

## BOOK REVIEW

### MOSQUITOES OF CALIFORNIA BY R. M. BOHART & R. K. WASHINO

3rd Edition, March 1978, 153pp., 85 figs. \$6 U.S., University of California, Division of Agricultural Sciences, Berkeley, California 94720

This artistically illustrated and inexpensive book contains much useful information for those interested in mosquitoes in British Columbia. Of the 47 species dealt with, 27 are known or expected to occur in the province; 14 are serious pests in California and 10 of these are pests here when their populations get out of hand.

Introductory sections deal with zoogeography, pointing out the diverse topography of the state and the wide variety of habitats available for mosquitoes; preserving, pinning and mounting mosquitoes are covered briefly. This section recommends killing larvae in near-boiling water which, in my experience, distorts them more than penetrating killing agents like KAA. The adults are mounted on the left side which may seem a trivial point until a particular patch of scales has to be identified from a mirror image diagram. Mounting on the right has been standard in Canada for many years.

Before the keys, there are short sections describing the characters used to separate adults and immature stages into genera and species. The keys to adult females and larvae deal with the species of all 8 genera together and don't work well on specimens from B.C. The key to adult males, using genitalia, separates the genera first, then the species and it worked on the specimens I tested. The key to pupae goes as far as genera and is the only key I know of to pupae in our area.

The order of the genera differs from that of Stone & Knight (1977) but, with one exception, the generic and specific names conform to their catalogue. The exception is *Aedes cinereus*, whose Californian subspecific name, *hemiteleus*, was sunk into synonymy by Carpenter & La Casse in 1955. Bohart & Washino have raised it to specific rank on the basis of a marked dif-

ference in male terminalia between European and American specimens. There are older names available for a North American species if it proves to be uniform and distinct.

There are 14 large dorsal views of adult females. The scale pattern and setae are shown, but legs and wings are omitted from most. Four of them are shown in side view and there are many additional drawings of parts of adults. Nearly all the larvae are illustrated, including those common to the state and our province. The diagrams are admirably clean, with a minimum of shading on sclerotised cuticle. The fine lateral branches of the setae are omitted as well as the swimming setae which tend to obscure the rest of the figure in most handbooks. The diagrams correspond well with the B.C. larvae I have examined with the exception of the 6 siphonal setae shown in *Culex tarsalis*. This may be an artist's error since it does not agree with the written description.

Sections after each species emphasize the structural and biological differences between them and similar species. Breeding sites, behaviour and some details of laboratory rearing are summarized. Notes on their geographical distribution are followed by valuable information about their role in disease transmission.

There are 2 maps showing the spread of insecticide resistance in the biting *Culex* species, but no discussion of this important topic in the text. It is perhaps just as well that this state has a large budget for mosquito research and control because, particularly in agricultural areas, expensive biological and physical methods are the only controls left.

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