MOSQUITO and VECTOR MANAGEMENT DISTRICT
of Santa Barbara County

DISEASE SURVEILLANCE REPORT

July 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. Six human cases (none fatal) have been confirmed in four counties. A total of 115 WNV positive dead birds have been reported from 19 counties along with 1,125 WNV positive mosquito pools from 22 counties. Thirty-four WNV positive sentinel chicken has been reported from Los Angeles, Merced, and San Bernardino counties.

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 17 mosquito pools have tested positive for St. Louis encephalitis from Fresno, Kern, Kings, and Riverside counties. 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 581 imported cases of Zika virus into 36 California counties as of July 28, 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. Invasive yellow fever mosquitoes (*Aedes aegypti*) and Asian tiger mosquitoes (*Aedes albopictus*) have now been found in 131 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 15 mosquito trapping surveys in July 2017. Results are shown in the table below. Mosquito numbers are down at the UCSB/Santa Barbara Airport bluffs and down slightly at Lake Los Carneros, Goleta as compared to June 2017. In northern Santa Barbara County, high numbers were trapped at the western end of Orcutt Creek and surprisingly high numbers at the wetland adjacent to the intersection of Club House Rd. and Burton Mesa Blvd. Vandenberg Village. However, Jalama Beach County Park, which has been a major problem for the past 2-3 years, turned up only insignificant numbers of mosquitoes. *Culex* species, particularly the tule mosquito (*Culex erythrothorax*), were the predominant species at the UCSB/Airport bluffs, Lake Los Carneros, and Club House Rd. Winter mosquitoes (*Culiseta inornata*) are still very active in San Luis Obispo County, but are mostly finished in southern Santa Barbara County. Cool-weather mosquitoes (*Culiseta incidens*) and cold-weather mosquitoes (*Culiseta particeps*) are very active at Orcutt Creek and in San Luis Obispo County. In San Luis Obispo County, extremely high numbers of mosquitoes, mostly *Cx. erythrothorax*

and *Cs. particeps*, were trapped along Meadow Creek at Pismo State Beach's Golf Course and in an adjacent mobile home park. It is unlikely that so many mosquitoes are coming from just Meadow Creek. A high percentage are probably originating in the nearby 68 acre Oceano Dunes Wetland. The District will soon schedule a treatment of the Pismo State Beach habitats, possibly including a helicopter treatment of the dunes wetland, under its contract with the State Parks Department. The District has submitted 151 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^	MOSQUITOES PER TRAP NIGHT*	POOLS SUBMITTED	RESULT
South Coast						
Andree Clark Bird Refuge/Santa Barbara Zoo	6/27-7/3/17	62	2 BG	4.4	0	N.A.
UCSB/Santa Barbara Airport Bluffs	7/19-20/17	264	12 EVS	22.0	6	Negative
Lake Los Carneros, Goleta City	7/26-27/17	456	12 EVS	38.0	8	Pending
North County						
Orcutt Creek @ Broadway, Orcutt	7/5-6/17	318	6 EVS	53.0	5	Negative
Orcutt Creek @ Highway 135, Orcutt	7/5-6/17	27	3 EVS	9.0	1	Negative
Orcutt Creek @ Bradley Rd., Orcutt	7/5-6/17	19	3 EVS	6.3	1	Negative
Club House Rd., Vandenberg Village	7/11-12/17	488	3 EVS	162.7	9	Negative
E. end of Burton Mesa Rd., Mission Hills	7/11-12/17	16	3 EVS	5.3	0	N.A.
Santa Ynez River @ Floradale Ave., Lompoc City	7/11-12/17	21	4 EVS	5.3	0	N.A.
Bailey Wetland, Lompoc City	7/11-12/17	11	3 EVS	3.7	0	N.A.
E. end of Burton Mesa Rd., Mission Hills	7/11-13/17	0	1 BG	0	0	N.A.
Jalama Beach County Park	7/13-14/17	38	9 EVS	4.2	0	N.A.
San Luis Obispo County						
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	Pending
Meadow Creek/Le Sage Riviera Golf Course, Pismo State Beach	7/31-8/1/17	~3,561	4 EVS	~890.3	4	Pending

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

^ EVS = CO_2 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 -70ºC 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.

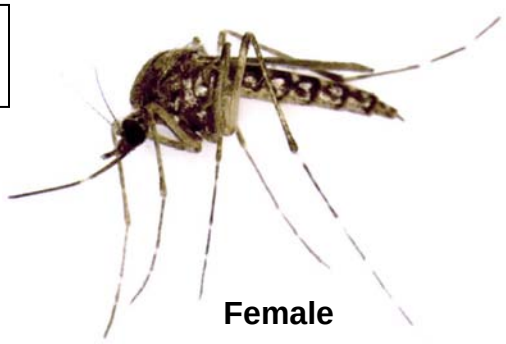
Samples of blood are collected from each chicken on strips of filter paper and dried overnight. They are then submitted to the California Department of Public Health Vector-Borne Disease Laboratory at Richmond, California where they are analyzed for antibodies to WNV and other mosquito-borne encephalitis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

West Nile Virus Dead Bird Submissions

The District did not submit any dead birds in July 2017. A crow from Santa Ynez submitted in late June 2017 tested negative for WNV as have all other dead birds submitted for testing in 2017.

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.

Male



Female

BLACK SALT MARSH MOSQUITO (*Aedes taeniorhynchus*)

The black salt marsh mosquito is active from May until early October. Immature stages develop in brackish and salt water pools that are filled by twice monthly high tide cycles. It is not a significant disease vector, but is a serious nuisance mosquito. Adult females are vicious and aggressive day and night biters and will travel several miles from breeding sources in search of a blood meal.

District technicians have reported very heavy breeding of the black salt marsh mosquito in the Carpinteria Salt Marsh during June and July 2017. This may be due at least in part to extremely high tides of up to 7.0 feet. Breeding has also been found in the Goleta Slough since it is now open to tidal inflow/outflow during summer for the first time in 3-4 years.