



California Mosquito Experts Use Innovative Technologies to Control Disease-Spreading Mosquitoes

National Mosquito Control Awareness Week, observed June 16-22, 2024, educates residents about mosquitoes and how to help prevent the spread of mosquito-transmitted diseases

SACRAMENTO, June 10, 2024 — As invasive mosquitoes continue to spread throughout the state, [mosquito experts](#) are increasingly looking to innovative mosquito control methods to protect public health. Invasive *Aedes* mosquitoes, which can spread pathogens that cause diseases such as dengue, Zika, and chikungunya in people, and animal heartworm in pets, are currently in [24 counties throughout California](#).

Invasive *Aedes* are difficult to control and need very little water to survive and reproduce. Female *Aedes* mosquitoes lay sticky eggs in small water sources in front yards, backyards, and patios. These are areas that residents often don't think to check and where mosquito control districts can't easily inspect or control. Also, their eggs are resistant to drying out and can survive for over a year.

Due to the difficult nature of controlling invasive mosquitoes, mosquito and vector control districts in California are turning to Sterile Insect Techniques (SIT) and other innovative technologies, such as drones, to supplement traditional control efforts. SIT targets specific kinds of mosquitoes while reducing the use of insecticides and the chances of insecticide resistance in mosquitoes.

"Invasive *Aedes* mosquitoes have adapted to urban and suburban environments throughout the state," said Conlin Reis, president of the [Mosquito and Vector Control Association of California](#). "Residential properties are the primary sources for these mosquitoes. They are aggressive daytime biters — not only are they a nuisance, they can spread debilitating and deadly diseases."

One SIT program currently being used in Southern California uses [irradiation](#), which involves sterilizing non-biting male mosquitoes with low levels of X-ray technology. When the sterile male *Aedes* mosquitoes are released to mate with wild female mosquitoes, the resulting eggs will not hatch. This process helps safely control local mosquito populations because male mosquitoes do not bite and cannot transmit pathogens that cause diseases.

Another SIT technique involves the use of [Wolbachia](#), a bacteria naturally found in about 60% of insects around the world. Male *Aedes* mosquitoes are raised in a lab with a specific type of *Wolbachia* that they don't normally have. Then these non-biting male mosquitoes are released to mate with wild female *Aedes* mosquitoes that have a different type of *Wolbachia* or none at all, and the resulting eggs don't hatch. The use of *Wolbachia* to control mosquitoes was recently approved by the U.S. Environmental Protection Agency and the California Department of Pesticide Regulation.

All of these innovative technologies are designed to control disease-spreading mosquitoes by reducing the number of mosquitoes in local areas. These technologies do not replace traditional control methods and are used as part of an Integrated Vector Management program.

In addition to invasive *Aedes* mosquitoes, Californians need to take preventative actions against *Culex* mosquitoes, which can transmit West Nile virus, the most prevalent and serious disease transmitted by mosquitoes in California. There is no human vaccine for West Nile virus, a disease that can cause debilitating cases of meningitis, encephalitis, and even death. In 2023, there were 433 human West Nile virus disease cases from 35 counties in California, including 19 human deaths. The number of human cases in 2023 was more than double those in 2022.

Everyone can do their part to help control mosquitoes and prevent mosquito bites:

- Eliminate all sources of standing water on your property, including in flowerpots, old tires, buckets, pet dishes, and trash cans and scrub containers to remove mosquito eggs.
- Repair leaking faucets and broken sprinklers that can contribute to standing water around your home.
- Clean rain gutters that are clogged with leaves so mosquitoes don't develop in standing water.
- Install screens on windows and doors and keep them in good repair to keep mosquitoes out of your home.
- Apply insect repellent containing an EPA-registered active ingredient, including DEET, picaridin, oil of lemon eucalyptus repellent, or IR3535, to clothes and exposed skin according to label instructions. Repellents keep mosquitoes from biting. It is important to follow product label instructions for the safe use of repellents on children.
- Dress in long sleeves and pants, especially if outside at dawn and dusk when mosquitoes that can spread West Nile virus are most active.
- Report neglected swimming pools and day-biting mosquitoes to your local mosquito and vector control agency (local agency information can be found at www.mvcac.org)

To learn more, please visit the [MVCAC website](#) or the [California Department of Public Health Mosquitoes and Mosquito-Borne Diseases webpage](#).

About MVCAC

The [Mosquito and Vector Control Association of California](#) (MVCAC) is the statewide voice for mosquito and vector control professionals. The association provides public health information, expertise, mosquito and vector-borne disease surveillance, innovative research, professional training, effective legislative and regulatory advocacy on behalf of California public agencies.

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