corcovado is perhaps our wildest site, made remote due to the lack of passable roads. The Monteverde Cloud Forest Reserve was a haven for those of us who never really acclimated to tropical temperatures. A 2,500 hectare tropical cloud forest owned by the Tropical Science Center and located on the continental divide, Monteverde was a great contrast to both Corcovado and our final major research station, the La Selva Biological Reserve. La Selva, a 730.5 hectare tropical wet forest located in the Caribbean lowlands, is one of the most active research sites and provides unusual opportunities to meet scientists from other universities, colleges, and research institutions.

Our travels through Costa Rica also included short visits to two special research stations. The Wilson Botanical Garden at Las Cruces, located in the southern mountains near the Panamanian border, harbors thousands of species of plants and will serve as a reservoir for plant genetic diversity in the face of tropical deforestation. Finally, the Centro Agrinòmico Tropical de Investigaciòn y Enseñaza (CATIE) in Turrialba, not far from San Jose, is an agricultural and forestry research facility dedicated to improving techniques and increasing crop yields in tropical countries.

In Jamaica, we stayed at the University of the West Indies Discovery Bay Marine Lab. The reef at Discovery Bay had long been considered safe from hurricane damage, due to its protected location, until two hurricanes struck in the past two decades, causing immense destruction to the reef but providing researchers (including us) with the opportunity to conduct studies of the recovery process.