

FIGHT THE BITE!



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PLACER
MOSQUITO
& VECTOR
CONTROL
DISTRICT

A SPECIAL ADVERTISING SUPPLEMENT

FIGHT THE BITE!

All Year Long

Four seasons of mosquito prevention and protection to help keep your family safe



Spring

- Mosquito season officially kicks off as temperatures warm.
- Mosquitoes in the genus *Aedes* are abundant at mountainous elevations as the [snow melts](#).
- At foothill elevations, aggressive *Aedes sierrensis* mosquitoes peak in early spring. *Aedes* is a vector for animal heartworm, so [treat your pets](#) monthly.
- Make sure all [windows](#) and [doors](#) are [fitted with screens](#), and that screens have no tears.
- Mosquitoes need [water](#) to breed. [Remove, turn over or cover any containers](#) that collect rainwater.
- West Nile virus begins appearing in bird populations. [Report](#) any [dead birds](#) to your mosquito and vector control district.



Summer

- Both mosquito and West Nile virus activity peak from June to August. [Wear repellent, long-sleeve shirts and long pants when outdoors](#), especially at dawn and dusk when mosquitoes are most active.
- The hotter the temperature, the faster mosquitoes reproduce. [Drain or change water](#) in bird baths and feeders, pet bowls, flowerpot saucers and fountains every few days.
- [Maintain pools and spas](#) properly, and report unmaintained pools to your district.
- Think you have a mosquito problem? Call your district for help.



Fall

- Mosquito season and West Nile virus cases can last into September and October.
- Continue with the **Three Ds**: [Drain](#) water, [Defend](#) with repellent, call your [District](#) for help.
- [Keep rain gutters and storm drains clear](#) of leaves and debris to ensure water drains easily.



Winter

- Mosquitoes need warm temperatures to grow from larvae to adult, so winter's chill drops their numbers. The larvae of some species can survive all winter in water, though, so [continue draining standing water](#).
- Bugged by a [bite](#) in the middle of winter? It's probably *Anopheles freeborni*, which hibernates through winter but will rouse around February and seek a blood meal to tide it over until spring.
- *Aedes* mosquitoes lay eggs that can survive in the snow! Their eggs hatch in the spring snowmelt to [start the cycle over](#).



Melody Kenney, pictured with her daughter, Jaclyn, went from being active and healthy to nearly paralyzed after being bitten by a mosquito infected with West Nile virus.
PHOTO BY BRAD GARRISON

The Road to Rec

Woman partially paralyzed after West Nile virus infection

Melody Kenney, 56, was enjoying the cool night air in her Redding backyard in August 2007 when she felt a mosquito biting her foot. She flicked it off and didn't think much about it as she went inside to start cooking dinner for her family. But in that brief span of seconds, her life was instantly changed.

A former dry-cleaning van driver, Kenney led a very active lifestyle running routes to offices and homes to pick up and deliver clothes. She was also a busy mom raising three children. Seven days after the mosquito bite, she began feeling severe flu-like symptoms. First, there was nausea. Then came the dizzy spells and tunnel vision. Something was wrong.

"The next day, I felt even sicker," Kenney says. "I couldn't eat and I was having trouble breathing. I called my sister who is a nurse and she called an ambulance for me after I collapsed while I was on the phone with her. I went straight to the [intensive care unit]."

It wasn't immediately apparent what was ailing Kenney. For two weeks, her doctors were at a loss, ordering several tests with all of them coming back with negative results. Kenney says it was like she was in the middle of an episode of the television drama "House," as she fell more and more ill while her

doctors worked toward a proper diagnosis. She began feeling pain all over her body.

"I had three kids by natural birth, but this was much worse," Kenney says. "They finally ordered a spinal tap and you're awake during that. It was very painful. That's when I learned I had West Nile virus."

"I had three kids by natural birth, but this was much worse."

Melody Kenney
West Nile virus survivor

Kenney says she had heard about West Nile virus in the area before — mostly in horses. But she never thought it was something that could happen to her. By the time she was diagnosed, the pain was excruciating. West Nile virus attacks the neurosystem and can cause brain damage, paralysis and even death. It is typically transmitted from bird to mosquito and then to a human host. Her doctors gave her morphine to help control the pain and waited for her to recover.

