

# Vector Control Report 2024



**COUNTY of VENTURA**

Resource Management Agency  
Environmental Health Division

**Resource Management Agency  
Environmental Health Division**  
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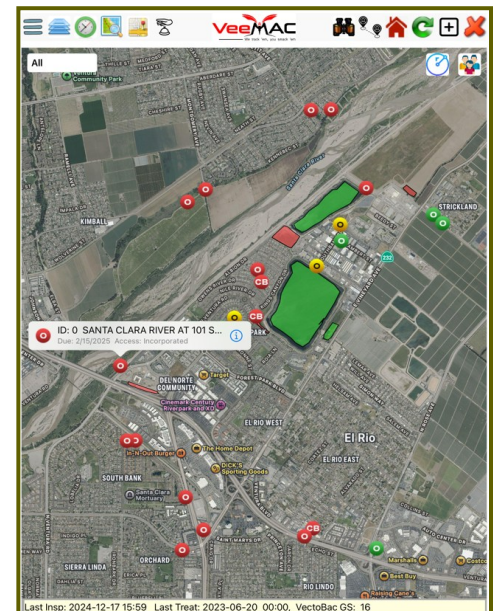


# 2024 – A Mixed Bag for Vector Control

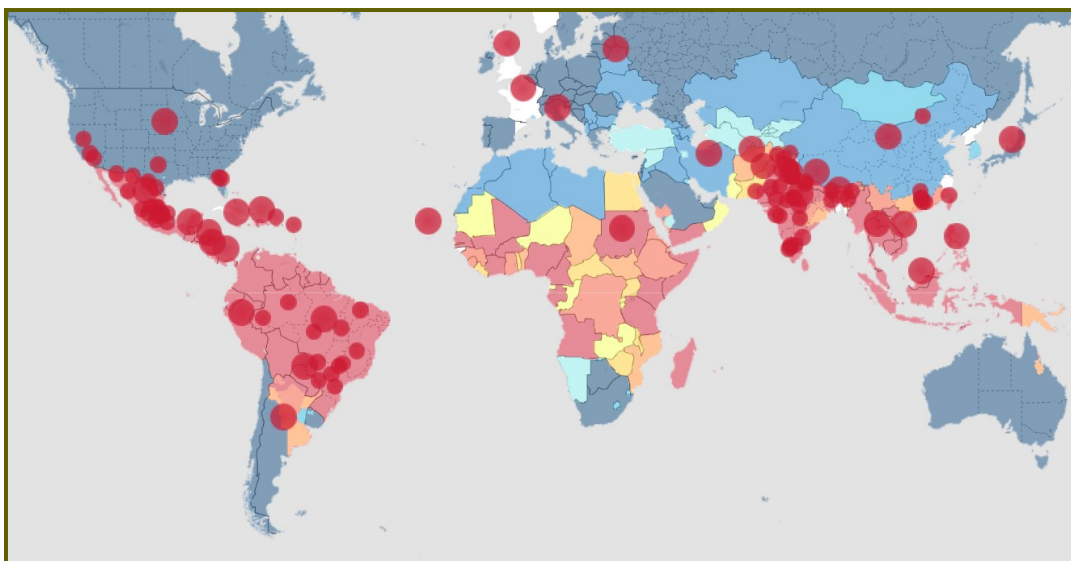


2024 brought some calm. For the first time since 2003 there were no mosquito samples, wild birds, or sentinel chickens positive for West Nile Virus, and no human WNV cases reported in Ventura County. Milder weather and other factors resulted in mosquito complaints and calls for service being down about 65%, from a record high amount in 2023.

2024 brought change and innovation. The Vector Control Program began using a new map based software program (VeeMAC). This software allows technicians to navigate to vector sites and enter their inspection, treatment, and trapping data in real time. VeeMAC allows technicians the ability to access information such as the treatment and inspection history of each vector site while they are in the field, from a tablet. With this software, each technician will receive a notification alert when a service request in the area they cover is entered on VeeMAC



2024 brought greater awareness to the issues we face with *Aedes aegypti* mosquitoes. Due to unprecedented outbreaks in parts of the world where dengue is endemic, there was an 84% increase in cases identified among U.S. travelers compared to 2023. In California, Invasive Aedes mosquitoes transmitted dengue to 18 people with no travel history, compared to two cases the previous year. No locally acquired cases were reported prior.





# 2024 REPORT OF VECTOR CONTROL ACTIVITIES

The Ventura County Environmental Health Division (Division) provides the following summary of Vector Control activities conducted during the calendar year 2024.



## Mosquito Control

Mosquito Control activities consist of Division staff inspecting potential mosquito sources and applying control measures when mosquito eggs, larvae, and/or pupae are observed. Staff follows the principles of Integrated Vector Management. Control measures may consist of source remediation, biological control, or application of pesticide.

