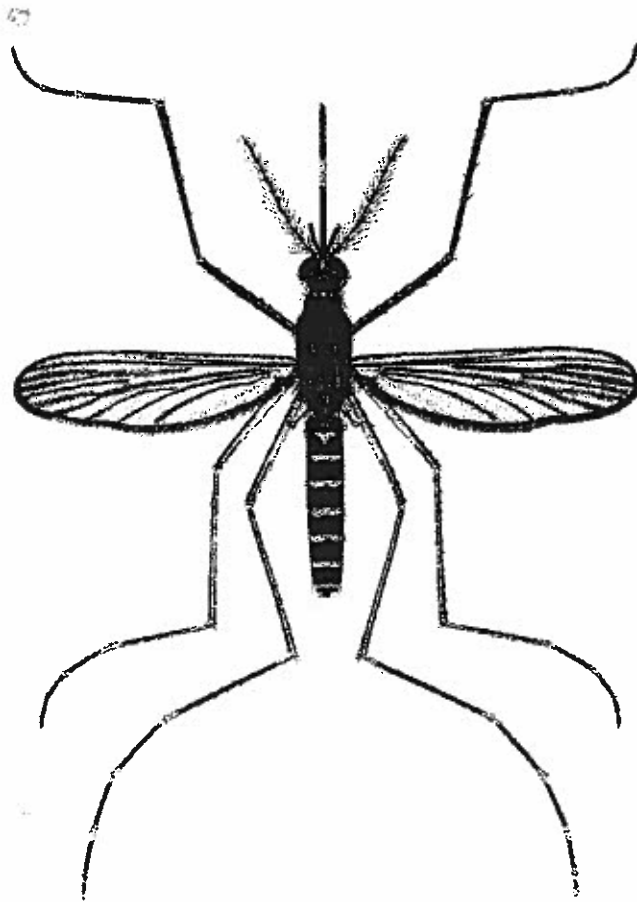


***GUIDE TO THE  
COMMON MOSQUITOES OF  
CALIFORNIA***



***III. CENTRAL VALLEY AND  
WESTERN SIERRA***

*MOSQUITO AND VECTOR CONTROL ASSOCIATION OF CALIFORNIA  
Sacramento, California*

***REGIONAL GUIDE TO THE  
COMMON MOSQUITOES OF  
CALIFORNIA***

***III. CENTRAL VALLEY AND  
WESTERN SIERRA***

by

**RICHARD P. MEYER, PH.D.**

Edited by

**GLENN YOSHIMURA**



**MVC**  
**MOSQUITO AND VECTOR CONTROL**  
**ASSOCIATION**  
**of CALIFORNIA**

MOSQUITO AND VECTOR CONTROL ASSOCIATION OF CALIFORNIA  
660 J Street, Suite 480  
Sacramento, California 95814

This is a publication of the  
**Mosquito and Vector Control Association of California (MVCAC)**

For other **MVCAC** publications or further information contact:

**MVCAC**  
660 J Street, Suite 480  
Sacramento, California 95814  
Telephone: (916) 440-0826  
Fax: (916) 442-4182

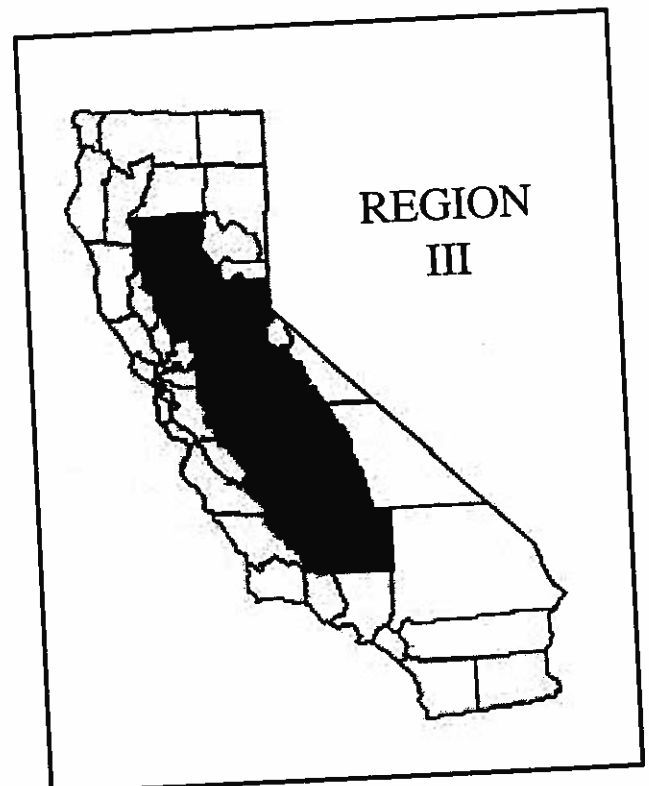
Copyright © **MVCAC** 2003. All rights reserved.

