

general text considers the incidence of endemism on present-day Hispaniola in the context of the original North and South palaeo-islands, with particular reference to the genus *Calisto*. An original description of *Tmolus victoria* (K. Johnson and D. Matusik) is appended, for the holotype collected in the Dominican Republic in 1984; this includes a half-tone plate that reminds one what a help even black and white figures would have been.

The author stresses the need for continuing work on the island, and particularly on its satellites. This reviewer was greatly encouraged to find that four brief visits to the Dominican Republic yielded two "new" Province records and even a species (*Appias punctifera*) (Smith, D. S., E. R. Classey & S. J. Ramos 1989, J. Lepid. Soc. 43:332-336) that had, as it were, slipped through Dr. Schwartz's net! This is unquestionably an important work, and clearly a labor of love, invaluable to the biologist concerned with the evolution of Antillean butterflies, if limited in its value to the more casual visitor. While wishing that both might have been catered for, one cannot but applaud the author's comment that publication of the mass of information included in this book is indeed timely.

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BUTTERFLIES OF BORNEO, Volume 1, by Kazuhisa Otsuka. 1988. Tobishima Corporation, 2, Sanban-cho, Chiyoda-ku, Tokyo 102, Japan. xx + 61 pp. in Japanese, xix + 62 pp. in English, 80 color plates, plus text figures. Hard cover, 19 × 27 cm. No ISBN number. Price unknown.

A remarkably active group of Japanese lepidopterists continues to publish new books documenting the butterfly faunas of many South East Asian countries. Now, Kazuhisa Otsuka, a member of the Lepidopterological Society of Japan and a teacher in Mushino City, Tokyo, has undertaken the task of publishing the first book on the butterflies of Borneo, and has done a capable job.

During more than ten years of extensive field work, Otsuka compiled photographs and identification notes for his own use. The stimulus to prepare this present field guide came from an official who reviewed his album at Sabah National Parks headquarters and requested that Otsuka publish his notes and photographs. As Otsuka points out, the current rate of destruction of the natural forest of Borneo is horrific, and the beauty and interest of Borneo's butterflies may play an important role in alerting the world to this serious danger. Thus the author has published this book with the help of the Tobishima Corporation in the hope that many young entomologists in Japan and Malaysia will be stimulated to study the butterflies of Borneo and other island portions of South East Asia, thereby contributing to the preservation of the remaining natural areas.

The book covers 327 species in seven families: Papilionidae, Pieridae, Danaidae, Satyridae (including the subfamily Amathusiinae), Libytheidae, Nymphalidae, and Riodinidae. The author plans to follow this first volume with a second volume in December 1990 that will cover the remaining 600 species of Lycaenidae and HesperIIDae.

The main purpose of the book is identification, which, as the author indicates, is the most difficult task facing lepidopterists in these areas of the world. Although the author records some life history descriptions (eggs, larvae, pupae, and foodplants), they are far from complete.

This book also briefly describes a number of the many habitat types found in Borneo. The author discusses the role of historical biogeography, climate, glacial periods and speciation, and mountain masses as well as national parks in influencing present-day

butterfly distributions. A fascinating summary of the flora of Mt. Kinabalu in the center of Kinabalu National Park is included. This 4101 m mountain has distinct climates at different elevations and consequently has a remarkable diversity of butterflies. The author calls it "a dreamland for butterfly lovers."

Otsuka believes that Borneo's present highly diverse fauna of butterflies is due to the historical biogeography of this large island, which is believed to have been warm during all the northern glacial periods of the past 60 million years, with continuous presence of tropical rain forests that preserved many of the older forms of plant and animal life. Great diversification is seen in certain genera, such as *Euthalia*, *Tanaecia*, *Arhopala*, and *Potanthus*. With about 1000 species of butterflies known from the Malay Peninsula as a whole, the author states that his checklist totals about 910 species living in all of Borneo (and about 850 in Sabah). Most of the butterflies in Borneo are represented by the same species as those found on the Malay Peninsula. Only a few are shared with the butterfly faunas of the Philippines and Palawan. About 50 species are endemic to Borneo, and most of these live in the Mt. Kinabalu region.

Under the respective family names, each species account consists of the scientific name, the author and date of description, wing radius size for male and female, and a very brief (telegraphic) description of the adults of both sexes. This is followed by a generalized distribution comment (i.e., "West Malaysia," "Sumatra," "New Guinea to Australia," and even "Oriental Region"). Thus the reader will not find any guide to habitat distribution or even specific geographic localities.

The color plates are outstanding, with a reduced figure included for the upperside and underside of most species. The colors are crisp and well reproduced. The species name, sex, and a letter code for the location where the specimen of that species was caught, are given immediately below each color figure, a most useful feature usually not found in butterfly books. Very brief introductions to the structure of scientific names, nomenclature of wing venation and pattern areas, etc., are given at the front of the book, and a list of references for the butterflies of South East Asia is included. Unfortunately, these references are given in incomplete form, omitting the publisher (for books) and the journal title (for papers). In contrast, the Acknowledgments section is extraordinarily detailed and continues on for three pages.

Perhaps the best way to summarize this book is to say that the beautiful color cover illustration (of Mt. Kinabalu) conveys the extraordinary richness of habitat diversity in Borneo in one picture, portraying steaming lowland rain forest stretching up to an alpine zone on the highest mountaintop, while the 80 color plates of the 327 species of the families of butterflies covered in this first volume convey most of the information needed for ready identification. After the publication of Volume Two in late 1990, *Butterflies of Borneo* will represent an important contribution to the zoogeographic coverage of the fauna of the South East Asian islands and adjacent continental areas. The author is to be commended for his efforts to make the butterfly fauna of Borneo better known, particularly by his inclusion of a complete English translation of the Japanese text. Because of the small number printed and the high demand for this work, Volume One is already to be out-of-print. Perhaps we will be fortunate enough to see a reprint edition of Volume One at the time Volume Two is published. These two volumes will form a valuable addition to the working library of anyone interested in the butterflies of South East Asia, and in the ecology and zoogeography of tropical butterflies in general.

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