

DARTMOUTH STUDIES IN TROPICAL ECOLOGY 1994

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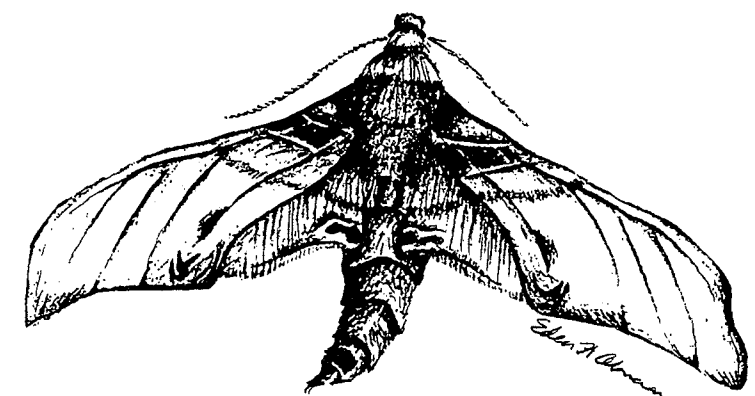
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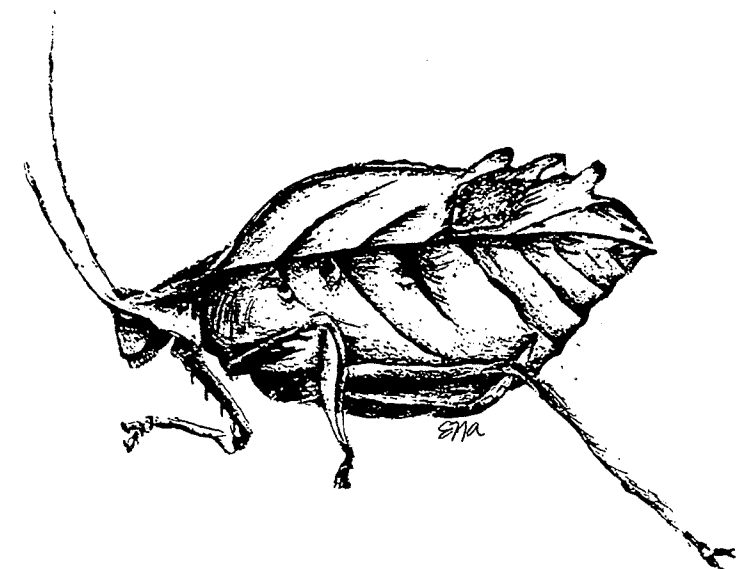
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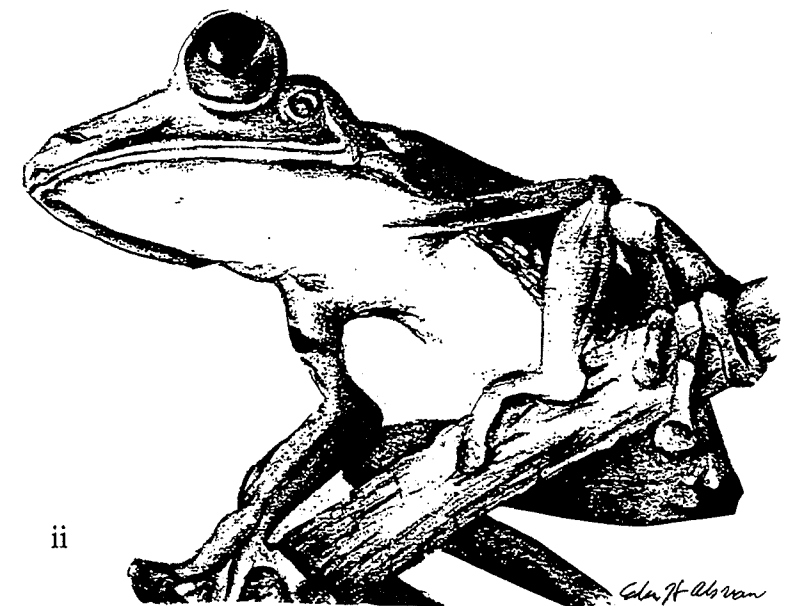
We thank Ana Carter for her work coordinating our stays at OTS sites and logistical support throughout Costa Rica. At the field stations, the hospitality and insight of Israel Carrera (Palo Verde), Dr. Monica Schwartz (Corcovado), Dr. Luis Gomez and Gail Hewson (Wilson Botanical Garden), Dr. Robert Colwell and Orlando (La Selva) was much appreciated. A special thanks is extended to our cooks, Christina and Julieta, who created memorable birthday celebrations in the middle of the forests, and to Augustine, our invincible driver.