## Source Inspection

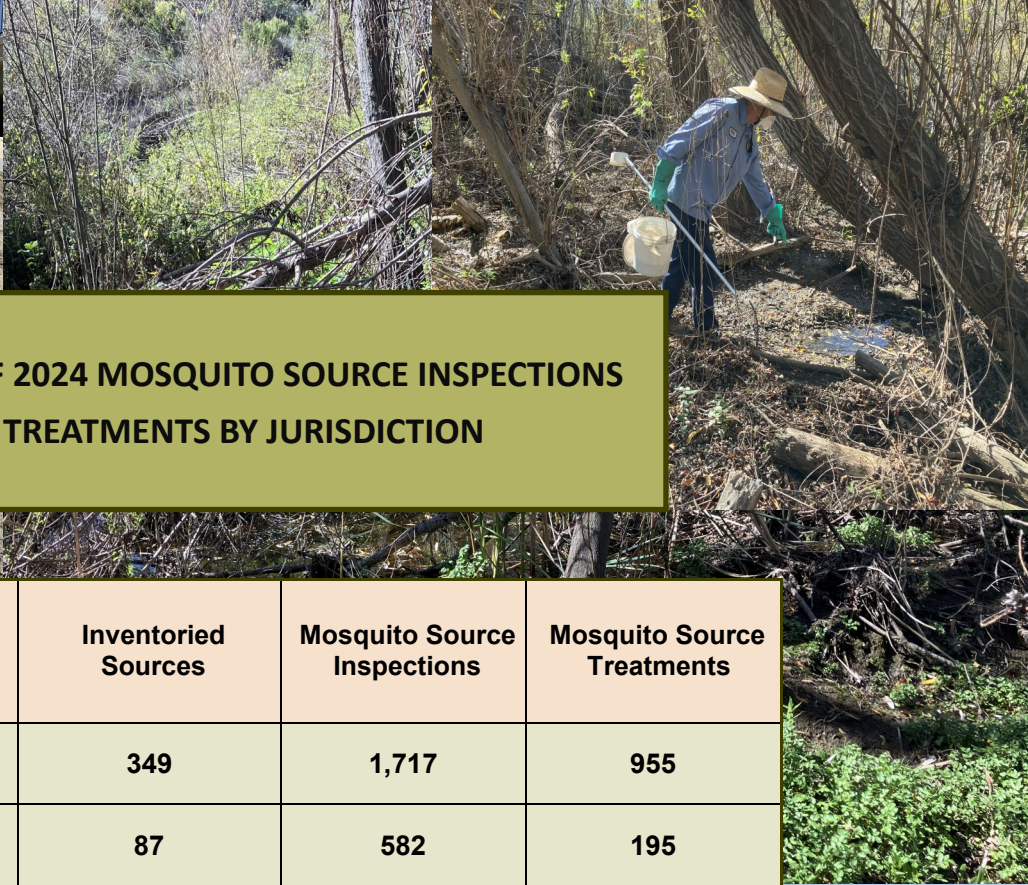
The program maintains a dynamic inventory of known mosquito sources (breeding sites).

Sources can vary from intermittent flooding, to manmade sources, to large natural areas with well developed biological systems such as riverbeds and wetland areas.

Inspections vary from weekly up to annual, and each source is evaluated based on historical breeding and other factors. Each site is assigned an inspection frequency to control mosquitoes and use program resources efficiently.







## SUMMARY OF 2024 MOSQUITO SOURCE INSPECTIONS AND TREATMENTS BY JURISDICTION

City	Inventoried Sources	Mosquito Source Inspections	Mosquito Source Treatments
Camarillo	349	1,717	955
Fillmore	87	582	195
Ojai	237	1,122	465
Oxnard	301	2,490	1,201
Port Hueneme	23	289	117
San Buenaventura	311	1,592	758
Santa Paula	107	587	173
Simi Valley	1003	6,869	2,956
Thousand Oaks	766	5,764	2,065
Unincorporated	243	1,433	689
<b>TOTAL:</b>	<b>3,427</b>	<b>22,445</b>	<b>9,574</b>





**Ventura County Vector Control Program uses mosquito control methods that achieve the optimal long term results while causing the least harmful impacts on the environment.**

- The Division maintains the capability of using pesticides that target adult mosquitoes in the event of a public health emergency, however our program adheres to the principles of Integrated Vector Management to achieve mosquito control with the most effective and least negatively impactful means.
- The Division primarily depends on control strategies such as:
  - physical alteration, prevention, or removal of the breeding source
  - introducing mosquito fish (*Gambusia affinis*) into isolated artificial water bodies such as decorative ponds or inoperable swimming pools
  - larvicides containing naturally occurring bacteria like *Bacillus thuringiensis israelensis*
- The Division makes mosquito fish available to the public for use in confined non-natural waters at no charge. Just call the **Mosquito Fish Hotline at 805/662-6582.**



## PUBLIC COMPLAINT RESPONSES

Division staff responded to 481 requests for service within nine cities and the unincorporated area concerning mosquitoes, rodents, and other vectors/nuisance pests. 14 dead birds were picked up for West Nile virus testing. Out of the 481 service requests, 134 were reports of day biting behavior indicative of the invasive *Aedes* mosquitoes.

City	Vector-Related Service Requests	Birds Called in for West Nile Virus Testing	Invasive <i>Aedes</i> Service Requests
Camarillo	39	2	4
Fillmore	7	0	1
Ojai	40	0	4
Oxnard	27	1	1
Port Hueneme	2	0	0
San Buenaventura	45	0	1
Santa Paula	9	0	0
Simi Valley	177	3	57
Thousand Oaks	122	7	56
Unincorporated	13	1	10
<b>TOTAL:</b>	<b>481</b>	<b>14</b>	<b>134</b>



## ***Aedes aegypti* in Ventura County - 2024**

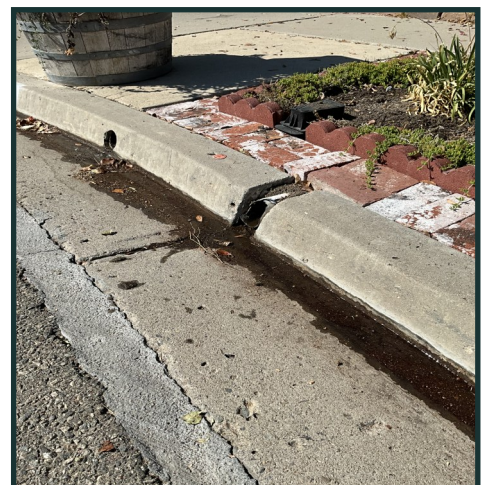
While *Aedes aegypti* complaints were down in 2024 compared to 2022 and 2023, their presence in Ventura County has not changed. This invasive species (found in VC since 2020) has become a common pest in many parts of California, including our County. Each year they expand their territory as we find them living in new areas of Ventura County. The *Aedes aegypti* species is an aggressive day-biting mosquito that feeds mainly on humans. It is a competent vector of multiple arboviruses including dengue, Chikungunya, Zika, and yellow fever.

