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TROPICAL MYSTERIES AND THE SCIENTISTS WHO STUDY THEM: AN ISLAND PERSPECTIVE

Royte, Elizabeth. 2001. **The tapir's morning bath: mysteries of the tropical rain forest and the scientists who are trying to solve them.** Houghton Mifflin, New York. 328 p. $25.00, ISBN: 0-395-97997-8.

Royte's book is about scientists working in Panama on Barro Colorado Island (BCI). Graduate students and their research projects form the basis for the book, but Royte also includes accounts of field experiences with senior researchers. This book will be of interest to those that have worked at tropical field stations and to graduate students who wonder about research in the tropics. It will make tropical biology accessible to a wide audience. Royte describes the science done by some tropical biologists and she effectively portrays a variety of tropical phenomena. Royte is a skilled writer and is able to use words to convey the complexities of the riot found in tropical forests. She documents what it is like to work in tropical field conditions.

Royte visited BCI for the first time with E. O. Wilson and her first visit was the impetus for her book. For biologists who have worked in tropical field stations and wondered what a book describing field station life would be like, Royte provides a model book. She weaves her own experiences into her story about tropical biologists. She garnered material while working as a volunteer field assistant. During her year on the island, she chased the spider monkey troop, ran mammal traplines, observed leaf-cutter ants, radio tracked tent-making bats, collected arthropods from epiphytes, observed pollination of tropical ginger species, attended formal and informal seminars, and learned a fair amount of tropical natural history.

Her book includes 18 chapters, an epilogue, a bibliography, and acknowledgements. Chapter 1 sets the stage for Royte's story about scientists. A map of Panama showing the location of BCI and a map of the BCI trail system are presented near the beginning of Chapter 1. She locates the station and describes her first walks in the forest with E. O. Wilson. Royte began her long-term stay on BCI three months before her marriage. Her descriptions of the forest are vivid and accurate. She provides a readable history of the founding of BCI and why tropical forests are worthy of conservation. In Chapter 2, Royte describes the laboratory clearing, her cast of scientific characters, and why BCI is a special option for tropical research. Building on pre-existing knowledge allows for different types of scientific inquiry, and field stations that provide food, lodging, and laundry can be attractive to some scientists. Royte continues her story of the founders of BCI in Chapter 2 and describes how congressional money first supported the field station in the 1940s. Royte describes some of the research being conducted by doctoral students but did not see the connection between focused Ph.D. questions and the ''big picture.''

In Chapter 3, Royte describes drinking cocktails with Egbert Leigh, and continues her story of the founding of BCI. According to Leigh, the 1970s were the ''Golden Age of BCI.'' The station was filled to capacity during summer months in the 1970s, and researchers were beginning to piece parts of the puzzle together.

Chapter 4 begins with Royte and Christina Campbell chasing the spider monkey troop for Campbell's doctoral studies. Royte describes how Campbell developed her interest in primates, how difficult it was to collect fecal samples, and how Campbell's project combined modern methods with detailed natural history information. Royte's descriptions of field research rang true. I enjoyed reading stories about tropical biologists I know and about how things work on BCI.

Bret Weinstein's research on tent-making bats in described in Chapter 5. Royte provides information on bats and bat research on BCI. Her involvement with Greg Adler's rodent project is described in Chapter 6. In Chapter 7, she describes the scientists she has worked with and what it is like to live in a field station. She weaves natural history stories and facts with observations on the scientists she helped. Royte describes social interactions among scientists and she states that the oddest people on the island were scientists in their 40s and 50s. Since I am in this age group, I smiled when I found those in my cohort described as interesting, odd, and introverted.

The tropical rainy season is an experience for those who live in the temperate zone, and Royte details what it is like to be living in tropical humidity (Chapter 8). She describes hiking around BCI with a biogeochemist, listening to a plant physiologist describe sap flow measurement, and wondering

if these scientists talked to each other about their mutual interests in water. Chapter 9 focuses on the entomologists and their research. Chapter 10 describes her return to BCI following her marriage and she chronicles what it is like to be pregnant in the field.

Chapter 11 focuses on Hubert Herz, a German student studying ants. The best part of Herz's story is his ingenuity in the face of broken equipment. All graduate students who have grappled with disasters during their research will be inspired by Herz's story. In Chapter 12, Royte recounts her field time with Doug Schemske and describes the phenomenon of the disappearing naturalist. While some scientists dismiss natural history studies, there are those who continue to study organisms in their natural environments. Royte expresses surprise that Schemske enjoys teaching and she asserts that research scientists rarely like teaching. Most of the practicing tropical field biologists I know are excellent teachers and it may be related to trying to understand tropical mysteries.

Chapter 14 describes Sabine Stuntz's research on epiphytic arthropods. Royte explains that she likes the way scientists use vocabulary (e.g., jargon) and then uses jargon correctly (e.g., ''. . . on ants, because they are one of the most abundant insect taxa in tropical tree crowns. . . ''). Chapter 15 relates tropical research to conservation and discusses how biodiversity studies are important to understanding how ecosystems are assembled.

The book is nearly error free—I found one in Chapter 16 (*ficus* should have been capitalized). Chapter 16 (''Tropical derelict''), focuses on Campbell's study of spider monkeys. The tensions and conflicts between Campbell and her advisor are also described. Students who have had conflicts with their advisors may relate to events described in this chapter. Chapter 17 focuses on Bret Weinstein's interests in theoretical questions that complement his empirical studies of bats. The final chapter concludes with her fieldwork with Robert Dudley on migrating diurnal moths (*Urania fulgens*). Her epilogue describes what happened to the scientists she studied after they left BCI. The bibliography contains 43 references.

Royte's book is about tropical field biology and it complements books written by scientists. This book could be used as a supplemental text for a tropical biology course or any other field-based course. As a non-BCI tropical biologist, I enjoyed learning about the life of scientists on BCI. I recommend Royte's book to those who strive to understand what explains the riot.

MAUREEN A. DONNELLY

Florida International University
College of Arts and Sciences
3000 NE 151st St.
North Miami, Florida 33181-3000
E-mail: donnelly@fiu.edu