

Helping you
have a safer
summer

Keeping You Safe



Vector control stands on the front lines of prevention

A Long History of Community Service

Protecting public health for over 100 years

by MATT JOCKS

For more than 100 years, the Marin/Sonoma Mosquito & Vector Control District has protected the public from mosquitoes and other vectors.

A vector, as defined by the California Department of Public Health, is “any insect or other arthropod, rodent or other animal of public health significance capable of harboring or transmitting the causative agents of human disease, or capable of causing human discomfort and injury.”

And while the fundamentals of vector control have not changed much, the tactics of the district have. Modern communication, improvements in the science of control agents (e.g. mosquito larvicides and adulticides) and an emphasis on community outreach have enabled the district to control vectors in a way that is more efficient, effective and environmentally compatible.

While many of the district’s estimated 5,000 service calls a year involve vector population control, the emphasis is on prevention: using surveillance and input from the community to identify breeding sources, and making sure that mosquitoes are controlled in the larval stage before they are highly mobile, disease-transmitting adults. The district even employs some non-human assistants, distributing mosquitofish to residents with contained water features.

“We have developed a lot of programs over the years to prevent risks to public health amid emerging threats.”

TAMARA DAVIS
Trustee on the Board of MSMVCD

“We have developed a lot of programs over the years,” said longtime trustee Tamara Davis. “We have one of our staff members teach classes to school-age kids. The kids go home and talk to their parents about the things that they can do around the house to control mosquitoes.”

Kelly Liebman, Ph.D., scientific programs manager for the district, said 23 mosquito species are native to the region. Four species of particular concern — *Culex tarsalis*, *Culex pipiens*, *Culex erythrothorax* and *Culex stigmatosoma* — are important vectors of West Nile virus and St. Louis encephalitis virus. Additionally, the district works to combat *Aedes sierrensis*, the primary vector of dog heartworm.

Three invasive mosquitoes — *Aedes aegypti*, *Aedes albopictus* and *Aedes notoscriptus* — have been introduced



Kelly Liebman, Ph.D. knows first-hand the value of conducting research on vectors to combat the spread of disease.
PHOTO BY SAKHON NHEK

in other parts of the state, and the district has an extensive surveillance program to detect them if they should arrive in Marin or Sonoma County. To date, no invasive species have been found in either Marin or Sonoma County.

Although mosquitoes get the most attention, the district also deals with yellowjackets, ticks and rodents. By a narrow margin, the removal of yellowjacket nests accounted for the most service calls the agency received in 2018. In addition to the mosquito surveillance program, the district has an extensive tick surveillance program, focusing on collecting western black-legged, Pacific Coast and American dog ticks from local parks. Western black-legged ticks are then tested for the bacterium that causes Lyme disease.



Marin/Sonoma Mosquito and Vector Control District by the numbers



Founded:

1915

the first organized mosquito abatement district in California



Service Area:

2,300

sq miles for both Marin and Sonoma



Population Served:

765,722

plus 25 million visitors a year



Community Support:

95%

of residents are satisfied with their service



Mosquito Species:

23

in Marin and Sonoma counties

Novato resident Jean Harris has been collaborating with the MSMVCD for 20 years and deeply appreciates the staff's educational background and the agency's services.
PHOTO BY SAKHON NHEK

Partners in Public Health

Resident teams up with MSMVCD to control mosquitoes in her neighborhood

by Matt Jocks

When Jean Harris first asked for help from the Marin/Sonoma Mosquito & Vector Control District, her aggravation level was high and her expectation level was low.

"I don't normally reach out to government agencies," she said. "I figure it's just going to be a waste of time."

Twenty years later, Harris and MSMVCD are old friends. Though mosquitoes haven't left her neighborhood in Novato, the partnership she and her neighbors have formed with MSMVCD has helped to keep the insects under control.

"I was really surprised at their level of response," Harris said. "They really are more like a group of family members than a government agency. They follow up and they follow through."

What impresses Harris the most about MSMVCD is the extent of their educational work. When Harris reached out initially, she said she knew next to nothing about mosquitoes. Representatives taught her about the different mosquito species; it turned out the trees and aquatic habitats in and around her property contained several different ones.

