MOSQUITO CONTROL

When mosquito numbers become high or there is a disease threat, local mosquito abatement districts control the immature mosquito stages in the water.

★ **Physical**
A habitat can be modified to reduce standing water so immature mosquitoes do not develop.

★ **Biological**
Naturally occurring beneficial insects such as backswimmers, beetles, and dragonflies can help to control immature mosquitoes. Mosquito Fish can be introduced to feed on immature mosquito stages.

★ **Larvicides**
When natural predators and other methods cannot reduce mosquito populations, environmentally compatible materials are applied. A bacterial protein crystal (BTI), an insect growth regulator (methoprene), or surfactants that break water surface tension can temporarily control immature mosquitoes.

MOSQUITO-BORNE DISEASES

★ **Encephalitis and West Nile Virus**
Encephalitis (sleeping sickness) and West Nile Virus are flu-like illnesses that can cause a high fever and inflammation of the brain. Severe cases can result in mental retardation, motor impairment, or death. Mosquitoes become infected while feeding on birds that harbor the virus. They can then transmit the virus to humans and animals.

★ **Malaria**
A protozoan (single-celled organism) that attacks red blood cells. Malaria is a chills/ fever/sweating flu-like illness that reoccurs every 2 to 3 days. The Malaria parasite can cause liver and kidney damage or death. Mosquitoes become infected while feeding on other humans that harbor the parasite.

PERSONAL PROTECTION FROM MOSQUITOES

★ Reduce outdoor activities during peak feeding periods (1 to 2 hours after dark).

★ Wear long pants and sleeves.

★ Apply insect repellent containing DEET, Oil of Lemon Eucalyptus, Picaridin, or IR3535.

FIRST AID FOR MOSQUITO BITES

★ Wash bite with soap and water.

★ Apply anti-itch medication.

★ Apply cold cloth for swelling.

★ Watch for secondary infections.

For more information call:

MOSQUITO and VECTOR MANAGEMENT DISTRICT
of Santa Barbara County
OFFICE: 2450 Lillie Ave. ∗ MAIL: P.O. Box 1389
Summerland, CA 93067
TELEPHONE: (805) 969-5050
E-MAIL: mvmdistrict@mvmdistrict.org

Check out our Public Information Website:
www.mvmdistrict.org

Ken Boyce & Susan Maggy
Sac/Yolo MVCD
6/94

MOSQUITOES AND WETLANDS

AN INDEPENDENT SPECIAL DISTRICT WORKING FOR YOU!

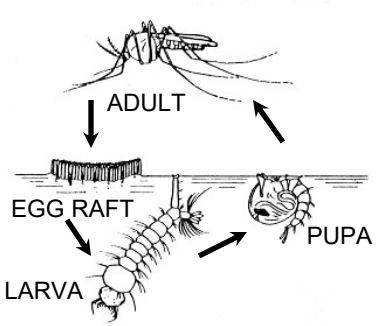
MOSQUITO and VECTOR MANAGEMENT DISTRICT
of Santa Barbara County

GENERAL INFORMATION

Wetlands are environments where plant and animal life that requires water live. An adult mosquito will lay her eggs in wetlands when water becomes stagnant and weeds grow.

Mosquitoes are blood-sucking insects. Their biting habits can be irritating and often make outdoor activities unenjoyable. Mosquitoes are important because some types can transmit organisms that can cause diseases in pets, domestic animals, and humans.

Mosquitoes have four life stages: egg, larva, pupa, and adult. Immature mosquito stages need standing water to complete their lifecycle.



MOSQUITO BITES

Female mosquitoes take blood meals from reptiles, birds, and mammals. Blood is used to produce eggs. A mosquito bite can cause you to develop:

★ **Itching**
An allergic reaction to mosquito's saliva which is injected to prevent blood from clotting.

★ **Swelling**
Body sends extra blood to the bite area.

★ **Secondary infections**
Scratching a bite allows bacteria to invade the wound.

★ **Mosquito-borne diseases**
Encephalitis, West Nile Virus, or Malaria.

COMMON MOSQUITOES FOUND IN WETLANDS

Fifty-two species of mosquitoes occur in California. A number of species, including the following, lay eggs in wetlands.

★ **Encephalitis Mosquito (*Culex tarsalis*)**
This mosquito can transmit encephalitis viruses (sleeping sickness), including West Nile Virus, to humans and horses. It is distributed throughout California. Immature stages develop in wetlands, duck clubs, rice fields, irrigated crops, slow-moving streams, and also in "backyard" water sources.

★ **Coastal Malaria Mosquito (*Anopheles hermsi*)**
This mosquito can transmit malaria to humans. It is common in the coastal valleys and canyons of California. Immature stages develop in wetlands, duck clubs, rain pools, and slow-moving streams.

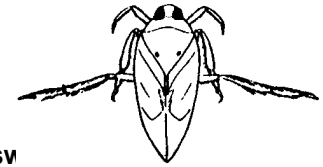
★ **Black Salt Marsh Mosquito (*Aedes taeniorhynchus*)**
This mosquito is active during summer and early fall. Adult females are vicious and aggressive day and night biters and may disperse many miles from breeding sources. Immature stages develop in coastal saltwater marshes, estuaries, and sloughs following periodic high tides. The **California Salt Marsh Mosquito (*Aedes squamiger*)** is a similar species that is active during winter and spring.

★ **Floodwater Mosquito (*Aedes washinoi*)**
Also called the Willow Mosquito, this species is active during winter and spring. Adult females are vicious and aggressive day and night biters. Immature stages develop in seasonal freshwater marshes and shallow ground pools following heavy winter and spring rains.

★ **Winter Mosquito (*Culiseta inornata*)**
This is California's largest mosquito species. It is active in fall, winter, and spring. Immature stages develop in brackish and freshwater marshes, vernal pools, and "backyard" sources.

NATURAL PREDATORS OF MOSQUITOES

Many aquatic insects and invertebrates that feed on mosquito larvae are present in wetlands.



★ **Backsw**
An aquatic insect 1/2 to 3/4 inches in length. They float upside down below the water surface. Backswimmers use piercing-sucking mouthparts to extract body fluids from mosquito larvae that it captures with its forelegs.

★ **Dragonflies**
Immature stages of dragonflies are aquatic. Adults remain near wetlands during summer months. Immature dragonflies (called naiads) prey on mosquito larvae using a pair of pincers on an extendable lower "lip." Adult dragonflies capture adult mosquitoes during flight with legs held like a "basket."

★ **Beetles**
Immature and adult stages of the Predaceous Diving Beetle, Water Scavenger Beetle, and Whirligig Beetle are aquatic. They swim through the water, returning to the surface for air. Beetle larvae use piercing-sucking mouthparts to extract body fluids from mosquito larvae.