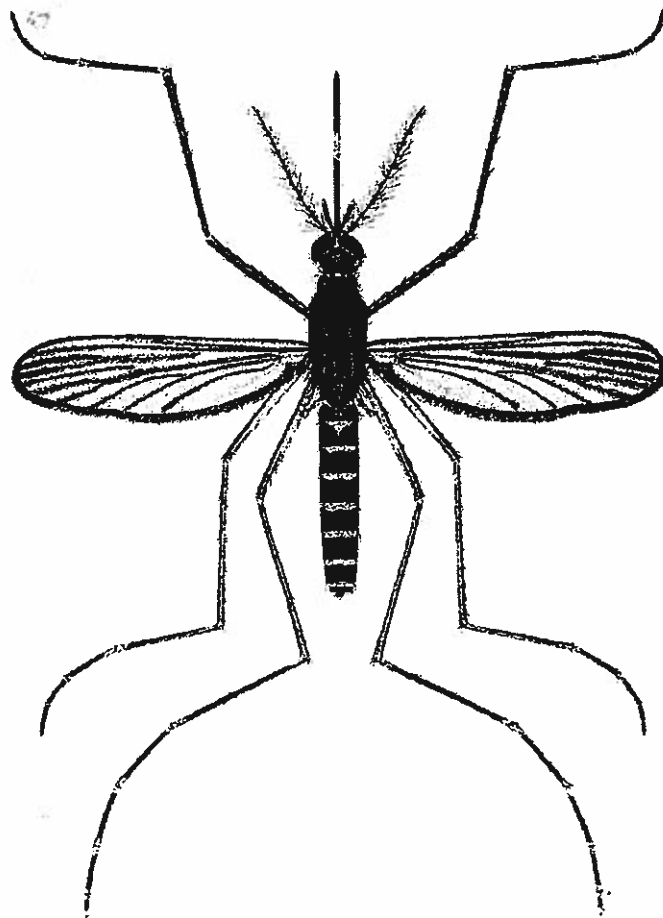


***GUIDE TO THE
COMMON MOSQUITOES OF
CALIFORNIA***



IV. SOUTHERN CALIFORNIA

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

*REGIONAL GUIDE TO THE
COMMON MOSQUITOES OF
CALIFORNIA*

IV. SOUTHERN CALIFORNIA

by

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ASSOCIATION
of CALIFORNIA

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of the Colorado Desert (Bard, Palo Verde, and Imperial and Coachella Valleys), creates year-round conditions for continuous mosquito breeding among species like *Culex tarsalis* that are highly efficient vectors of mosquito-borne encephalitis. Both western equine encephalomyelitis (WEE) and St. Louis Encephalitis (SLE) viruses are hyperendemic to the Colorado Desert with viruses being isolated routinely from mosquito pools. More recently, SLE appears to have become well established in the Los Angeles Basin as a direct result of waste water disposal practices which enhances SLE transmission by urban production of *Cx. tarsalis* and *Cx. quinquefasciatus* (Say).

Southern California supports a number of species that are unique to the region. Both *Psorophora columbiae* (Dyar and Knab) and *Ps. signipennis* (Coquillett) are found in agriculturally developed areas of the Colorado Desert along with *Ochlerotatus thelcter* (Dyar) and the tree hole breeding *Oc. deserticola* (Zavortink) and *Oc. purpureipes* (Aitken). Populations of *Uranotaenia anhydor* (Dyar) have been found at Saratoga Springs within Death Valley National Monument and Anza-Borrego Desert (San Felipe Creek). Two species of *Culex* within the subgenus *Melanoconion* include *Cx. anips* Dyar (San Diego County) and recently discovered *Cx. erraticus* (Dyar & Knab) (Imperial County). In the future, human activity and changes in agricultural practices may result in the establishment of a number of species found in western Arizona and northern Baja California. Surveillance efforts along the lower Colorado River may eventually sample "encroaching" populations of *Oc. trivittatus* (Coquillett), *Oc. sollicitans* (Walker), and *Ps. howardii* (Coquillett). Coastal areas may have to deal with a fortuitous introduction of the "Asian Tiger Mosquito," *Aedes albopictus* (Skuse) and the "Yellow Fever Mosquito," *Ae. aegypti* (Linnaeus).

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



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THE MOSQUITOES OF CALIFORNIA (HIGHLIGHTING THOSE OF SOUTHERN CALIFORNIA)

* <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>Orithopodomyia 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.