each spring as the snow packs melted and the runoff drained westward. Today, rice-field and mixed agricultural habitats in the Sacramento and San Joaquin Valleys support the production of *Anopheles freeborni* Aitken, *Oc. melanimon*, *Oc. nigromaculis* (Ludlow), and *Cx. tarsalis*. The level of *Cx. tarsalis* production during cool wet years is still sufficient to support the sporadic transmission of western equine encephalomyelitis (WEE) and St. Louis Encephalitis (SLE) viruses. In addition, snowpool mosquitoes in the genus *Ochlerotatus* from the Sierra Nevada have been found naturally infected with a variety of California group encephalitis (CE) viruses that apparently are transmitted to humans frequenting the mountains during the summer months.

This region supports the greatest diversity of mosquito species within the state of California. Alpine meadows of the Sierra Nevada are colonized by a number of "snowpool" *Ochlerotatus* including *Oc. hexodontus* Dyar, *Oc. tahoensis* Dyar, *Oc. clivis* Lanzaro & Eldridge, and *Oc. ventrovittis* Dyar. The upslope region east of Sacramento supports the greatest diversity of mosquito species in the state with over 25 occurring from the Valley floor to the crest of the Sierra Nevada. Valley habitats support a variety of seasonal species associated with perennial and permanent wetlands and riparian floodwater habitats. Common wetlands mosquito species include *An. punctipennis* (Say), *Aedes vexans* (Meigen), *Cx. erythrothorax* Dyar, and *Culiseta inornata* (Williston). Urbanization and attendant water management water practices associated with waste water disposal have greatly facilitated the spring and summer breeding of foul water mosquitoes like *Cx. stigmatosoma* Dyar, *Cx. pipiens* L., and *Cx. quinquefasciatus* Say. Geographically, this region is isolated by the coast ranges, Tehachapi Mountains, and the Great Basin. Therefore, it is not likely that new species will be discovered in the near future. Fortuitous introductions are still possible, illustrated by the collection of a single female *Oc. atropalpus* (Coquillett) from beneath a bridge at Folsom, California, by the author in 1969.

### REGIONAL DIVISION OF CALIFORNIA COUNTIES

<u>I - Coastal California</u>		
Alameda	Mendocino	Santa Clara
Contra Costa	Monterey	Santa Cruz
Del Norte	Napa	Solano
Humboldt	San Benito	Sonoma
Lake	San Francisco	
Marin	San Mateo	
<u>II - Great Basin and Eastern Sierras</u>		
Alpine	Mono	Siskiyou
Inyo	Plumas	Trinity
Lassen	Shasta	
Modoc	Sierra	
<u>III - Central Valley and Western Sierras</u>		
Amador	Kings	Stanislaus
Butte	Madera	Sutter
Calaveras	Mariposa	Tehama
Colusa	Merced	Tulare
El Dorado	Nevada	Tuolumne
Fresno	Placer	Yolo
Glenn	Sacramento	Yuba
Kern	San Joaquin	
<u>IV - Southern California</u>		
Imperial	Riverside	San Luis Obispo
Los Angeles	San Bernardino	Santa Barbara
Orange	San Diego	Ventura



## ACKNOWLEDGMENTS

The completion of this regional mosquito identification manual was made possible by the efforts of many organizations and dedicated individuals. The author extends his sincere thanks to all of those who helped make this publication a reality.