### **Dengue Virus in California**

In 2024, California saw a record number of 18 locally transmitted cases of dengue fever. 14 of these cases were in neighboring Los Angeles County. Local transmission means the case patient was infected by a mosquito bite and had not travelled out of the region. The presence of Invasive *Aedes* in California combined with a global rise in dengue cases is driving this trend. *It is becoming increasingly important for residents to prevent Aedes mosquitoes from breeding on their property and to protect themselves from being bitten by using EPA approved repellents and protective clothing when mosquitoes are active.*

### ***Aedes aegypti* prevention tips...**

- *Avoid overwatering and make sure excess water doesn't collect in saucers, containers, gutters, or drains.*
- *Empty and remove (tip & toss) containers from yard that can collect water from rain or sprinklers (vases, tires, buckets, dishes, trays, tarps, etc.).*
- *Make sure rain barrels or other water storage containers are tightly covered and completely sealed to prevent mosquitoes from entering.*
- *Reduce dense, cool, leafy adult mosquito resting areas, especially near entries and outdoor seating.*
- *Ensure that door and window screens do not have holes. Keep windows and doors closed so that mosquitoes cannot get indoors.*
- *If water collects in drains, pipes, or septic tanks, consider using tight fitting permeable landscape cloth or mesh screen that can exclude mosquitoes.*





## ***Aedes aegypti* Facts...**

- *Aedes aegypti* mosquitoes will lay single eggs in multiple places, unlike our native *Culex* mosquito which lays an entire egg raft (100-300 mosquitoes) in one location.
- *A. aegypti* mosquitoes are sensitive to temperature. They are most active between 77°F and 86°F. *A. aegypti* will seek cover indoors, in underground drains, or will use vegetation to stay protected from the outdoor elements when it's too hot or cold. *A. aegypti* will cease being active when the temperature is below 59°F.
- *A. aegypti* will attach eggs to the inside of containers that are dry. *Aedes* mosquitoes can sense which containers will fill up with rain or domestic water use. Eggs can survive a year or more without water. It is good practice to scrub the inside of containers before transporting or discarding them to avoid moving invasive mosquitoes to new locations.

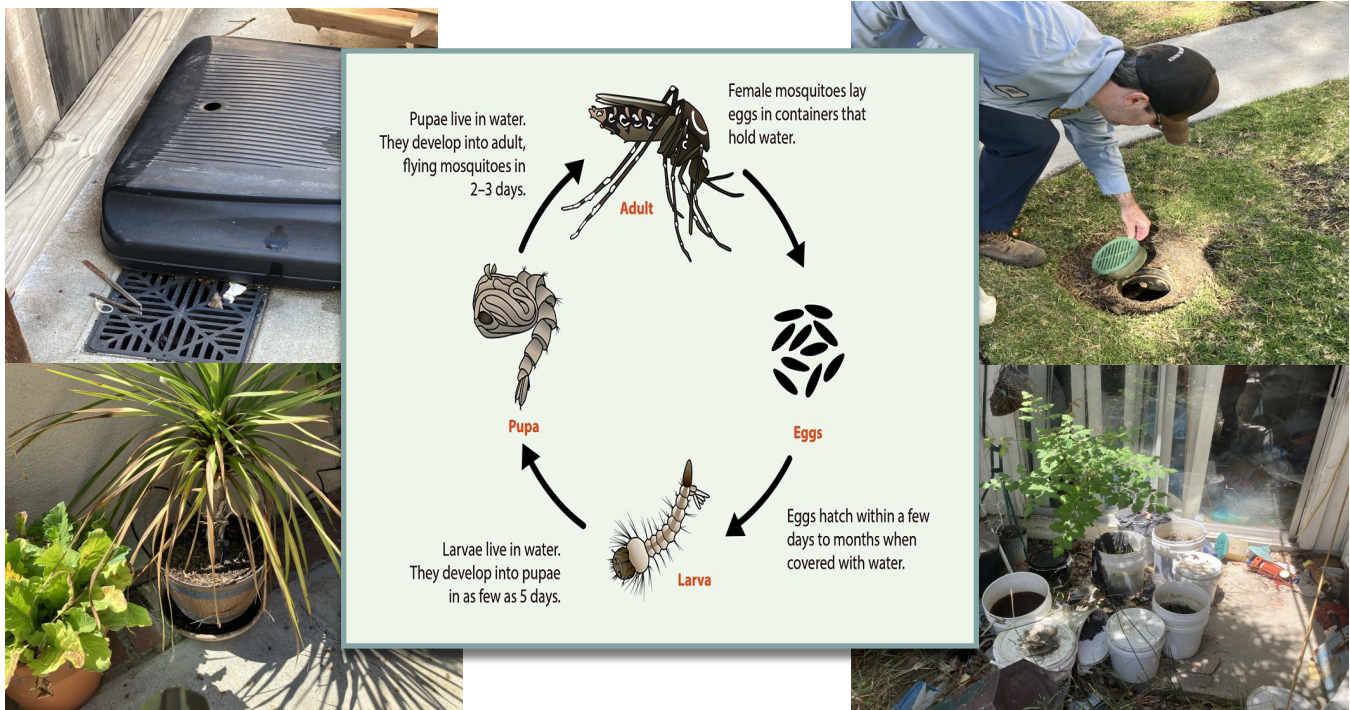
### **Examples of backyard mosquito breeding**





## Services specific to Invasive *Aedes* mosquitoes in 2024 included:

- Performing **134** complaint responses.
- Conducting **29** surveillance trappings.
- Deploying **16** In2Care® mosquito traps that attract and kill mosquitoes, both larvae and adults.
- Direct mailing **35,010** Invasive *Aedes* educational outreach postcards.
- Hand delivered Invasive *Aedes* materials to **35** neighborhoods.



