

## MOSQUITOFISH



Mosquitofish, *Gambusia affinis*, are indispensable to our mosquito control program. The use of mosquitofish is a natural way of controlling mosquito larvae without the use of insecticides or chemicals. An adult mosquitofish can consume up to 100 larvae a day.

Mosquitofish are easily cared for and no special feeding is required. When no natural food is present, fish flakes can be used to feed the fish. Care is limited to protecting them from garden sprays, chlorine and other chemicals used to clean the pond. Females are larger than males and can grow to a maximum size of about 3 inches. They can produce 50 to 100 live young in a single brood.

Mosquitofish are provided free of charge to residents of the District to stock man-made, permanent sources of water such as backyard ponds, fountains, unused or "out of order" swimming pools and animal troughs. They can be picked up during normal business hours from the District. Mosquitofish should never be placed in any natural habitat such as lakes, streams, rivers, or creeks. Their introduction into certain natural habitats may disrupt the existing ecological balance.

## MOSQUITO-BORNE DISEASE

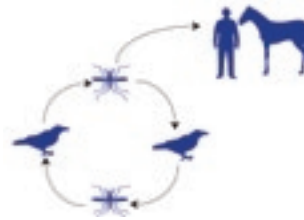
### MOSQUITO-BORNE DISEASES IN CALIFORNIA

- St. Louis Encephalitis (SLE)
- Western Equine encephalomyelitis (WEE)
- West Nile virus (WNV)
- Malaria
- Canine Heartworm (affects dogs and cats)

### ENCEPHALITIS

The natural transmission cycle of SLE, WEE and WNV involves mosquitoes and wild birds. These viruses are transmitted to people and animals by infected mosquitoes.

A mosquito first acquires the virus by feeding on an infected wild bird. The mosquito can transmit the virus to humans and other animals through future bites. Symptoms of encephalitis range from mild flu-like symptoms to severe brain involvement that may result in death. Horses are also susceptible to WEE and WNV.



### MALARIA

Although malaria vectors exist in California, malaria is less likely to occur here due to the necessity for human reservoirs of the disease. However, there have been isolated instances where humans from other countries temporarily provided a source of malaria infection to local residents.

### CANINE HEARTWORM

Infected mosquitoes can transmit the canine heartworm parasite to dogs, cats, and wild or domestic animals. The disease is caused by a roundworm which resides in an infected animal's lungs and heart. Canine heartworm incidence rates vary from 1% to 10% throughout California.

## VECTOR CONTROL

### WHAT IS A VECTOR?

An arthropod vector is any insect (or other arthropod) of public health significance that is capable of transmitting a disease or causing human discomfort or injury.

### OBJECTIVES

To abate existing mosquito breeding sources and to prevent new ones from forming in order to protect the public health and comfort of residents in our District.

### COOPERATION WITH OTHER AGENCIES

We work with city, county, state, and federal agencies toward the permanent correction of chronic breeding sources created by standing water in catch basins, subdivision drains, roadside ditches, flood channels, ravines, and similar places on public rights-of-way.

### PROPERTY OWNERS RESPONSIBILITY

The owner of the property on which a breeding source is located is responsible for the abatement of the nuisance and for the prevention of its recurrence. We inform the property owner of the mosquito breeding and assist in working out a satisfactory correction. In extreme cases where an owner does not accept his responsibility to the public, the nuisance may be abated by the District and a lien filed against the property owner as provided by the California State Health and Safety Code.

# ARE YOU RAISING MOSQUITOES?



## CONTACT THE DISTRICT (310) 915-7370

- If you are bothered by mosquitoes
- If you need assistance with breeding sources on or around your property.
- If you would like to obtain mosquitofish.

### Los Angeles County West Vector Control District

6750 Centinela Avenue  
Culver City, CA 90230  
(310) 915-7370  
[www.lawestvector.org](http://www.lawestvector.org)

## Did You Know?



- All mosquitoes must have water to complete their life cycle. Only 7-10 days are required to complete their life cycle (egg to adult) during warm weather.
- Mosquitoes do not develop in grass or shrubbery, although flying adults may frequently rest in these areas during daylight hours.
- Both male and female mosquitoes feed on plant juices. Only the female mosquito bites to obtain a blood meal to produce her eggs.
- Several of the 53 known species of mosquitoes in California are potential vectors for mosquito-borne diseases.

## MISTAKEN IDENTITIES

### CRANE FLY

- Usually larger than a mosquito
- Breeds in moist soil or water
- Cannot bite (no proboscis)
- Does not feed on mosquitoes



### CHIRONOMID MIDGE

- Similar in size to a mosquito
- Breeds in similar habitats as mosquitoes
- Cannot bite (no proboscis)



### BLACK FLY

- Small, biting fly
- Breeds in flowing streams and rivers
- Can inflict a painful bite



## MOSQUITO LIFE CYCLE

EGG → LARVA → PUPA → ADULT

### EGGS

Often laid in clusters called “rafts” that float on top of stagnant water. Each raft contains 100 to 400 eggs. Eggs hatch in a few days.



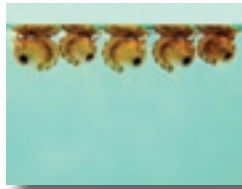
### LARVAE

Larvae or ‘wigglers’ come to the surface to breathe through a tube called a siphon. Larvae feed on organic matter. Larvae grow and shed their skin four times before becoming pupae.



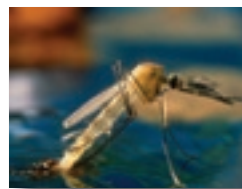
### PUPAE

Pupae, or ‘tumblers’, do not eat in this stage. The adult mosquito develops inside the pupa and will emerge in approximately two days.



### ADULTS

Newly emerged adults rest on the surface of the water until strong enough to fly away, mate and feed. Females may live as long as three weeks in the summer and up to several months over the winter in order to lay her eggs the following spring.



## COMMON BACKYARD MOSQUITO BREEDING SOURCES

You can help control mosquitoes by removing stagnant water from these common backyard breeding sources.



## PROTECTION FROM MOSQUITOES

### FIND SOURCES

Look for anything that can hold water for more than a few days. Potential breeding sources should be drained and/or cleaned regularly.

### USE MOSQUITOFISH

Mosquitofish can eat hundreds of mosquito larvae a day in a backyard pond or other permanent source of water.

### AVOID THEM

Limit outside activity when mosquitoes are most active (usually between dusk and dawn).

### WEAR PROTECTIVE CLOTHING

Wear long sleeved shirts and pants when outdoors.

### WEAR REPELLENTS

Apply insect repellents. Be sure to read the labels and carefully follow instructions on all insect repellents.

### BLOCK THEM OUT

Make sure that doors and windows have tight fitting screens. Repair or replace screens that have tears or holes.