



MOSQUITO and VECTOR MANAGEMENT DISTRICT of Santa Barbara County

DISEASE SURVEILLANCE REPORT

September 2017

West Nile Virus Activity

Four sentinel chickens from the District's flock at the City of Solvang Wastewater Treatment Plant have tested positive for West Nile virus (WNV). This is the first detection of WNV activity 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. To date 211 human cases (8 fatal) have been confirmed in 18 counties. A total of 428 WNV positive dead birds have been reported from 37 counties along with 3,182 WNV positive mosquito pools from 26 counties. Two hundred sixty-four WNV positive sentinel chickens have been reported from 16 counties. Thirteen equine (horse) cases of WNV have been reported in 9 counties. Ventura County has reported two WNV positive mosquito pools and one WNV positive dead bird all from Simi Valley. San Luis Obispo County reported one WNV positive dead bird from Atascadero.

Statistics for California WNV activity can be found online at 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.

St. Louis Encephalitis Virus Activity

In 2017 to date, a total of 166 mosquito pools have tested positive for St. Louis encephalitis (SLE) from 13 California counties along with 8 sentinel chickens in three counties. All of the SLE positives have been found in hot inland regions. 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 593 total imported cases of Zika virus into 36 California counties as of September 1, 2017 (508 in 2015-16, 85 in 2017), 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. The number of 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 154 cities and communities in 13 California counties, with Merced County recently added to the list. 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/>.

Sentinel Chicken Flocks

District personnel are obtaining samples from each chicken in the five sentinel flocks every two weeks. **As stated above, four sentinel chickens from the flock at the City of Solvang's Wastewater Treatment Plant have tested positive for WNV.** The samples were obtained on September 25, 2017. These are the District's first positive sentinel chickens since 2005.

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.

Live Mosquito-Borne Virus Surveillance

The District conducted 12 mosquito trapping surveys in September 2017. Results are shown in the table below. In San Luis Obispo County, trapping surveys at Pismo State Beach again collected high numbers of mosquitoes, mostly tule mosquitoes (*Culex erythrothorax*) and cold-weather mosquitoes (*Culiseta particeps*). Again 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. However, residents living near Pismo State Beach informed the technicians that mosquito problems had lessened after the helicopter treatment of the Oceano Dunes Wetland in August. Moderate numbers of mosquitoes, mostly encephalitis mosquitoes (*Culex tarsalis*), were trapped at Orcutt Creek, Orcutt. Orcutt Creek is mostly dry, so it is somewhat of a mystery where the mosquitoes are originating. The District has submitted 210 sample pools of mosquitoes for laboratory analysis in 2017 to date. All have tested negative for WNV and other mosquito-borne encephalitis viruses. The number of sample pools is low compared to the District's record of 529 in 2011. Despite last winter's heavy rains, there was very little rain in March and April 2017 that would have kept the wetlands filled. Therefore many of the wetlands dried up earlier in the season than they might have.

LOCATION	DATE	NUMBER of MOSQUITOES	NUMBER of TRAPS [^]	MOSQUITOES PER TRAP NIGHT*	POOLS SUBMITTED	RESULT
South Coast						
UCSB/Santa Barbara Airport Bluffs	8/31-9/1/17	149	12 EVS	12.4	3	Negative
Tecolote Creek, Rancho Embarcadero	9/7-8/17	75	11 EVS	6.8	1	Negative
Estero Park, Isla Vista	9/5-12/17	0	1 BG	0	0	N.A.
5000 block of Calle Real, Goleta City	9/18-27/17	1	1 BG	0.1	0	N.A.
El Estero Wastewater Plant, Santa Barbara	9/28-29/17	126	11 EVS	11.5	3	Negative
North County						
Orcutt Creek @ Broadway, Orcutt	9/20-21/17	70	4 EVS/1 BG	14.0	2	Negative
Orcutt Creek @ Highway 135, Orcutt	9/20-21/17	53	4 EVS	13.3	2	Negative
Orcutt Creek @ Bradley Rd., Orcutt	9/20-21/17	12	5 EVS	2.4	0	N.A.
San Luis Obispo County						
Oceano Dunes Wetland, Pismo State Beach	9/13-14/17	~616	3 EVS/1 BG	~154.0	4	Negative
North Beach Campground, Pismo State Beach	9/13-14/17	~785	3 EVS	~261.7	4	Negative
Chumash Park, Pismo Beach City	9/13-14/17	376	4 EVS	94.0	2	Negative
Pismo Creek, Pismo Beach City	9/13-14/17	10	2 EVS	5.0	0	N.A.

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

[^] EVS = CO2 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.

West Nile Virus Dead Bird Submissions

The District did not submit any dead birds in September 2017. All dead birds submitted for testing in 2017 to date have been negative for WNV. The West Nile Virus Dead Bird Hotline will close down for the winter season on October 13, 2017. Citizens will still be able to report dead birds online at www.westnile.ca.gov. The District has made arrangements with the California Department of Public Health to continue retrieving and sampling approved dead birds through the winter. The Hotline will resume full operation in spring 2018.

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. 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.