## Help protect yourself and your neighbors by eliminating standing water in and around your home or business:

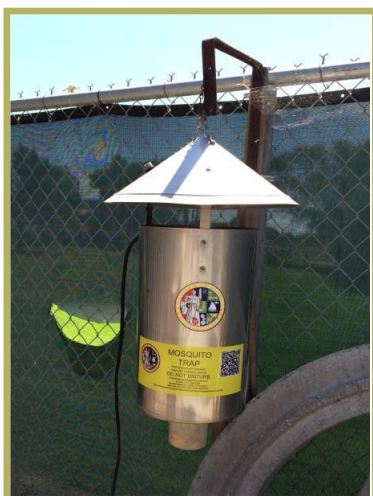
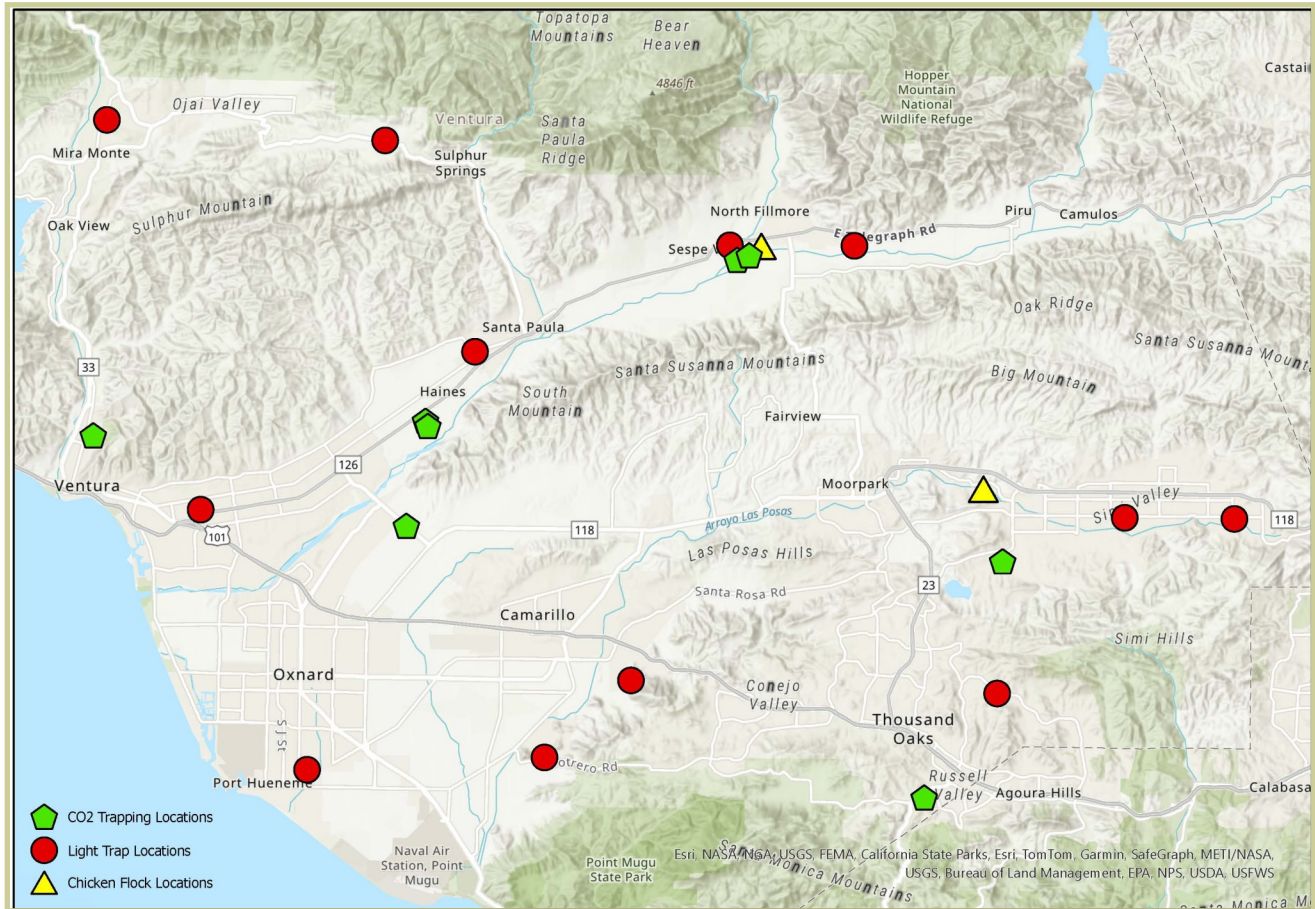
- Once a week, empty and scrub, turn over, cover, or throw out items that hold water inside and outside your home.
- Tightly cover water storage containers (buckets, cisterns, rain barrels) so that mosquitoes cannot get inside to lay eggs.
- For containers without lids, cover tightly with 1/16<sup>th</sup> inch wire mesh.
- Keep rain gutters free of debris.
- Fill saucers under potted plants with sand/aquarium gravel or remove them.
- Cover yard drains with highly permeable landscape cloth or 1/16<sup>th</sup> inch wire mesh under the inlet grates and check the outlets for blockage weekly.