Marc Nadale, MSMVCD field supervisor for Marin County, said this kind of communication is vital in vector control and public

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JEAN HARRIS
Novato resident

health. MSMVCD can provide temporary vector control and relief, but residents need to be informed so they can help serve as the eyes and ears for the district. In the best-case scenario, local residents and MSMVCD can work together to identify breeding areas early and prevent larvae from hatching as flying, biting, disease-transmitting adults.

Communication and education are also key to informing residents about the components of MSMVCD's Integrated Vector Management Program, including the use of public health pesticides.

"We try to talk to the residents and let them know, for instance, about the science and technology involved in public health pesticides, some of which are labeled for use in organic production," Nadale said. "Fogging, or adult mosquito control, is the last step in MSMVCD's integrated program. We also work with residents and property owners to gain access for efficient and effective vector control."

Part of the education process also involves letting neighbors know how they can address the mosquito problem by eliminating small sources of standing water around their homes.

For longtime residents like Harris, MSMVCD seems more like a neighbor than a government agency.

"They have always taken care of our problems," Harris said. "And they are always willing to take the time. I have never felt like a pest myself for calling them. I have felt like we are all in a community, working together."



A Kinder, Gentler Form of Pest Control

Scientific advancements in vector control make mosquito prevention friendlier to the people and pets who share space with these buzzing vectors.

"Scientists work to minimize the amount and extent of pesticide application," said Dr. Sharon Lawler, professor of Entomology and Nematology at UC Davis. "They've also developed materials that protect non-target animals. There are several low-impact options."

The optimal strategy is to eliminate the mosquitoes before they become adults, treating the larvae with bacteria. That is why MSMVCD conducts ongoing surveillance to look for breeding areas.

When mosquitoes emerge, they are treated with pesticides, but science has enabled the district to minimize the impact pesticides have on the environment and our health.

The new generation of pesticides can be used at low volumes with materials that evaporate quickly, minimizing impact to other insects. Applications are targeted to specific times — generally dusk and dawn — and are typically limited to locations specific enough to treat from the ground.



2018 Service Calls:

5,765

2,739 for yellowjacket nests
2,119 for mosquitoes



Breeding Grounds:

20,000+

known sources of mosquito
breeding regularly checked

You Can Help

The Marin/Sonoma Mosquito & Vector Control District has a long history of managing mosquito populations, but they can't do it alone. Mosquito control is everyone's responsibility. Being proactive is the key to managing mosquito populations and decreasing the risk of mosquito-borne disease. Any item that holds water for more than 72 hours has

the ability to produce mosquitoes. You can help by routinely checking around your property and eliminating items holding water, stocking permanent water features with mosquitofish and reporting mosquito problems. Your efforts can make a huge difference in keeping Marin and Sonoma counties safe.

Request Free Services

Visit www.ms mosquito.com or call **707-285-2200** to report mosquito problems or get advice on how you can help prevent the spread of vectors.



GET MOSQUITOFISH FOR FREE!

A trained technician will stock your pond or water feature and leave a note on your door. There is no need to be home.

Call **707-285-2200** to request delivery, or place a request online at www.ms mosquito.com.



Repellents You Can Rely On



Insect repellents do more than just prevent annoying insect bites, they're the first line of defense for mosquito-borne and tick-borne illnesses. When choosing an insect repellent, be sure it's one with an active ingredient that has been registered with the Environmental Protection Agency (EPA). When used as directed, EPA-registered insect repellents are proven safe and effective.

EPA-registered repellents will contain one of the following active ingredients:

- DEET
- Picaridin
- IR3535
- Oil of Lemon Eucalyptus (OLE)
- Para-menthane-diol (PMD)

DEET concentrations up to 30% have been approved by the American Academy of Pediatrics for children 2 months and older. **Oil of Lemon Eucalyptus or PMD should NOT be used for children under 3 years of age.** Always follow label instructions, which specify the correct amount to apply for each age and how often to reapply repellent.