DISTRIBUTION OF CALIFORNIA MOSQUITOES BY COUNTY

REGION	COUNTY	Aedes		Ochlerotatus																					
		hemiteles	vexans	bicristatus	campestris	calaphylla	deserticola	dorsalis	fitchii	flavescens	hexodontus	inceptus complex	melanimon	nigromaculis	niphadopsis	pullatus	purpureipes	schizopinax	stierrensis	squamiger	sticticus	taeniorhynchus	tahoensis	thelcter	ventrovittis
COASTAL	Del Norte	X					X				X								X						
	Humboldt		X	X				X	X		X								X						
	Mendocino		X	X				X			X		X						X						
	Sonoma			X				X			X	X	X						X	X					
	Lake		X	X					X		X	X	X						X						
	Napa			X				X			X		X						X	X					
	Marin			X				X			X		X						X	X					
	Solano		X					X			X	X	X						X	X					
	San Francisco																		X						
	Alameda		X					X			X		X						X	X					
	Contra Costa		X					X			X	X	X						X	X					
	Santa Clara							X			X	X	X						X	X					
	San Mateo				X			X			X								X	X					
	San Benito												X						X	X					
Santa Cruz							X			X								X							
Monterey							X			X		X						X	X						
GREAT BASIN AND EASTERN SIERRA	Siskiyou	X	X		X	X	X	X		X	X	X	X	X				X							
	Trinity			X				X		X	X								X						
	Shasta	X	X		X	X	X	X	X	X	X	X	X						X		X		X		X
	Modoc	X	X		X	X	X	X	X	X	X	X	X	X				X	X						X
	Lassen	X	X		X	X	X	X	X	X	X	X	X	X				X					X		X
	Plumas	X	X		X	X	X	X	X	X	X	X	X	X				X	X				X		X
	Sierra	X			X	X	X	X	X	X	X							X	X				X		X
	Alpine	X			X	X	X	X	X	X					X			X	X				X		X
	Mono	X	X		X	X	X	X	X	X	X		X		X			X					X		X
	Inyo		X		X	X				X	X	X	X		X			X					X		X
CENTRAL VALLEY AND WESTERN SIERRA	Tehama	X	X		X			X		X	X	X	X					X		X		X			
	Butte		X							X	X	X						X					X		
	Glenn		X								X	X						X							
	Colusa		X					X			X	X	X					X		X					
	Sutter		X					X			X	X	X					X		X					
	Yuba		X								X	X	X					X		X					
	Yolo		X								X	X	X					X		X					
	Sacramento		X	X				X			X	X	X					X		X					
	San Joaquin		X	X				X			X	X	X					X		X					
	Stanislaus		X					X			X	X	X					X		X					
	Merced		X					X			X	X	X					X		X					
	Madera		X								X	X	X	X				X		X		X		X	X
	Fresno	X	X		X			X			X	X	X	X	X		X		X		X		X		X
	Kings		X									X	X					X							
	Tulare		X			X					X	X	X	X	X		X		X				X		X
	Kern		X					X			X		X						X						
	Nevada	X				X			X		X	X	X					X	X				X		X
	Placer	X	X	X		X			X		X	X	X	X				X	X				X		X
El Dorado	X	X	X		X			X		X	X	X	X				X	X				X		X	
Amador	X	X	X		X			X	X	X	X	X	X					X				X		X	
Calaveras			X				X			X	X		X					X				X		X	
Tuolumne		X			X			X		X	X				X			X		X		X		X	
Mariposa	X			X			X			X	X							X		X		X		X	
SOUTHERN CALIFORNIA	San Luis Obispo						X			X		X						X	X						
	Santa Barbara						X			X	X	X						X	X		X				
	Ventura						X			X								X	X		X				
	Los Angeles					X	X			X		X							X	X		X			
	Orange									X	X	X							X	X		X			
	San Diego					X	X			X	X	X							X	X		X			
	San Bernardino		X			X	X			X	X	X				X			X			X			
	Riverside		X			X	X			X	X	X				X			X	X		X		X	
Imperial		X				X									X			X			X		X		

