

## BOOK REVIEWS

FLORIDA BUTTERFLIES, by Eugene J. Gerberg and Ross H. Arnett, Jr. 1989. Natural Science Publications, Inc., Baltimore, Maryland. v + 90 pp., 105 color figs. Soft cover, 14 × 21.5 cm, ISBN 0-89140-031-1, \$9.95.

FLORIDA'S BUTTERFLIES AND OTHER INSECTS, by Peter D. Stiling. 1989. Pineapple Press, Sarasota, Florida. 95 pp., 155 color figs. Hard cover, 22 × 28.5 cm, ISBN 0-910923-54-X, \$24.95.

Florida has always occupied a special place in the minds of most North American lepidopterists. Its subtropical southern counties and habitats, especially the Florida Keys, serve as a breeding ground and landing place for exotic butterflies and moths not generally encountered elsewhere in the eastern United States. The resulting attractiveness to travelling collectors every year is almost paradoxical when one realizes that Florida has only 164 butterfly and skipper species, less than many central and most western states, and approximately *half* the fauna of Texas, which has extensive subtropical areas adjacent to the rich Mexican faunal regions.

The reasons for this exotic but relatively depauperate fauna are rooted in Florida's biogeographic history and in the current floral and climatic differences between the northern and southern halves of the state. Most of Florida's tropical species have, in fact, arrived over water from the Caribbean islands and not (as in the case of Texas) via a rich continental connection directly from Mexico. And the northern temperate species that reach Florida are at the southern limits of their ranges when they hit subtropical conditions and their northern plant hosts disappear.

But perhaps even more surprising is that this unique and attractive state of Florida has received little attention in terms of books describing its lepidopteran fauna. The collector has had to use Klots (1951, A field guide to the butterflies of North America, east of the Great Plains, Houghton Mifflin Co., Boston, 349 pp.) or the poorly-illustrated monograph by C. P. Kimball (1965, Lepidoptera of Florida. Arthropods of Florida and neighboring land areas, Vol. 1, Division of Plant Industry, Florida Department of Agriculture, Gainesville, 363 pp.) to identify his catch and learn a little about Florida butterflies and their ecology. Now in quick succession, two new popular books have appeared in 1989 to partially remedy the situation for the casual naturalist and lepidopterist.

*Florida Butterflies* by Eugene Gerberg and Ross Arnett provides a color illustration and a half-page or so of text on each of 97 butterfly species found in Florida. The illustrations are 6.5 cm square, two at the top of each page, and show normally only the dorsal surface, occasionally both dorsal and ventral surfaces, of a pinned specimen on black background. The brief species account includes forewing size (helpful, as the color illustrations are not reproduced to relative scale) and a brief color description, and a little, rather generalized information on known hosts, habitat, flight period, and distribution. The skippers (species 98-164, representing an amazingly large proportion of the state's fauna) are given cursory telegraphic attention (e.g., "All of Florida. Larvae on various grasses.") and only 8 skipper species are illustrated. A checklist of Florida butterflies (with common name as well as scientific name) and a complete index to the butterfly names are included. At the end of the text are sections on rearing butterflies and making a collection. The introductory part of the book includes short sections on butterfly biology, butterfly gardening, the butterfly families, and butterfly conservation. This attempt to summarize the lives of butterflies is laudable, but, unfortunately, contains several misleading statements, ranging from pointless (e.g., "their lives are free") to erroneous (e.g., "the simple brain is without memory"). The brief descriptions of ten Florida life zones, with five color illustrations, provide the first-time visitor with an idea of what to expect and where most butterfly species may be found. In addition to the 164 breeding species, 25 stray species found in Florida are listed (but not described or illustrated). While some glaring errors will be noted (e.g., butterfly eggs do not have an average size of "2-4 mm

in diameter," most are less than 1 mm, and eggs of only a few neotropical satyrids and Australasian *Ornithoptera* reach 2–5 mm in diameter), this pocket-sized field guide provides a concise, color-illustrated guide to most of the butterflies that the visitor or beginning student will encounter in Florida.

*Florida's Butterflies and Other Insects*, by Peter D. Stiling, opts to present a cross-section of Florida's butterfly and skipper fauna with color photographs of "wild" specimens (the great majority are posed dead or pinched specimens). Forty butterflies are illustrated; each has an accompanying paragraph of text on that species. More information on Florida food plants is usually included here than in Gerberg and Arnett's book, and reference to the original literature is often made following behavioral and ecological notations. In addition to the butterflies, 22 photographs and species accounts of Florida moths (8 Saturniidae, 10 Sphingidae, 2 Arctiidae, and 2 Noctuidae) are included. Finally for the lepidopterist, an interesting section of 17 photographs and species accounts covers butterfly and moth caterpillars. The remainder of the book's main text (pp. 50–84) covers other insect groups. The author provides a valuable page on butterfly gardening, and three pages listing nectar sources and larval food plants used in Florida. A brief section on commercial butterfly gardens and state insect collections completes the text. An excellent index to insects and plants, along with an extensive literature cited section, are included. This book, published in 8½ × 11" size, with a full-color hardbound cover depicting a live *Eumaeus atala*, is not intended for field identification but is an attractive book for the home library.

In summary, the intricacies of Florida butterfly biology, distribution, and ecology are not covered by either of these two new books. For a thorough treatment of Florida's butterflies and skippers, we must await the publication of other, more-detailed books currently being prepared by H. David Baggett, Marc C. Minno, John B. Heppner, and others. However, the Gerberg and Arnett field guide will serve as a good introduction to Florida's fauna, and the Stiling book will interest the general beginner in other Florida insects as well as in some of the state's fascinating tropical Lepidoptera.

THOMAS C. EMMEL, Division of Lepidoptera Research, Department of Zoology, University of Florida, Gainesville, Florida 32611.

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LEPIDOPTERAN ANATOMY, by John L. Eaton. 1988. Wiley-Interscience Series in Insect Morphology, John Wiley & Sons, New York. 257 pp., 194 text figs. Hard cover, 17 × 24 cm, ISBN 0-471-05862-9, \$49.95.

Here, finally, is a book dedicated solely to the somewhat disjointed subject of lepidopteran anatomy. The author has amassed a general collection of anatomical information on the tobacco hornworm moth, *Manduca sexta*; information previously difficult to locate amidst the scatterings of textbook chapters and original scientific articles, some of which are difficult to obtain or are not available in English. Considering the growing number of scientists using lepidopterans as experimental models, in addition to the multitude of professional and amateur lepidopterists, there is potentially a large audience that would appreciate a single source on lepidopteran anatomy.

The book is divided into eleven chapters. Each of the first four provides a general description of one of the developmental stages. The chapters on the egg and pupa are scant, consisting of fewer than three pages each, including drawings, while the two chapters on the larva and adult are much more detailed, treating the complex subjects of the exoskeleton and musculature. Each of chapters five through ten focuses on a particular system: the nervous system and endocrine glands; the circulatory system; the