We are grateful to Dr. Michael Haley, Acting Head, and the staff of the Discovery Bay Marine Laboratory, Jamaica, especially Peter Gayle and Anthony, our divemasters. We also would like to recognize the staff and members of the East-West program, who shared their research and experiences with us.

We owe special thanks to Jane Ackerman, for once again transcribing the handwritten reports into text, and the Department of Biological Sciences, for making this book a reality. We are grateful to Eden Abram for the drawings included in this book, and to Hannah Fouts, Pete Hunt and Julie Bykowski for their contributions to the photo section.

We also would like to thank two students from the program, for undertaking responsibilities beyond expectations. To Andrew Swanson, for sharing his EMT expertise and patience, and Diane Gardella, for assuming the role of Divemaster, we are grateful.

The text of this book was prepared with Microsoft Word 5.1 and Microsoft Excel 4.0. The graphing was done with Cricket Graph 1.3.





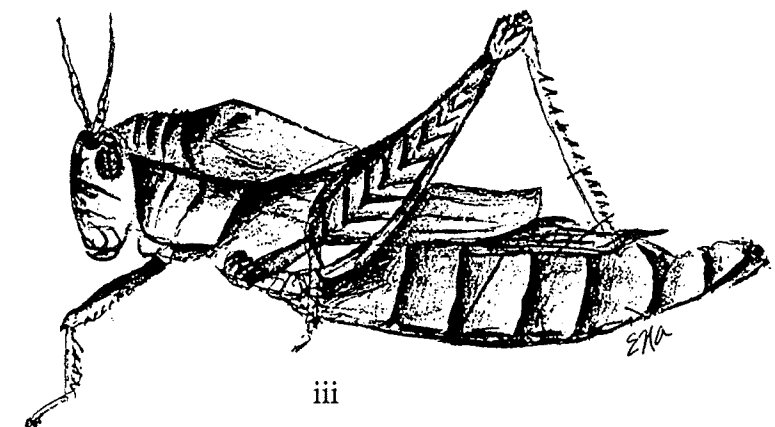
## INTRODUCTION

The Department of Biological Sciences at Dartmouth College has sponsored a tropical foreign study program in Costa Rica and Jamaica since the 1970s, allowing hundreds of undergraduate students to develop and pursue pilot studies in a variety of ecosystems. Each winter term, fifteen upperclass biology students, two graduate students, and three professors take intellectual curiosity beyond the classroom, conducting research, presenting relevant literature, and living at eight different field sites. This book is the culmination of our efforts.

In Costa Rica, we conducted seven small-group field studies. Five were student inspired; the two others (Acacia-ant and *Atta cephalotes*) complemented and enhanced previous years' research from the program. Each pilot study involved the formulation of questions and hypotheses by students, critical evaluation of methods and practicality of testing, obtaining data, analysis of findings, and written and oral presentation of the projects. Students also conducted three comparative studies (forest profiles, arthropod abundance, and avifaunal communities) to assess the change in the forests over the years of the foreign study programs. While only five names appear as authors for each comparative study, all students were involved in the data collection of each study.

In Jamaica, we lived and worked at the Discovery Bay Marine Laboratory; exploring the waters of Discovery Bay and the surrounding area. Students learned the difficulty of working and communicating underwater through student-initiated studies of turtlegrass herbivory, and used this knowledge in pursuit of two-week investigations, involving snorkeling, laboratory research, and/or SCUBA diving.