If you are being bitten by small black mosquitoes with white stripes in or around your home, especially during daylight hours, please call the Vector Control Program's **Mosquito Complaint Hotline** at **805/658-4310**. To request free mosquito fish to control mosquito breeding in ponds, fountains, and water gardens, call **805/662-6582**. For more information on *Aedes aegypti* and *Aedes albopictus* mosquitoes, visit: [rma.venturacounty.gov/invasive-aedes-mosquitoes](http://rma.venturacounty.gov/invasive-aedes-mosquitoes)



# ENCEPHALITIS AND WEST NILE VIRUS SURVEILLANCE

St. Louis Encephalitis virus, Western Equine Encephalitis virus, and West Nile virus are mosquito-borne viruses which can be transmitted to humans. These viruses can cause mild to very serious illness in humans. The purpose of the encephalitis and West Nile Virus surveillance program is to prevent transmission of encephalitis and West Nile viruses by mosquitoes to humans. Mosquito species commonly found in Ventura County can transmit Saint Louis Encephalitis, Western Equine Encephalitis, and West Nile Virus. The surveillance program has many facets, which include mosquito population and species monitoring, virus testing of adult mosquitoes, serological analysis of sentinel chickens, and dead bird surveillance for West Nile Virus.



Light Trap



CO2 Trap



## MOSQUITO MONITORING AND TESTING

During 2024, 12 mosquito light traps were located in representative areas of the County to monitor mosquito population densities. One or more traps are located in each city, and adult mosquito specimens are collected once per week throughout the year.

Trap results are used to evaluate the effectiveness of mosquito control measures and the potential for disease transmission. Additionally, 6 encephalitis vector survey traps, used to collect live adult mosquitoes, were deployed throughout the County. These traps were placed on 8 different occasions. Mosquitoes from these traps were collected and submitted to the California Department of Public Health, Vector-Borne Disease Section (CDPH) for Saint Louis Encephalitis, Western Equine Encephalitis, and West Nile Virus testing.

None of the samples of mosquitoes collected in Ventura County during 2024 tested positive for vector borne diseases. Within the State in 2024, 2,006 of 48,241 mosquito pools tested were positive for West Nile Virus and 34 of 44,593 mosquito pools tested were positive for Saint Louis Encephalitis. There were no positive mosquito pools for Western Equine Encephalitis, Chikungunya, dengue, or Zika.



## SENTINEL FLOCK MONITORING AND TESTING

In 2024, two sentinel chicken flocks were deployed for serological monitoring of Saint Louis Encephalitis, Western Equine Encephalitis and West Nile Virus. These flocks were located in the areas of Simi Valley and Fillmore.

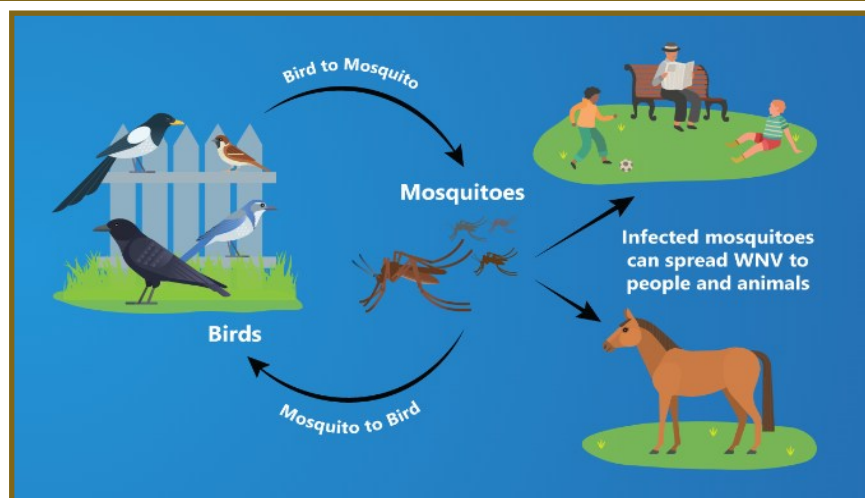
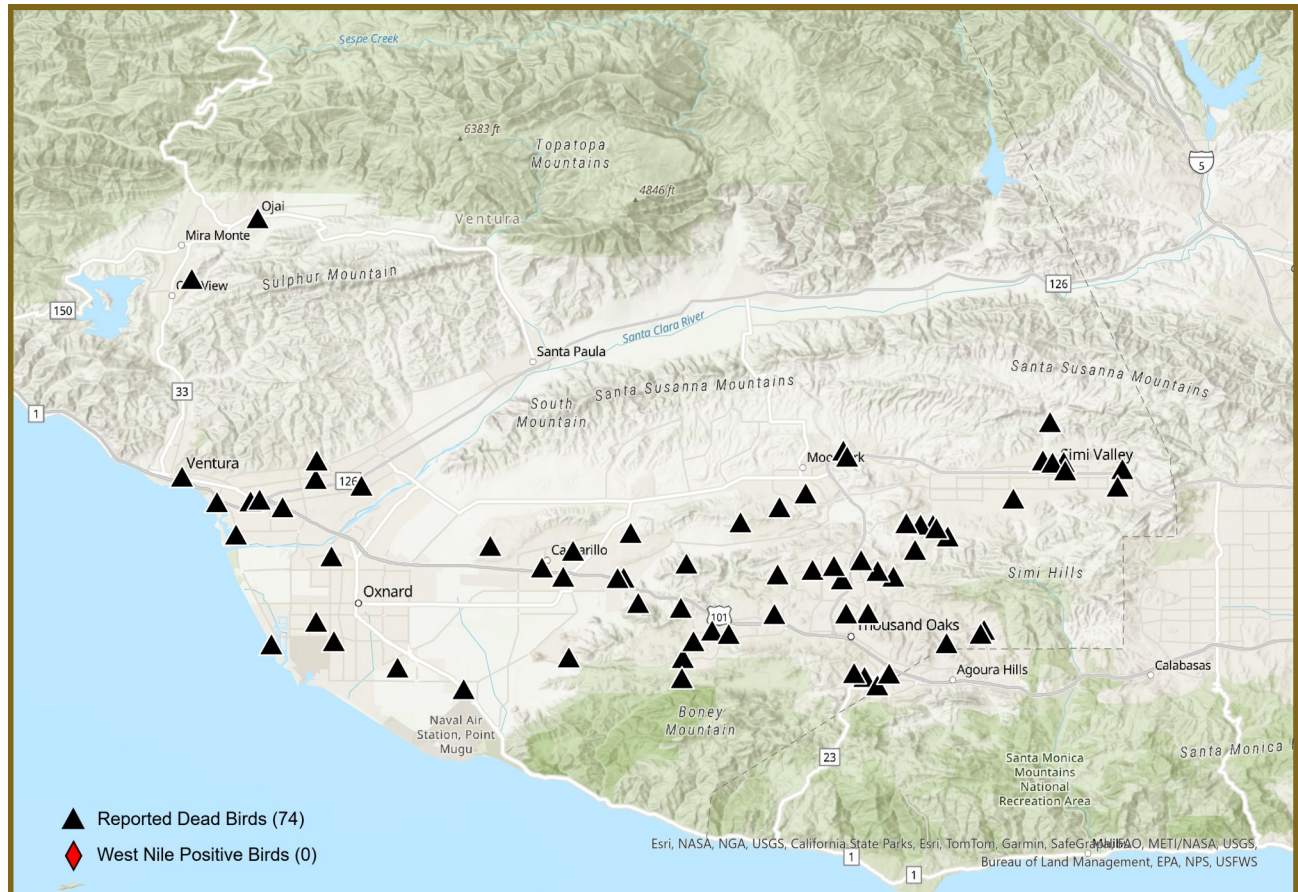
Flocks consisting of 11 chickens each were placed at these locations in April and regularly tested every other week through mid-November. A total of 222 serological (blood) samples were submitted to CDPH for Saint Louis Encephalitis, Western Equine Encephalitis, and West Nile Virus testing.

