

BIOLOGY AND CONSERVATION OF THE MONARCH BUTTERFLY

edited by Stephen B. Malcolm and Myron P. Zalucki

1993. Natural History Museum of Los Angeles County, Los Angeles. 419 pp, 2 col. pl., 137 line drawings, 100 tables. 17 x 25 cm. Sci. Ser. 3. Price: \$90.00 cloth. Available from the Museum Book Store, 900 Exposition Blvd., Los Angeles, CA 90007 (add \$9 shipping); or from Flora & Fauna Books, P. O. Box 15718, Gainesville, FL 32604 (plus \$2 shipping), or other dealers.

This book is a surprisingly comprehensive compendium of current research on the monarch butterfly. The papers included in the book were presented at the Second International Conference on the Monarch Butterfly, meeting at the Natural History Museum of Los Angeles County, Los Angeles, September 2-5, 1986. The editors have grouped 44 research papers by 50 authors into an authoritative summary of numerous subjects involving the well-known monarch butterfly, *Danaus plexippus* (Linnaeus). Among the many authors are also many well-known to amateur lepidopterists, such as Philip Ackery, Susan Borkin, Lincoln Brower, Ian Kitching, Javier de la Maza, Thomas Riley, and Richard Vane-Wright.

The papers cover each subject in detail and are written by current experts in the various areas. The works are divided into 10 subject themes: introduction; systematics; chemical communication; mating behavior; hostplant use, cardenolide sequestration, and defense against natural enemies; physiological ecology and the annual cycle; migration; overwintering biology; conservation; and conclusions. Within these themes, the research papers cover virtually all aspects of current monarch research, from biochemistry to ecology and evolution. There is also a detailed general index for all papers at the end of the book.

Although many of the papers and subjects are quite technical, the book is well worth buying even for amateurs since many of the subjects are of interest to all, and discussion of even only those subjects of more general interest (e.g., migration) will be good to have for reference. The book is well-bound but the pages have a very tight trim cut, giving only about a quarter inch for the outside margin (about 6 mm).

Besides monarch biology, the main thrust of the volume is monarch conservation and how our continuing study of monarch biology can help to protect this unusual and well-known species. Several papers treat the fragile habitat remaining in Mexico, where millions of the eastern North American populations of this butterfly overwinter every year. There also is an article on the status of the western overwintering populations on the coast of California.

The book is highly recommended for all serious students and researchers of the monarch, and of butterflies in general. Unfortunately, the high price will deter many from buying the book.

J. B. HEPPNER

Florida State Collection of Arthropods
P. O. Box 147100, Gainesville, FL 32614