DISTRIBUTION OF CALIFORNIA MOSQUITOES BY COUNTY

REGION	COUNTY	Anopheles					Culex										Culiseta				Others						
		franciscanus	freeborni	hernesi	occidentalis	punctipennis	anips	apicalis	boharti	erraticus	erythrothorax	pipiens/quinque.	reevesi	restuans	stigmatosoma	tarsalis	ternians	thriambus	impatiens	incidens	inornata	particeps	Cq. perturbans	Or. signifera	Ps. columbiae	Ps. signipennis	Ur. anhydor
COASTAL	Del Norte	X	X		X	X		X	X		X	X		X	X	X			X	X	X	X					
	Humboldt	X	X		X	X		X	X		X	X		X	X	X			X	X	X	X					
	Mendocino	X	X		X	X		X	X		X	X		X	X		X		X	X	X	X	X				
	Sonoma	X	X		X	X		X	X		X	X		X	X		X		X	X	X	X					
	Lake	X	X		X	X		X	X		X	X		X	X	X			X	X	X	X	X				
	Napa	X	X		X	X		X	X		X	X		X	X		X		X	X	X	X	X				
	Marin	X	X		X	X		X	X		X	X	X		X	X		X		X	X	X					
	Solano	X	X			X		X	X		X	X		X	X				X	X	X	X					
	San Francisco				X						X			X	X				X	X	X						
	Alameda	X	X		X	X		X	X		X	X		X	X				X	X	X						
	Contra Costa	X	X		X	X		X	X		X	X		X	X		X		X	X	X				X		
	Santa Clara	X	X		X	X		X	X		X	X		X	X				X	X	X						
	San Mateo	X	X	X	X	X		X	X		X	X	X		X	X			X	X	X				X		
	San Benito	X	X		X			X	X		X				X	X			X	X							
Santa Cruz	X	X		X	X		X	X		X	X		X	X				X	X	X							
Monterey	X	X		X	X		X	X		X	X	X	X	X			X	X	X	X							
GREAT BASIN AND EASTERN SIERRA	Siskiyou	X	X			X								X	X	X			X	X	X	X					
	Trinity	X	X			X		X	X					X	X	X			X	X	X	X					
	Shasta	X	X			X		X	X					X	X	X	X	X	X	X	X	X	X				
	Modoc		X			X				X	X	X			X				X	X							
	Lassen	X	X			X								X	X				X	X							
	Plumas	X	X			X		X						X	X	X			X	X	X		X				
	Sierra		X					X						X	X	X			X	X	X						
	Alpine	X						X							X				X	X	X						
	Mono		X											X	X				X	X	X						X
	Inyo	X	X			X				X	X			X	X				X	X	X	X		X			X
	Tehama	X	X			X		X	X		X	X		X	X	X	X		X	X	X	X	X				X
CENTRAL VALLEY AND WESTERN SIERRA	Butte	X	X			X		X	X		X	X		X	X	X	X		X	X	X	X	X				
	Glenn	X	X					X	X		X	X		X	X		X		X	X							
	Colusa	X	X			X				X	X			X	X				X	X							
	Sutter	X	X			X		X			X	X		X	X				X	X				X			
	Yuba	X	X			X		X	X		X	X		X	X	X	X		X	X	X	X	X				
	Yolo	X	X			X		X		X	X			X	X		X		X	X	X		X				
	Sacramento	X	X			X		X	X		X	X		X	X		X		X	X	X	X	X				
	San Joaquin	X	X			X		X		X	X			X	X		X		X	X	X	X	X				
	Stanislaus	X	X			X		X		X	X			X	X		X		X	X	X	X	X				
	Merced	X	X			X		X	X		X	X		X	X	X	X		X	X	X	X	X				
	Madera	X	X			X				X	X			X	X		X		X	X							
	Fresno	X	X			X		X		X	X		X	X	X	X	X		X	X	X	X	X				
	Kings	X	X			X					X			X	X				X	X							X
	Tulare	X	X			X		X	X		X			X	X		X		X	X	X						X
	Kern	X	X			X		X	X		X	X		X	X		X		X	X	X	X	X				X
	Nevada	X	X			X		X	X		X	X		X	X	X	X		X	X							
	Placer	X	X			X		X	X		X	X		X	X	X	X		X	X	X	X					X
	El Dorado	X	X			X		X			X			X	X	X	X		X	X	X	X					
	Amador	X	X			X		X	X		X			X	X				X	X					X		
	Calaveras	X	X			X		X	X		X			X	X				X	X	X	X	X				X
Tuolumne	X	X			X		X	X					X	X		X		X	X	X							
Mariposa	X				X		X	X		X			X	X	X	X		X	X								
SOUTHERN CALIFORNIA	San Luis Obispo	X		X	X		X	X		X	X	X	X	X	X		X		X	X	X						
	Santa Barbara	X		X	X	X		X	X		X	X	X	X	X		X		X	X	X						
	Ventura	X		X				X	X		X	X	X	X	X		X		X	X	X						
	Los Angeles	X		X				X	X		X	X	X	X	X		X		X	X	X				X		
	Orange	X		X				X	X		X	X	X	X	X		X		X	X	X						
	San Diego	X		X			X	X	X		X	X	X	X	X		X		X	X	X		X			X	
	San Bernardino	X	X	X		X		X		X	X		X	X	X				X	X	X		X	X	X	X	
Riverside	X	X	X				X		X	X	X		X	X	X		X		X	X	X		X	X	X		
Imperial	X	X							X	X	X		X	X				X	X	X				X	X		