No chicken blood samples collected within Ventura County tested positive during the 2024 season. Throughout the State, 159 of 4,889 chicken blood sera samples tested positive for West Nile Virus.



## WILD BIRD COLLECTION AND TESTING

In Ventura County during 2024, a total of 74 dead birds were reported to the West Nile Virus dead bird hot line; 17 were collected and submitted for testing; no birds tested positive for West Nile Virus. Throughout the state, a total of 6,434 dead birds were reported to CDPH; 1,789 were tested, and 535 (30%) were positive for West Nile Virus.



## Help Monitor for West Nile Virus

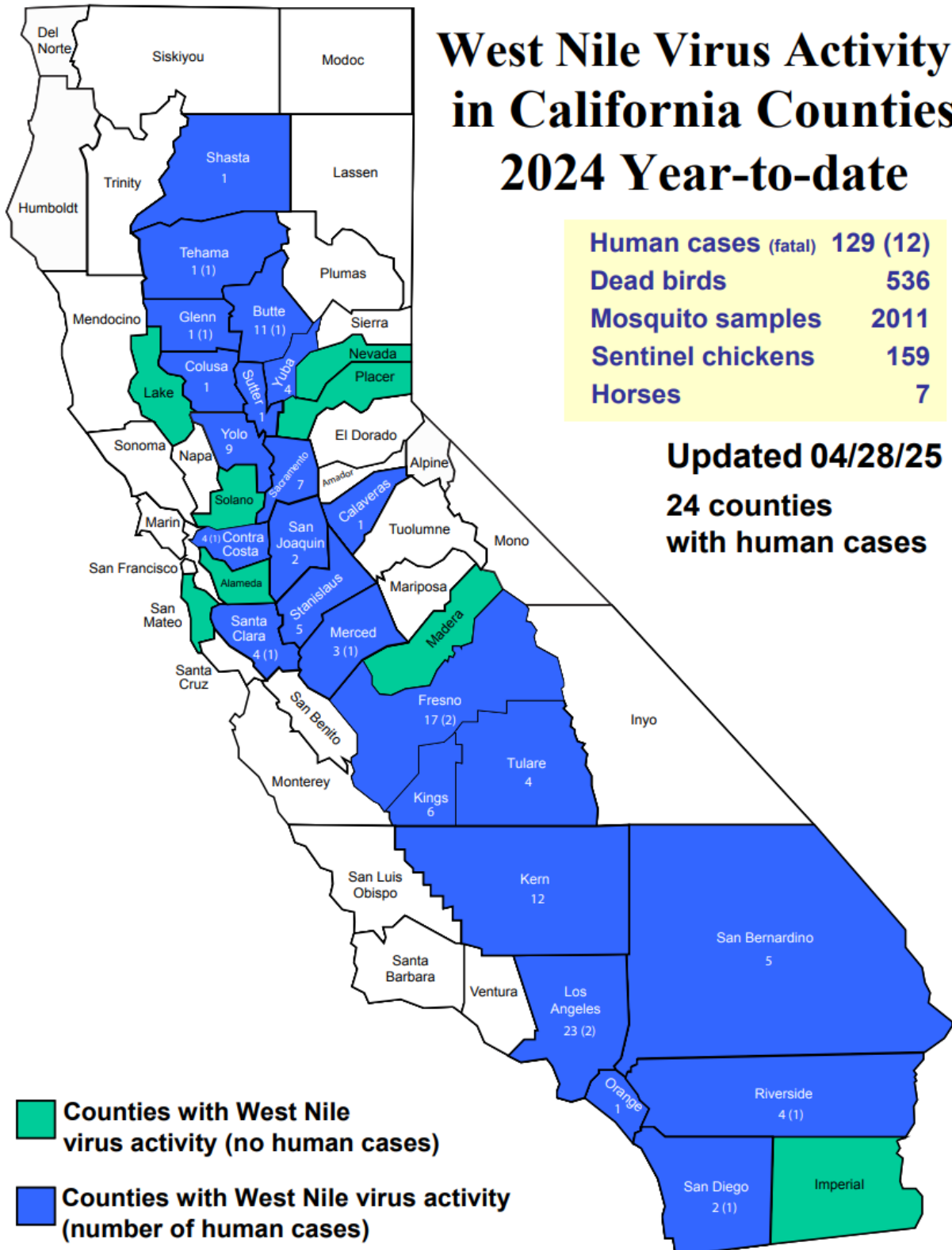
Dead bird reporting helps public health agencies track where West Nile Virus could be spreading. Mosquitoes often acquire WNV from birds. A WNV positive dead bird is an indication that the virus is circulating in that area and the potential for human infection may increase. Ventura County Vector Control Program uses this information to focus surveillance and control efforts in the area of a positive dead bird enabling us to use our resources efficiently and reduce the risk of human illness from WNV. Report recently deceased birds to **877-WNV-BIRD** or submit a report online at [westnile.ca.gov](https://westnile.ca.gov).



