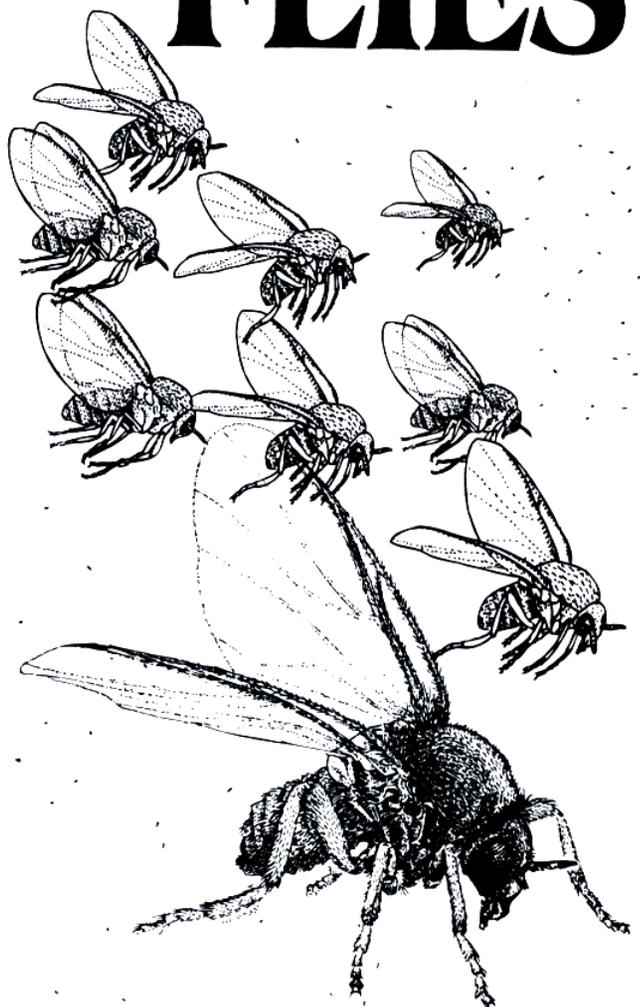
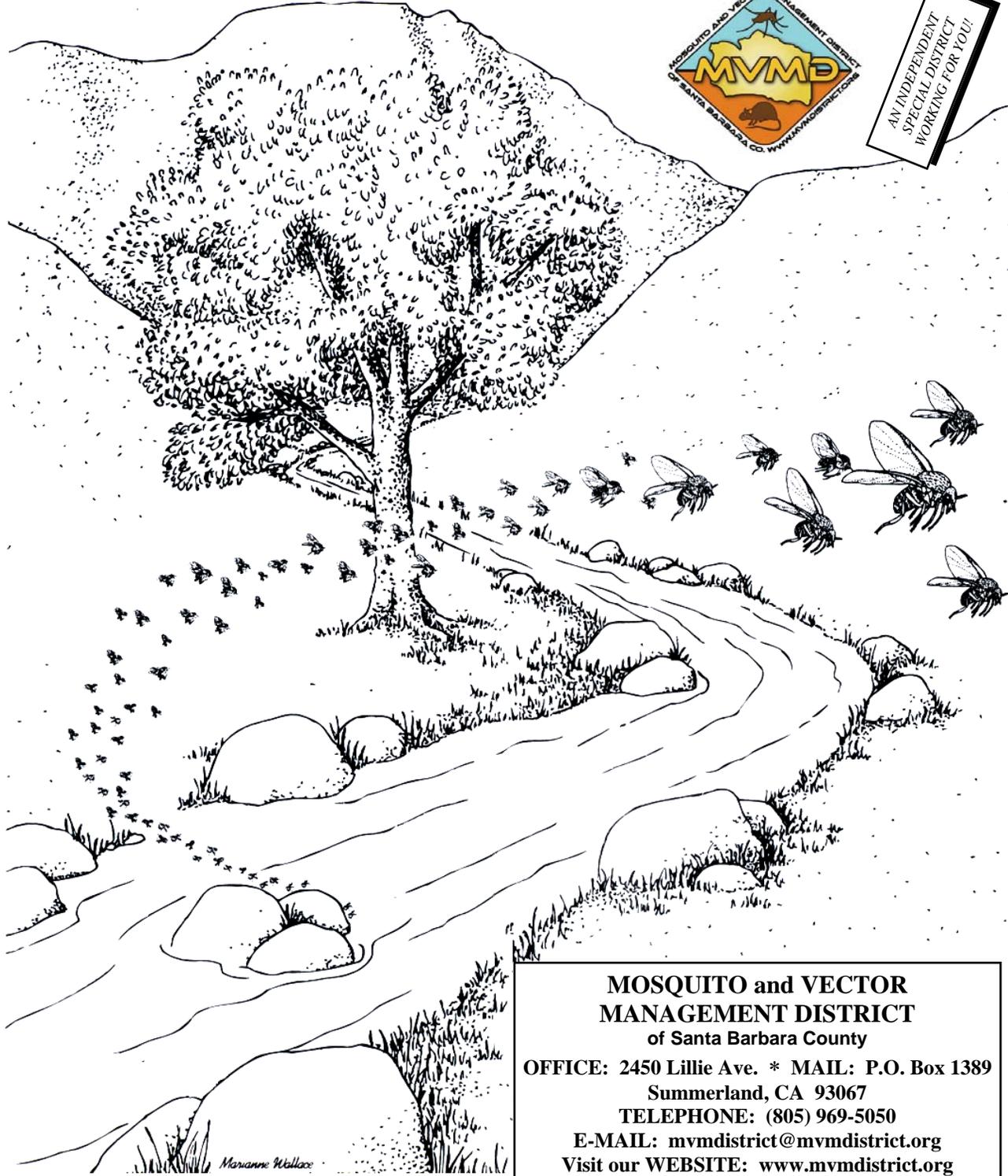




