



## MOSQUITO and VECTOR MANAGEMENT DISTRICT of Santa Barbara County

# DISEASE SURVEILLANCE REPORT

August 2017

### **West Nile Virus Activity**

No West Nile virus (WNV) activity has been detected in Santa Barbara County in 2017 to date. There is WNV activity in other areas of California, but activity levels are mostly down from the same time in 2016. Eighty-seven human cases (3 fatal) have been confirmed in 13 counties. A total of 264 WNV positive dead birds have been reported from 30 counties along with 2,545 WNV positive mosquito pools from 24 counties. One hundred fifty-five WNV positive sentinel chicken have been reported from 12 counties. Ten equine (horse) cases of WNV (6 fatal) have been reported in California. Seven of the horses were unvaccinated, the other three had unknown vaccination status.

Statistics for California WNV activity can be found online at [www.westnile.ca.gov](http://www.westnile.ca.gov). National statistics for WNV can be found at the National Centers for Disease Control and Prevention website at [www.cdc.gov](http://www.cdc.gov).

### **St. Louis Encephalitis Virus Activity**

In 2017 to date, a total of 70 mosquito pools have tested positive for St. Louis encephalitis (SLE) from 11 California counties along with 7 sentinel chickens in two counties. All of the SLE positives have been found in hot inland areas. St. Louis encephalitis is a native mosquito-borne virus that is in the Family Flaviviridae (as are West Nile, Dengue, Zika, and Yellow fever viruses) and has symptoms similar to WNV.

### **Zika Virus and Invasive *Aedes* Mosquito Update**

The Santa Barbara County Public Health Department has reported a total of 10 travel related cases of Zika infection in Santa Barbara County to date, three in calendar year 2017. No invasive *Aedes* sp. mosquitoes have been found in Santa Barbara County to date. There have been 588 total imported cases of Zika virus into 36 California counties as of September 1, 2017 (80 in 2017 alone), but no local mosquito transmitted cases. However, at least one locally acquired case of Zika has been reported in Ensenada, Baja California, Mexico. Local mosquito transmitted cases of Zika infections have also been reported in southern Florida and southern Texas. Zika cases are down throughout the Americas in 2017. Invasive yellow fever mosquitoes (*Aedes aegypti*) and Asian tiger mosquitoes (*Aedes albopictus*) have now been found in 145 cities and communities in 12 California counties. A third species, the Australian backyard mosquito (*Aedes notoscriptus*) appears to be getting established in parts of Los Angeles County. *Ae. aegypti* and *Ae. albopictus* can transmit dengue, chikungunya, and yellow fever viruses as well as Zika virus. *Ae. notoscriptus* is an excellent vector of dog heartworm.

Zika virus information can be found at <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Zika.aspx> and at <http://www.cdc.gov/zika/>.

### **Live Mosquito-Borne Virus Surveillance**

The District conducted 18 mosquito trapping surveys in August 2017. Results are shown in the table below. Mosquito numbers are down considerably at the UCSB/Santa Barbara Airport bluffs and Lake Los Carneros, Goleta as compared to July 2017. This reflects the increasingly dry conditions common to late summer. Black salt marsh mosquitoes (*Aedes taeniorhynchus*) were present in significant numbers at the UCSB/Airport bluffs for the first time in 3-4 years. This coincides with the mouth of the Goleta Slough being open to tidal inflow/outflow for the first time in 3-4 years. In San Luis Obispo County, extremely high numbers of mosquitoes, mostly tule mosquitoes (*Culex erythrorhax*) and cold-weather mosquitoes (*Culiseta particeps*),

were trapped along Meadow Creek at Pismo State Beach's Golf Course and in an adjacent mobile home park. It was unlikely that so many mosquitoes were coming from just Meadow Creek. A high percentage probably originated in the nearby 68 acre Oceano Dunes Wetland. District technicians treated the Pismo State Beach and City of Pismo Beach habitats. The Dunes Wetland received a helicopter application of mosquito larvicide on August 15, 2017 by Sinton Helicopters of Paso Robles, California (see photographs below). The District has submitted 181 sample pools of mosquitoes for laboratory analysis in 2017 to date. All have tested negative for WNV and other mosquito-borne encephalitis viruses. Laboratory results on more pools are pending.