Two months later, Kenney was transferred to a rehabilitation facility.



Unwanted Guests

Invasive mosquito species and why they're dangerous

by Mike Blount

Mosquito species that are not native to California are sometimes introduced into the state through international shipping and trade. If they proliferate and begin to take a foothold, they have the potential to endanger public safety by spreading debilitating diseases.

Merry Holliday-Hanson, president of the Board of Trustees for the Placer Mosquito and Vector Control District, says mosquito and vector control districts must continually perform surveillance and work with the public to stop invasive mosquito species before they become a serious threat. Holliday-Hanson spent years studying invasive mosquito species and holds a doctorate in entomology.

She says two particularly dangerous species, *Aedes aegypti* and *Aedes albopictus*, serve as vectors for dengue virus and chikungunya virus. Dengue virus, also known as breakbone fever, causes extreme pain in joints and can be fatal. These invasive species also spread the viral disease yellow fever, which causes muscle pain, nausea and, in extreme cases, damage to the liver and kidneys. These viruses are

rare, but like the tropical disease West Nile virus, they could become real threats if the invasive mosquito species that transmit them are not controlled.

"It's going to be a challenge for all of California if these species become established."

Merry Holliday-Hanson
President of the Board of Trustees for the
Placer Mosquito and Vector Control District

"These two species are container breeders, meaning they can lay their eggs in anything that holds even a small amount of water," Holliday-Hanson says. "*Aedes albopictus*, the Asian tiger mosquito, became established in the United States after it was shipped here in a shipment of used tires. Likewise, *Aedes aegypti* was also shipped here in containers holding water from areas where they are endemic."

While both species have a foothold in the Southeast United States, Holliday-Hanson says they have yet to establish themselves in California. But there is concern that either species could spread into the state quickly if mosquito and vector control districts are not vigilant.

"It's going to be a challenge for all of California if these species become established," Holliday-Hanson says. "They can breed in something as small as a thimble full of water. Think about all the discarded cups along the freeway that could hold water."

Thankfully, there are systems in place to quickly detect both species. Special traps are used that encourage females to lay their eggs. And since both *Aedes aegypti* and *Aedes albopictus* prefer to coexist with humans, where they are breeding is usually not far from where they are detected. Through a combination of surveillance and source reduction, mosquito and vector control districts can keep both species from making California their home.

"Everyone's working very collaboratively to take the best course of action to prevent these species from taking a foothold," Holliday-Hanson says.

overy

by Mike Blount

By then, she was unable to even hold herself up and she weighed just 80 pounds. Doctors recommended physical therapy to help her regain muscle control in her legs.

"I thought that at any time, I would get feeling back and I would be able to walk again," Kenney says. "When I was leaving the hospital, they brought me a wheelchair and I told them, 'I'm not going to need that.' They said, 'Yes, you are.'"

Kenney was unable to use her legs at all and had trouble using her arms. Through hard work, Kenney was able to gain some feeling back in her feet. She was able to stand with the aid of a walker. Unfortunately, she was unable to continue physical therapy because it was not covered by Medicare. With new Medi-Cal coverage, she's returning to physical therapy later this year and she's optimistic about making even more progress.

"When I get back into physical therapy, I'm going to go full blown," Kenney says. "It was really hard on my husband. He died of congestive heart failure a few months after I was in the hospital. My kids have helped me a lot and I have an in-home support specialist that comes to help me four hours every day. But I'm looking forward to going back into physical therapy."

SPRAY MOSQUITOES AWAY

Keep your family safe from West Nile virus and other mosquito-borne illnesses. Use a mosquito repellent, consistently and correctly, anytime you go outside. Here are some tips:

DOs:

- ✓ Choose a repellent containing the EPA-approved active ingredients DEET, picardin, IR3535 or oil of lemon eucalyptus. 
- ✓ Always use repellent when you spend time outdoors, and especially at dawn and dusk. 
- ✓ Read and follow all label instructions. 
- ✓ Spray repellent lightly over every area of exposed skin — a mosquito can find a patch of untreated skin the size of a dime! 
- ✓ Reapply as often as directed by label instructions. 
- ✓ Cover skin by wearing loose-fitting, long-sleeved shirts and long pants. 