In addition to the field projects, students presented nightly lectures of current research in tropical terrestrial and marine ecology, and participated in discussions with individuals conducting research at the various sites. This program challenged us to investigate our curiosity of the tropics; using creative applications of theory to find an answer. Through our work in small groups, and by expaining our findings to others, we learned the value of approaching a problem from a variety of viewpoints, and some of the wonder of being a field biologist.





SCHEDULE FOR DARTMOUTH'S TROPICAL BIOLOGY PROGRAM - COSTA RICA 1994

		<u>Morning</u>	<u>Afternoon</u>	<u>Evening</u>
5 Jan	W	To San Jose	Travel	Dinner in SJ
6 Jan		In San Jose	OTS/INBIO/Serp.	Free
7 Jan		To Palo Verde	Travel	Lec: CR Ecology
8 Jan		At Palo Verde	Orientation	Lec: For. dynam. (EA)
9 Jan		At Palo Verde	FP - 1 (ant-acacia)	Lec: Hist & origins (BE)
10 Jan		At Palo Verde	FP - 2	FP-1 reports
11 Jan		At Palo Verde	FP - 2	Lec: Herp ecol. (AL)
12 Jan	W	At Palo Verde	SIFP - 1	FP-2 reports
13 Jan		At Palo Verde	SIFP - 1	Lec: Anim. sampling (DZ)
14 Jan		At Palo Verde	Comp. Project	Lec: Pollinat. biol. (LB)
15 Jan		At Palo Verde	Recon.	SIFP-1 reports
16 Jan		To Santa Rosa	Travel	Field/Turtle disc
17 Jan		At Santa Rosa	Field	Field
18 Jan		To C. Cacao	Travel	Lec: Trop. bird ecol. (MB)
19 Jan	W	At C. Cacao	Orientation	Lec: Plant-herb. (ML)
20 Jan		At C. Cacao	Project planning	Lec: Bird soc. beh (HF)
21 Jan		At C. Cacao	SIFP-2	Data analysis
22 Jan		At C. Cacao	Comp. Project	SIFP-2 report
23 Jan		To San Jose	Travel	free
24 Jan		In San Jose	Lec in a.m.	free
25 Jan		To Palmar Norte	Travel/Cerro	TBA
26 Jan	W	To Corcovado	Walk/orientation	Discussion
27 Jan		At Corcovado	Orientation	Lec: Social insects (DG)
28 Jan		At Corcovado	FP-3 (leaf cutter)	Lec: Trop. conserv. biol.(DS)
29 Jan		At Corcovado	Comp. project	Lec: Primate beh. (PK)
30 Jan		At Corcovado	Primate census	FP-3 reports
31 Jan		At Corcovado	SIFP-3	Report (JR)
1 Feb		At Corcovado	SIFP-4	SIFP-3 reports
2 Feb	W	At Corcovado	SIFP-4	Lec: Nutr. cycl/prod. (AS)
3 Feb		At Corcovado	Reconnaissance	SIFP-4 reports
4 Feb		To Las Cruces	Walk/travel	Discussion
5 Feb		At Las Cruces	orientation	Lec: (guest)
6 Feb		At Las Cruces	SIFP-5	Lec: Trop agric & for. (JB)
7 Feb		At Las Cruces	SIFP-5	SIFP-5 reports
8 Feb		To San Jose	Reconnaissance	free
9 Feb	W	In San Jose	free	free
10 Feb		To La Selva	Travel	Lec: La Selva (Clarks)
11 Feb		At La Selva	Orientation	Lec: Trop. streams (PW)
12 Feb		At La Selva	Comp. project	Data analysis
13 Feb		At La Selva	SIFP-6	Comp. proj. reports
14 Feb		At La Selva	SIFP-6	Lec: Trop. Tree Ecol. (Clark)
15 Feb		At La Selva	SIFP-6	SIFP-6 reports
16 Feb	W	At La Selva	Field trip to rainforest project (Portico)	Report writing
17 Feb		To San Jose	Reconnaissance	Dinner in SJ
18 Feb		Depart for Jamaica		

Orientation = becoming acquainted with new site

Reconnaissance = time to explore site

FP = field problems

SIFP = student initiated field problems

(initials) = student whose research paper presentations is before or after lecture on date shown