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# BLACK FLIES



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*Marianne Wallace*

# Black Flies



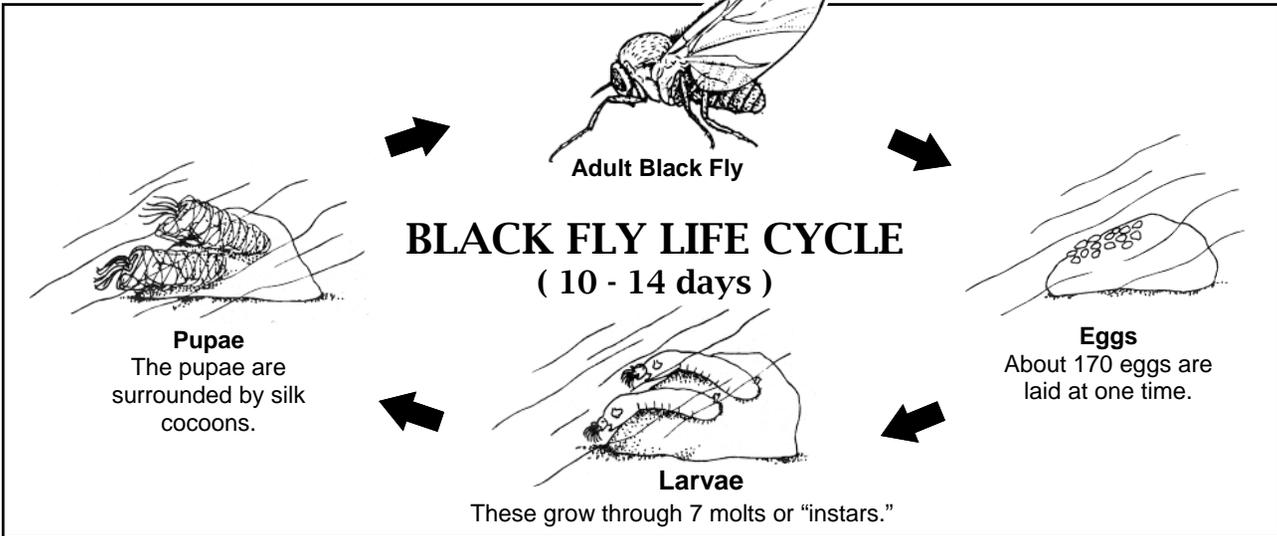
A very irritating pest found in local valley, foothill, and mountain areas is the Black Fly. They may be abundant, flying into eyes, ears, and nose of anyone nearby. Also, the females of some species bite humans and other mammals to get the blood meal required for egg development. Strong fliers, they may travel miles from breeding sources.

