

TROPICAL LEPIDOPTERA, 2(2): 140

**BOOK REVIEW****SARAPIQUI CHRONICLE: A NATURALIST IN COSTA RICA,**

by Allen M. Young.

1991. Smithsonian Institution Press, Washington and London. 384 pp., 60 b & w ilustr., hardcover (15.5 x 23.5 cm), and softcover (15.0 x 23.0 cm). ISBN 1-56098-014-1H (cloth), ISBN 1-56098-047-8P (ppb.). Price: \$40.00 (cloth), \$16.95 (paper).

Students of tropical Lepidoptera are quite familiar with the name of Allen M. Young, one of the leading investigators of Central American butterfly biology. Now with the publication of this excellent book, the natural-history minded public at large will gain an appreciation for Young's ability to convey the excitement, significance, and sheer pleasure of field studies on butterflies in the tropics.

Since 1968, Young has immersed himself in the Sarapiquí region of northeastern Costa Rica for at least part of each year, studying many different organisms but always with a primary interest in butterflies and their ecology. With well over two decades of field experience in this area, the author has a remarkable familiarity with the resident species and the interesting peculiarities of their life cycles, their population biology, and their adult behavior. This book deals chiefly with his field experiences in Sarapiquí from 1971 through 1989. In addition to describing many of his adventures taking place over these years, he states the core purpose of his book with remarkable candor: "quite unabashedly, my book is about the fusion of natural history and science with the physical beauty of tropical nature. Too often science and scientists are detached from the emotional content of the organisms they studied. What I have learned in Sarapiquí is the inherent value in stepping back, away from strict objectivity, and taking time to appreciate the physical beauty of nature. Whether seen through the dazzling iridescence of a *Morpho* butterfly's wings, the drumming call of the cicada, the chemical-mediated elegance of courtship in orchid bees, or the design of a pod of the cacao tree, an appreciation of nature's physical beauty reinforces the need for scientific inquiry into nature's workings, and vice-versa."

The author's philosophy is nicely summarized in his belief that "*the information obtained through scientific research really represents another form of beauty in our world, what I call 'knowledge beauty.'* So, really, the total human experience is the fusion of physical beauty in its many, seemingly unlimited varieties, with the knowledge beauty within each creature waiting to be discovered. It is my belief that a cognizance of both kinds of beauty heightens our awareness of the importance of conserving nature, in the tropics and everywhere."

Thus by the publication of this book, Smithsonian Institution Press has provided an outstanding summary of some of Young's most interesting tropical field studies, and a philosophy that can be shared with lepidopterists and other naturalists intrigued with tropical rain forests.

The author has divided the book into six sections, three of which are focused virtually entirely on butterflies. These being among the longest chapters, the 384-page book becomes of particular interest to tropically oriented lepidopterists.

Chapter 3, the first section exclusively on butterflies, is entitled "Natural History Studies of *Morpho* Butterflies," and runs from page 85 to 155 (without ever getting boring in the least). With enthusiastic prose bordering on poetry, the author describes the "shimmering, electric flashes of blue" as *Morpho peleides* drifted close to him in the Costa Rican rain forest and settled on banana bait. By netting and marking these butterflies over a period of several years, he was able to census this species quite accurately, and he discovered fascinating behavioral characteristics as a result of tracking their movements and habits.

Anyone interested in the population biology and behavior of butterflies, or just learning about *Morphos*, could read this chapter alone and find the price of the book well worthwhile.

The following Chapter 4, entitled "Observing Butterfly Roosts on a Steep Mountainside," brings us into the fascinating world of *Heliconius* butterflies and their social behavior. In this research, which continued over a number of years and in collaboration with many students and research associates, Young learned that "seeking answers to specific questions about just a single species, such as the beautiful Zebra butterfly (*Heliconius charitonius*), always opened a Pandora's Box of new questions." In fact, in developing an understanding of the biology of the Zebra butterfly, Young and his co-workers found that it was necessary to learn something about every other kind of organism that it interacted with on the Cuesta Angel mountainside, and also the physical environment—from the terrain and wind to rain and sunshine. These all "came together to poise the butterfly for the evolutionary testing of its association with many other species." It was not easy to find simple answers to questions that Young and his colleagues began asking on this and other species of *Heliconius*. But when you read the description and interpretation of the nightly ritual of coming together in social roosts, "as one part of the broadly textured biological puzzle of how this species has come to terms with the rest of nature," you will appreciate how far these biologists came in answering complex questions. This chapter contains some of the most interesting and most evocative passages in this fascinating book.

Finally, the intriguingly titled Chapter 6, "Along the Edges of the Rain Forest: Pharmacological Butterflies and Orchid Bees," brings home to the reader just how precarious the rain forests' existence are at the hand of man—yet how incredibly *valuable* the natural products from these forests could be, compared to those from subsistence agriculture or pastureland that often results after the forest is cleared. Truly, this last chapter is a poignant reminder of the intrinsic value of the diminishing rain forests, not only of the Sarapiquí region of Costa Rica but of all the tropical areas of our world.

This book is strongly recommended to every reader of *Tropical Lepidoptera* who appreciates fine natural-history writing and wishes to learn more about the natural history, population biology, and conservation ecology of rain forest butterflies. You will spend many an enjoyable evening reading and re-reading Allen Young's latest outstanding contribution to the literature on Costa Rican natural history, and especially his accounts of tropical butterfly biology.

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