DON'Ts:

- ✗ Don't apply repellent to broken or irritated skin. 
- ✗ Don't spray repellent on heavily. Applying heavy coats of repellent doesn't make it work better or last longer. 
- ✗ Don't spray repellent near eyes, nose and mouth. Spray repellent into your hands instead and then rub on face. 
- ✗ Don't apply repellent to areas of children's hands that are likely to come in contact with the eyes or mouth. 
- ✗ Don't inhale or ingest repellent. 

Left: Joel Buettner is the general manager of Placer Mosquito and Vector Control District. Right: Peter Bonkrude is the district manager of Shasta Mosquito and Vector Control District.



Mosquito Control 101

Frequently asked questions answered by Vector Control District Managers Peter Bonkrude and Joel Buettner
by Mike Blount

What are mosquito and vector control districts and why is it important to control the mosquito population?

Mosquito and vector control districts are organizations dedicated to monitoring and controlling mosquitoes and other vectors that pose public health risks. Mosquito-borne diseases, such as malaria, dengue virus and West Nile virus can cause many debilitating effects and — in extreme cases — even death. Peter Bonkrude, district manager of Shasta Mosquito and Vector Control District, says his organization was founded in 1919 to fight malaria outbreaks.

How do mosquito and vector control districts determine places that need service?

Both Shasta and Placer mosquito and vector control districts use a combination of surveying, source reduction and traps to determine areas where mosquitoes are breeding and whether they are infected with any disease. They also interact with the public in neighborhoods to find problem areas.

How are mosquito and vector control districts working to be environmentally safe?

The mosquito and vector control districts in Shasta and Placer counties use an integrated pest management program. These utilize several tools to have the least impact on the environment as possible, including public outreach and education, source reduction and biological control.

Chemical control can be used to target mosquito larvae and adult mosquitoes with Environmental Protection Agency-approved pesticides. "We use just enough pesticides in the areas we need to achieve the results we want to achieve," says Joel Buettner, general manager of Placer Mosquito and Vector Control District.

What are some things people can do at their homes to help control mosquito populations?

Bonkrude says the most important thing homeowners can do is eliminate any standing water around their property, including gutters, buckets, birdbaths and anything collecting rain water. If there is a birdbath or pet water bowl, make sure to change out the water every three days. If there are water sources that cannot be eliminated, or you are unsure of how to keep mosquitoes breeding on your property, call your local mosquito and vector control district so it can evaluate the best control method.

How does drought affect mosquito breeding?

While less standing water means there are fewer places for mosquitoes to breed, drought could potentially lead to more mosquitoes infected with West Nile virus. Since West Nile virus is typically transmitted from bird to bird, more birds will congregate around fewer water sources. The potential for a mosquito to bite an infected bird and pass the disease on to a human becomes greater.

CONTACT YOUR CONTROL DISTRICT FOR **HELP!**



Shasta Mosquito and Vector Control District

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PLACER
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What we do

Surveillance/lab monitoring: Weekly traps are set and specimens are tested for the presence of mosquito-borne diseases.

Residential and commercial services: District employees survey your home or business and help you eliminate mosquitoes and the areas where they breed.

Mosquitofish: *Gambusia affinis* are a form of biological control that feed on unhatched mosquito larvae. Mosquitofish are distributed in abandoned or unused pools, spas, ponds and other bodies of water.

Educational presentations: Staff provide educational presentations year-round to groups of all ages.

Insect identification: Send in suspected public health pests to your district for identification and testing.

Mosquito control updates: The district will notify you of planned mosquito control treatments and provide information on vector-borne diseases detected in the area. Visit your district's website for spraying and disease update details.

Vector control: Other vectors, such as mice, ticks and yellowjackets, are monitored and controlled.

Mosquito and Vector Control Districts of Northern California

