

## BOOK REVIEWS

DARSIE, R. F AND R. A. WARD. 2005. Identification and Geographical Distribution of the Mosquitoes of North America, North of Mexico. University of Florida Press, 383 pp. ISBN 0-8130-274-5. Hardback. \$75.00.

This book is the second edition of a book with the same title and authors. While much of this edition is a verbatim rehash of the 1980 edition, some very important changes have been made. Twelve species have been added to the book since the first edition. Changes to the text were necessary due to additional species (e.g., *Aedes albopictus* and *Ochlerotatus japonicus japonicus*) invading different parts of this geographic region (Sprengrer and Wuithiranyagool 1986, Peyton et al. 1999), new species being defined, e.g., the detection and naming of the sibling species of *Anopheles quadrimaculatus* (Reinert et al 1997), and reinstating subgenus *Ochlerotatus* to genus status (Reinert 2000). Other significant changes are: revised and completely illustrated keys for the adult females and fourth instar larvae; new user friendly geographical distribution maps for each species; and an updated systematic index table (Table 1), which includes the new species in North America.

The book is organized into 16 sections and starts with a fairly comprehensive Table of Contents, which makes finding information on the included taxa easy. Next the authors include the Preface from the first edition, which is appropriate since much of the information presented is relevant to the second edition. This is followed by a brief Preface to the second edition, which mainly acknowledges the support (financial, graphic, office and laboratory space) the authors received to complete this book. Next is a one page section on the Abbreviations of the states in the United States of America and the Provinces of Canada. This is followed by a very brief introduction, with the main changes from the first edition being an emphasis on the use of Harbach and Knight's (1980) *Taxonomists' Glossary of Mosquito Anatomy* for morphological terms and the fact that at the time of their revising the text there were 174 known species and subspecies in 14 genera and 29 subgenera in the geographic region. This introduction is followed by the Systematics section, which was the most interesting since it discusses the most important taxonomic changes made since the last edition. It includes lists and discussions of new species, species resurrected from synonymy and exotic species introduced into the United States and Canada. It also provides the reader with a better understanding of the authors' positions on the included taxa. Next are sections on the morphology of adult females and fourth instar larvae, which are followed by generic keys to the adult females and

fourth instar larvae and immediately by keys to the species of each genus. Keys to *Aedes* and *Ochlerotatus* are combined. All characters used in the keys are illustrated by well done, original drawings (1045) inserted between key couplets. Keys are included for the identification of all 174 mosquito species and subspecies known to occur in North America, north of Mexico. As expected, these keys comprise nearly half the book. The sections on adult and larval morphology discuss the anatomical structures mentioned in the keys. Other than moving the Selected Bibliography of Mosquito Morphology to the back of the book, the adult morphology section is basically unchanged from the first edition. The larval morphology section has at least one confusing change of note. In describing the setae of segment X, in the first edition the authors state that the most posterior seta is designated as 4a-X; then proceeding anteriorly, they are 4b-, 4c-, 4d-X, etc. In the second edition, referring to the same figure they seemingly state just the opposite, i.e. that the most anterior seta is designated as 4a-X; proceeding posteriorly the setae are then 4b-, 4c-, 4d-X, etc. At best this is confusing; at worst a contradiction. Another apparent contradiction between the first and second editions for larval morphology are the number of pairs of setae on abdominal segments I-VII (97 vs 86). Both the adult and larval morphology discussions are followed by a series of very useful full page plates illustrating key morphological characters. Next is a section on the Geographical Distribution of the Culicidae of North America, north of Mexico. This information is provided in text, tabular and figure form. The second edition includes 134 mosquito species distribution maps compared to 41 in the first edition. This is a vast improvement. Instead of having overlapping distributions of multiple species on each map that were hard to distinguish, this edition has a separate map for most important species. Several species with limited distribution are still found on a single map but their distribution patterns do not overlap. The next section is the Selected Bibliography of Mosquito Morphology which contains important references to understand mosquito morphological terminology. This is followed by the greatly expanded section on the Bibliography of Mosquito Taxonomy and Geographical Distribution (815 vs 536 references) over the first edition. Next is an appendix which contains the locality data for the mosquito specimens used to prepare the illustrations for the keys. Then there is a very useful Index to Scientific Names, which provides

an easy way to find information on specific taxa. This index also provides useful information (in bold) to locate the appropriate geographic distribution map for each species. On the last page is a brief biography of each author.

This text is a valuable resource for anyone interested in learning about the basics of mosquito morphology and identification, this includes mosquito control personnel, beginning and advanced students, and professional medical entomologists. It is the only comprehensive, relatively up to date, book on the identification and geographic distribution of mosquitoes in North America, north of Mexico.

#### REFERENCES CITED

- HARBACH, R. E., AND K. L. KNIGHT. 1980. Taxonomists' glossary of mosquito anatomy. Marlton, Plexus Publ., 415 pp.
- PEYTON, E. L., S. R. CAMPBELL, T. M. CANDELLETTI, M. ROMANOWSKI, AND W. J. CRANS. 1999. *Aedes (Finlaya) japonicus japonicus* (Theobald), a new introduction into the United States. *J. Am. Mosq. Control Assoc.* 15: 238-241.
- REINERT, J. F. 2000. New classification for the composite genus *Aedes* (Diptera: Culicidae: Aedini), elevation of subgenus *Ochlerotatus* to generic rank, reclassification of other subgenera, and notes on certain subgenera and species. *J. Am. Mosq. Control Assoc.* 16: 175-188.
- REINERT, J. F., P. E. KAISER, AND J. A. SEAWRIGHT. 1997(1998). Analysis of the *Anopheles quadrimaculatus* complex of sibling species (Diptera: Culicidae) using morphological, cytological, molecular, genetic, biochemical, and ecological techniques in an integrated approach. *J. Am. Mosq. Control Assoc.* 13 (Suppl): 1-102.
- SPRENGER, D., AND T. WUITHIRANYAGOOL. 1986. The discovery and distribution of *Aedes albopictus* in Harris County, Texas. *J. Am. Mosq. Control Assoc.* 2: 217-219.

Daniel L. Kline  
USDA, ARS, CMAVE  
1600 SW 23rd Drive  
Gainesville, FL 32608