



## MOSQUITO and VECTOR MANAGEMENT DISTRICT of Santa Barbara County

# DISEASE SURVEILLANCE REPORT

December 2017

### West Nile Virus Activity

**Four sentinel chickens from the District's flock at the City of Solvang Wastewater Treatment Plant tested positive for West Nile virus (WNV) as well as a dead bird from the Santa Ynez Valley and a mosquito pool at the UCSB/Santa Barbara Airport bluffs, all in fall 2017.** The sudden outbreak of WNV may have been due to a combination of the October heat wave and the influx of migratory birds into the county. WNV activity levels in California during 2017 were mostly down from 2016. A total of 502 human cases (28 fatal) were confirmed in 27 counties. A total of 508 WNV positive dead birds were reported from 39 counties along with 3,371 WNV positive mosquito pools from 27 counties. Three hundred and five WNV positive sentinel chickens were reported from 18 counties. Twenty-one equine (horse) cases of WNV were reported in 13 counties. Ventura County reported one human case, three WNV positive mosquito pools and two WNV positive dead birds all from Simi Valley. San Luis Obispo County reported six WNV positive dead birds. These are likely the final figures for 2017.

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, two human cases of St. Louis encephalitis (SLE) were reported from Kern and Stanislaus Counties. Also a total of 179 SLE positive mosquito pools were reported from 14 California counties along with 9 sentinel chickens in three counties. All of the SLE positives were 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 619 total imported cases of Zika virus into 36 California counties as of December 1, 2017 (508 in 2015-16, 111 in 2017), but no local mosquito transmitted cases. (The next update on January 5, 2018 will be too late to be included in this report.) In Mexico in 2017, the highest number of Zika cases occurred in central Mexico as opposed to southern Mexico in 2016. 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. Overall the number of Zika cases were down throughout the Americas in 2017. Invasive yellow fever mosquitoes (*Aedes aegypti*) and Asian tiger mosquitoes (*Aedes albopictus*) have now been found in 183 cities and communities in 14 California counties, with Kings and Merced counties 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 and a single specimen has been found in Orange 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 2017 mosquito trapping season has ended. The list below shows the final figures for the 2017 trapping season. The District submitted 221 sample pools of mosquitoes for laboratory analysis in 2017. All tested negative for WNV and other mosquito-borne encephalitis viruses except for **a pool of 17 Southern house mosquitoes (*Culex quinquefasciatus*) collected at the UCSB/Santa Barbara Airport bluff tops on October 26, 2017 that tested positive for WNV.** Live mosquito-borne virus surveillance will resume in spring 2018.

### 2017 Mosquito Trapping Results

- ▣ South Coast
  - 24 EVS trap surveys, 19 BG-Sentinel trap surveys.
  - 6,163 mosquitoes collected.
  - 117 pools submitted (**1 WNV positive pool**).
- ▣ North County
  - 46 EVS trap surveys, 13 BG-Sentinel trap surveys.
  - 2,602 mosquitoes collected
  - 56 pools submitted.
- ▣ San Luis Obispo County
  - 24 EVS trap surveys, 7 BG-Sentinel trap surveys.
  - 9,650 mosquitoes collected
  - 48 pools submitted.
- ▣ **TOTAL**
  - 94 EVS trap surveys, 39 BG-Sentinel trap surveys.
  - 18,415 mosquitoes collected
  - 221 pools submitted (**1 WNV positive pool**).

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

The District is sampling the four active chicken flocks once per month for the winter season. The flock at the U.S. Forest Service Ranger Station on Paradise Road has been inactivated for the winter. **Four sentinel chickens from the flock at the City of Solvang's Wastewater Treatment Plant tested positive for WNV in late September 2017.** Those were the District's only positive chickens in 2017.

The District has ordered 28 new chickens to replace those in four of the five flocks. The new chickens will be picked up at Demler Egg Ranch in San Jacinto, California on February 15, 2018.

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 December 2017. In October 2017 a yellow-billed magpie collected in the Happy Canyon Road area of the eastern Santa Ynez Valley **tested positive for West Nile Virus**. All other dead birds submitted by the District in 2017 were negative for WNV.

The West Nile Virus Dead Bird Hotline is closed down for the winter season. Citizens will still be able to report dead birds online at [www.westnile.ca.gov](http://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](http://www.westnile.ca.gov). Local agencies will pick up dead birds approved for testing 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.