Past and present members of the Mosquito and Vector Control Association of California Publications Committee currently chaired by Dr. Jack E. Hazelrigg, along with a select cadre of regional biologists and entomologists provided constructive guidance in the selection of the species presented in this manual. Therefore, the following individuals and respective organizations should be recognized for their deserving efforts:

Stephen L. Durso, formerly with Antelope Valley Mosquito and Vector Control District, helped with the critical review of the text, formatting of the keys, and style presentation of the accompanying biological information.

James Caton, formerly with Delta Vector Control District, for his efforts in developing the arrangement of the species presented in the keys.

Dr. James Webb, Jr., Stephen Bennett, and Robert Cummings of the Orange County Vector Control District; Dr. Jeffrey Beehler, formerly of Northwest Mosquito and Vector Control District; and Dr. Kenn Fujioka of the San Gabriel Valley Mosquito and Vector Control District; all whom provided their valued recommendations for the final selection of the common mosquito species included in the adult and larval keys.

Jodie Stoddard, Justine Keller, and Cheryl Stewart (formerly) of the Orange County Vector Control District for their efforts in preparing the drafts and final copy of this manual.

The Board of Directors and Officers of the American Mosquito and Vector Control Association who graciously granted their permission to reprint selected figures from *Identification and Geographical Distribution of the Mosquitoes of North America, North of Mexico* by R. F. Darsie and R. W. Ward.

The Board of Directors and Officers of the Mosquito and Vector Control Association of California who recognized the need for the development and eventual publication of the regional mosquito guide series.

### THE MOSQUITOES OF CALIFORNIA (HIGHLIGHTING THOSE OF THE CENTRAL VALLEY AND WESTERN SIERRA)

* <i>Anopheles franciscanus</i>	* <i>Ochlerotatus melanimon</i>	* <i>Culex pipiens</i>
* <i>Anopheles freeborni</i>	* <i>Ochlerotatus nigromaculis</i>	* <i>Culex quinquefasciatus</i>
<i>Anopheles hermsi</i>	<i>Ochlerotatus niphadopsis</i>	<i>Culex reevesi</i>
<i>Anopheles occidentalis</i>	** <i>Ochlerotatus pullatus</i>	** <i>Culex restuans</i>
* <i>Anopheles punctipennis</i>	<i>Ochlerotatus purpureipes</i>	* <i>Culex stigmatosoma</i>
** <i>Aedes hemiteleus</i>	** <i>Ochlerotatus schizopinax</i>	* <i>Culex tarsalis</i>
* <i>Aedes vexans</i>	* <i>Ochlerotatus sierrensis</i>	** <i>Culex territans</i>
** <i>Ochlerotatus atropalpus</i>	<i>Ochlerotatus squamiger</i>	* <i>Culex thriambus</i>
** <i>Ochlerotatus bicristatus</i>	** <i>Ochlerotatus sticticus</i>	** <i>Culiseta impatiens</i>
<i>Ochlerotatus campestris</i>	<i>Ochlerotatus taeniorhynchus</i>	* <i>Culiseta incidens</i>
** <i>Ochlerotatus cataphylla</i>	* <i>Ochlerotatus tahoensis</i>	* <i>Culiseta inornata</i>
* <i>Ochlerotatus clivis</i>	<i>Ochlerotatus thelcter</i>	* <i>Culiseta particeps</i>
<i>Ochlerotatus deserticola</i>	* <i>Ochlerotatus ventrovittis</i>	** <i>Coquillettidia perturbans</i>
** <i>Ochlerotatus dorsalis</i>	<i>Ochlerotatus washinoi</i>	** <i>Orthopodomyia signifera</i>
** <i>Ochlerotatus fitchii</i>	<i>Culex anips</i>	<i>Psorophora columbiae</i>
<i>Ochlerotatus flavescens</i>	* <i>Culex apicalis</i>	<i>Psorophora signipennis</i>
* <i>Ochlerotatus hexodontus</i>	* <i>Culex boharti</i>	<i>Uranotaenia anhydor</i>
* <i>Ochlerotatus increpitus</i>	<i>Culex erraticus</i>	
	* <i>Culex erythrothorax</i>	

\* Species found in this region which are included in the keys.

\*\* Species found in this region which are not included in the keys.