LOCATION	DATE	NUMBER of MOSQUITOES	NUMBER of TRAPS <sup>^</sup>	MOSQUITOES PER TRAP NIGHT*	POOLS SUBMITTED	RESULT
<b>South Coast</b>						
Andree Clark Bird Refuge, Santa Barbara City	8/2-3/17	16	10 EVS	1.6	0	N.A.
El Estero Wastewater Plant, Santa Barbara	8/16-17/17	365	11 EVS	33.2	7	Negative
El Estero Wastewater Plant, Santa Barbara	8/16-23/17	6	2 BG	0.5	0	N.A.
Lake Los Carneros, Goleta City	8/29-30/17	174	11 EVS	15.8	3	Pending
600 block of Zink Ave., Goleta Valley	8/29-30/17	3	2 EVS/1 BG	1.0	0	N.A.
UCSB/Santa Barbara Airport Bluffs	8/31-9/1/17	149	12 EVS	12.4	3	Pending
<b>North County</b>						
Club House Rd., Vandenberg Village	8/22-23/17	79	2 EVS	39.5	3	Pending
E. end of Burton Mesa Rd., Mission Hills	8/22-23/17	22	4 EVS	5.5	0	N.A.
Bailey Wetland, Lompoc City	8/22-23/17	36	4 EVS/1 BG	7.2	1	Pending
S. Ynez River @ Floradale Ave., Lompoc City	8/22-23/17	14	4 EVS	3.5	1	Pending
<b>San Luis Obispo County</b>						
Old Garden Creek, San Luis Obispo City	7/31-8/1/17	10	4 EVS	2.5	0	N.A.
The Village at Broad St., San Luis Obispo City	7/31-8/1/17	259	4 EVS	64.8	3	Negative
Meadow Creek/Golf Course, Pismo State Beach	7/31-8/1/17	~3,561	4 EVS	~890.3	4	Negative
Meadow Creek/Golf Course, Pismo State Beach	7/31-8/17/17	2	1 BG	0.1	0	N.A.
Village at the Palms, San Luis Obispo City	7/31-8/17/17	18	1 BG	1.1	0	N.A.
Nipomo Swap Meet, Nipomo	8/17-18/17	6	4 EVS	1.5	0	N.A.
Nipomo Regional Park, Nipomo	8/17-18/17	18	4 EVS	4.5	1	Negative
Oso Flaco Lake, Nipomo	8/17-18/17	119	4 EVS	29.8	3	Negative

\* Mosquitoes Per Trap Night = Number of Mosquitoes ÷ (Number of Traps x Number of Nights)

<sup>^</sup> EVS = CO<sub>2</sub> trap      BG = BG-Sentinel invasive *Aedes* mosquito trap

This surveillance technique utilizes battery-powered Encephalitis Virus Surveillance (EVS) traps that use dry ice as a source of carbon dioxide along with human scented BG-Sentinel traps to attract adult female mosquitoes that are actively seeking a blood meal. The live female mosquitoes are taken into the District's laboratory where they are anesthetized, sorted by species, and placed into "pools." The pools (1 pool = up to 50 adult female mosquitoes of a single species collected at one place at one time) are stored in the District's ultra-low temperature freezer at -70°C until they can be submitted to the Davis Arbovirus Research and Training (DART) laboratory on the U.C. Davis campus where they are analyzed for the presence of live mosquito-borne viruses including WNV. The BG-Sentinel traps are deployed to survey for invasive *Aedes* mosquito species that are known vectors of Zika virus and other diseases.

### Sentinel Chicken Flocks

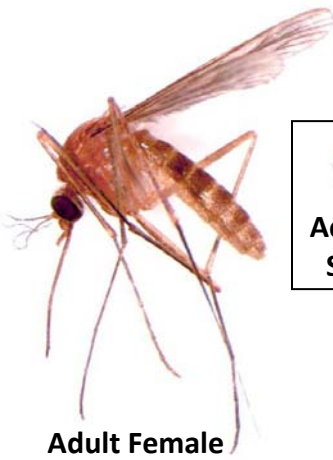
District personnel are obtaining samples from each chicken in the five sentinel flocks every two weeks. All samples submitted in 2017 to date have been negative for WNV and other mosquito-borne encephalitis viruses.

Samples of blood are collected from each chicken on strips of filter paper and dried overnight. They are then submitted to the California Department of Public Health Vector-Borne Disease Laboratory at Richmond, California where they are analyzed for antibodies to WNV and other mosquito-borne encephalitis viruses.

### West Nile Virus Dead Bird Submissions

The District did not submit any dead birds in August 2017. All dead birds submitted for testing in 2017 to date have been negative for WNV.

Citizens can report dead birds to the California Department of Public Health's toll free West Nile Virus Dead Bird Hotline (1-877-968-2473 or 1-877-WNV-BIRD) or online at [www.westnile.ca.gov](http://www.westnile.ca.gov). Local agencies will pick up the dead birds and collect samples via oral swabs that are transferred to RNase cards. The RNase cards are dried outdoors for at least two hours then mailed to the Davis Arbovirus Research and Training (DART) laboratory on the U.C. Davis campus where the samples are analyzed for West Nile Virus.



**Adult Female**



**Actual  
Size**

### TULE MOSQUITO (*Culex erythrothorax*)

This mosquito species is very abundant within the District and is common at Lake Los Carneros, the Andree Clark Bird Refuge, the Goleta Slough, Jalama Beach, and many other wetland habitats. Very high numbers were trapped at the Oceano Dunes Wetland, Pismo State Beach, San Luis Obispo County (illustrated below) in early August 2017. Adult females are known vectors of West Nile Virus. Immature stages develop in wetland habitats with very dense freshwater vegetation, particularly tule vegetation, hence the name "tule mosquito."



**Oceano Dunes Wetland, Pismo State Beach**

# Mosquito Larvicide Treatment at Oceano Dunes Wetland

Photographs are from a January 2015 application