# INCIDENCE OF WEST NILE VIRUS AND ENCEPHALITIS

In 2024, there were no cases of West Nile Virus reported in Ventura County. Statewide, there were 129 symptomatic human cases reported, resulting in 12 fatalities. In the State, there were 7 West Nile Virus equine cases. There were no West Nile Virus equine cases reported in Ventura County.

During 2024, 34 mosquito samples tested positive for Saint Louis Encephalitis statewide.





## PLAGUE SURVEILLANCE

Plague is a highly infectious disease, caused by the bacteria *Yersinia pestis*, which primarily affects rodents. Humans and their pets (dogs, and especially cats) can get plague if they visit or live in areas where wild rodents are naturally infected. The purpose of the plague surveillance program is to protect the public through early detection and subsequent suppression of plague in the wild rodent population. Although the hazard to the public is generally low, the potential for disease transmission increases significantly when large outbreaks (epizootics) occur among susceptible rodent populations.

Plague positive animals have consistently been found within the north half of Ventura County. Passive plague surveillance, which involves inspection of an area to determine rodent population density, rodent health, and risk to the public, was performed in several areas of Ventura County. These areas included trails within the Los Padres National Forest. At the time of inspection, most locations were not considered to have a high enough risk of plague to warrant active surveillance.



## HANTAVIRUS

Hantavirus Pulmonary Syndrome is a rare but often fatal illness caused by *Sin Nombre* virus which is carried by wild mice. Most cases occur when airborne particles of dried rodent urine, droppings, or saliva contaminated with the virus are inhaled. In 1997, the Division conducted a survey of the deer mouse population for the presence of Hantavirus in Ventura County. Results indicated an infection rate of 10% to 15%. This rate is consistent with the most recent Hantavirus infection rate found throughout California and reported by CDPH. In 2024 there were no human cases of Hantavirus infection reported within Ventura County.



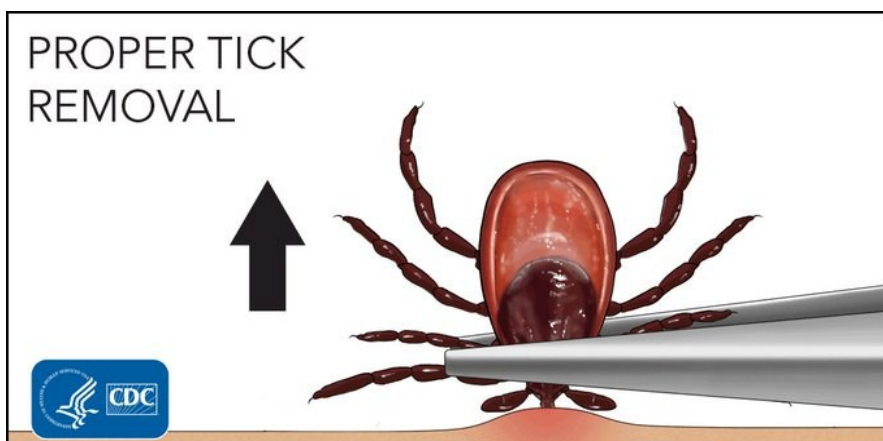
## LYME DISEASE

Lyme disease is an infectious disease transmitted by the bite of a specific species of tick. It is caused by a spirochete (a spiral shaped bacterium) that may persist in the human body for several years if not treated with antibiotics. The Western Black Legged Tick, *Ixodes pacificus*, is the primary vector of Lyme Disease in California. This tick is found throughout Ventura County especially in the more humid areas of the coastal canyons, inland creeks, and heavily irrigated grass areas.

According to the Centers for Disease Control and Prevention, since 1991, the incidence of Lyme Disease cases has almost tripled in the United States. Just over 9,000 cases were reported in 1991, compared with nearly 26,203 cases in 2016. The majority of these cases were from northern states. The number of cases in Ventura County and California has remained relatively constant. The rising number of cases elsewhere is likely a result of both increased awareness and exposure. At the time this report was posted, CDPH's provisional numbers for 2024 were 74 confirmed 29 probable, and 4 suspect cases of Lyme disease in California and 1 confirmed case in Ventura County.