A fossil pupa found in Central Asia places Black Flies on the earth at least 160,000,000 years ago. To date, at least 1550 species have been found worldwide (see map at far right).

Black Flies breed in flowing water - from rivers and streams to irrigation ditches and accidental seepage. Masses of Black Fly larvae can be so thick that they impede the flow of water. Black Flies are usually found from Spring through Fall with the greatest numbers appearing in late Spring and

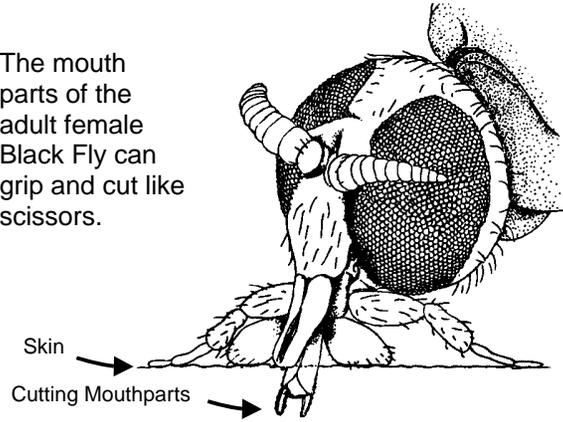
## LIFE CYCLE

The female Black Fly dives underwater and affixes an egg onto an object submerged in running water such as algae, a rock, or other substrate. Once the egg hatches, the larva re-attaches itself to an object by the use of hooks on the end of its abdomen. The larva feeds on organic matter flowing by in the moving water for about 7-10 days, then develops into a pupa. As with the larva, the pupa attaches itself to an underwater object. The adult Black Fly emerges into an air bubble about three days later, floats to the surface and flies away.

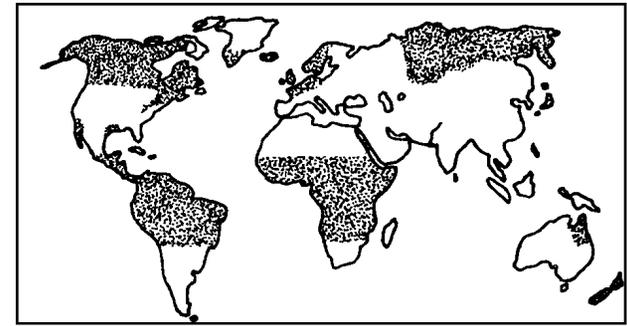


## FEMALE Black Fly

The mouth parts of the adult female Black Fly can grip and cut like scissors.



Saliva from the Black Fly can cause an allergic reaction resulting in an itchy welt similar to a mosquito bite. Some people experience a more acute reaction with localized pain and extensive swelling. Infection as a result of scratching the bite wound can also occur.



## DISEASE, CONTROL, and PROTECTION

Black Flies of tropical Africa and northern Latin America can transmit the filarial worm that causes a disease called "river blindness." Locally, Black Flies do not transmit disease, but can cause extreme discomfort and irritation due to their biting habits and/or great numbers.

Control efforts are directed at the Black Fly larvae found in flowing water. Ideally, stream flow is interrupted for a 24 hour period, killing most of the immature stages. If this is not possible, known breeding sites are treated with a larval pesticide called "BTI." BTI does not affect non-target species or humans. Spraying is sometimes used for adult Black Fly control, but is not as effective because of the adult's habit of resting on the underside of vegetation. In addition, new adults can fly into the area, re-infesting it within hours.

To protect yourself from biting adults, avoid areas where Black Flies are active during the day, wear protective clothing such as long pants and long sleeved shirts, and use insect repellent on exposed skin surfaces.

## PUNKIES or BITING MIDGES

These tiny flies (often called "no-see-ums") are even smaller than Black Flies. Adult females of some species are vicious biters, but do not transmit any known diseases in California. Weak fliers, they are rarely found far from breeding sources. Immature stages develop in aquatic