<b><u>Tick Collections</u></b>	Happy Camp Canyon 3/5/2024	Arroyo Verde 3/5/2024	Soule Park 3/4/2024	Sycamore Canyon 3/07/2024
<i>Ixodes pacificus</i>	0	0	3	0
<i>Dermacentor occidentals</i>	2	0	14	4
Total	2	0	17	4

Division staff provides information on Lyme Disease, other tick-borne diseases, personal protection against ticks, and methods of tick control. The County also provides warning signs about ticks and Lyme Disease to operators of parks and campgrounds. In 2024, Ventura County Vector Control Program, along with CDPH, performed 4 tick collection surveys to determine tick population and species density. This helps to evaluate the potential for Lyme disease transmission in those areas surveyed. No *Ixodes pacificus* ticks collected in Ventura County tested positive for the causative agent of Lyme Disease in 2024.



Use fine-tipped tweezers to grasp the tick as close to the skin as possible and pull upward with steady even pressure. Do not twist, jerk, or use excessive force. This can cause parts of the tick to break off in the skin. After removing the tick, clean the bite area and your hands.



## 2024 VECTOR CONTROL PROGRAM STAFF



The Division also provides consultative services upon request for the Cities of Ventura County, on topics such as nuisance insects, rodents, and bedbug infestations. City representatives may contact us at **805/654-2816**.

**Cary Svoboda**

Vector Control Program  
Supervisor

**Ed Alamillo**

Vector Control Technician

**Alex Gaskill**

Vector Control Technician

**Andrew Dennis**

Vector Control Technician

**Eli Hernandez**

Vector Control Technician

**Steve Solomon**

Vector Control Program Lead

### IMPORTANT PHONE NUMBERS

**Mosquito Complaint Hotline: 805/658-4310**

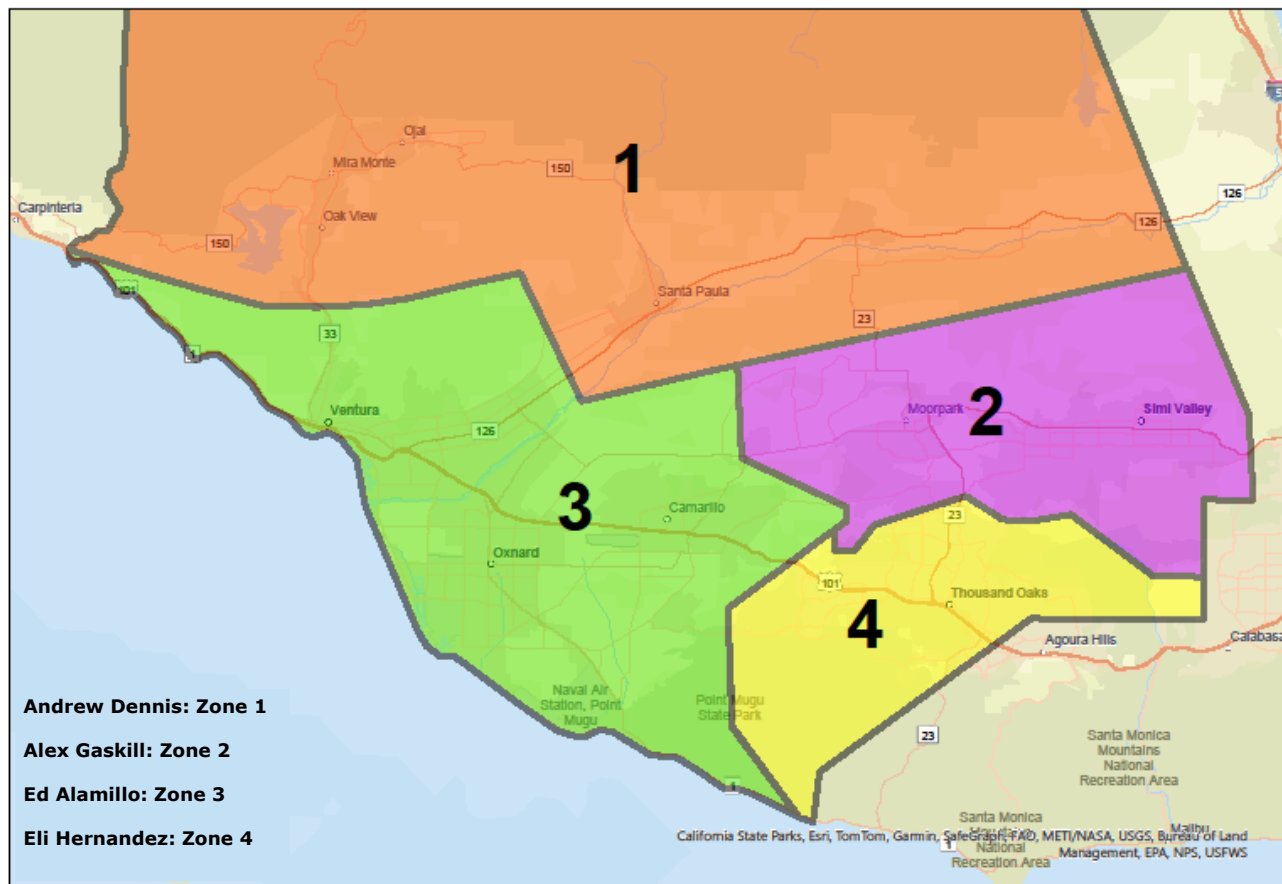
**Mosquito Fish Request Hotline: 805/662-6582**

You can also submit a complaint online at: [//eco.vcrma.org/](https://eco.vcrma.org/)

**Report a Dead Bird for WNV Testing: 877/WNV-BIRD (968-2473)**

or [//westnile.ca.gov/](https://westnile.ca.gov/)





County of Ventura  
 Environmental Health Division  
**Vector Control Zone Assignments**

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Alex Gaskill	Moorpark, Simi Valley, Bell Canyon	Alex.Gaskill@ventura.org 805/654-3985
Eli Hernandez	Newbury Park, Oak Park, Thousand Oaks, Westlake Village	Eli.Hernandez@ventura.org 805/654-2873



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