

# City of Los Alamitos

## Agenda Report Consent Calendar

April 20, 2015  
Item No: 8B

**To:** Mayor Richard D. Murphy & Members of the City Council

**From:** Gerri L. Graham-Mejia, Orange County Vector Control District Representative for Los Alamitos

**Prepared by:** Windmera Quintanar, CMC, City Clerk

**Subject:** Orange County Vector Control District (OCVCD) Update

**Summary:** This report provides an update on the Orange County Vector Control Board.

**Recommendations:** Receive and file.

## Background

On December 16, 2013, the City Council appointed Gerri L. Graham-Mejia to the Orange County Vector Control District Board (OCVCD) for a two-year term. Her term of service will end the first Monday of the year at 11:59 a.m., which will be January 4, 2016. OCVCD bylaws dictate a representative may be appointed for two or four year term of office which commences at noon on the first Monday in January. As a resident of the City, Gerri L. Graham-Mejia will continue to serve as the City's representative until January 4, 2016.

## Discussion

### April 16, 2015 – Monthly Items of Discussion

- Mosquito populations remain unseasonably high, triggering a suspension of the rodent control re-baiting program to focus control efforts on mosquitoes
- Orange County Mosquito and Vector Control District email alert sign up form has been created and launched on the District website for residents to receive information on our activities. Visit [www.ocvcd.org](http://www.ocvcd.org) to sign up
- Several articles profiling our expanded efforts to combat West Nile virus and flea-borne typhus were recently published in the Orange County Register
- The Greater Los Angeles County Vector Control District reports finding West Nile virus positive mosquitoes in the Sylmar area on March 26, two months earlier

than previous years. These are the first West Nile virus positive mosquitoes to be found in California in 2015.

- Visit [www.ocvcd.org](http://www.ocvcd.org) for more information on rats, mosquitoes, Red Imported Fire Ants, and other pests you could have on your property.
- Follow the Orange County Mosquito and Vector Control District on Facebook and Twitter to receive important vector control tips and information about disease outbreaks that will help protect you and your family this summer. [www.facebook.com/OCVectorControl](http://www.facebook.com/OCVectorControl) [www.twitter.com/OCVector](http://www.twitter.com/OCVector)

## **Fiscal Impact**

None.

Approved By:



Bret M. Plumlee

City Manager

*Attachments:* 1. *Vector of the Month*  
2. *Vector Management Update*

## *Vector of the Month*

# Mosquitoes of Orange County

Orange County supports a unique assemblage of mosquitoes represented among a number of common and rare species. Several are known for their historical involvement with the classical transmission of encephalitis and malaria to humans. Progressive development of the county and destruction of some critical habitats has resulted in the "regional" extinction of a number of relatively common species. The following text presents a brief synopsis of the mosquito species currently known from the county.

***Culex quinquefasciatus*:** The southern house mosquito is the species responsible for a majority of the District's mosquito abatement services and related control activities. Females are active nearly year-around in the more sheltered areas of the county and will frequently enter houses to seek blood. Larvae are commonly associated with all types of "urban waters" held in sources ranging from swimming pools to flower pots. This species serves as our primary vector of both West Nile (WNV) and St. Louis encephalitis (SLE) viruses.

***Culex tarsalis*:** The western encephalitis mosquito is considered by most mosquito biologists to be the principal encephalitis vector throughout much of its range in North America. It is our primary vector of western equine encephalitis (WEE) virus and primary/secondary vector of WNV and St. Louis encephalitis (SLE) virus. Adults are active during the spring, summer, and fall. Though more common in less developed areas, breeding occurs throughout the county in association with most types of clean, standing water sources in channels and marshes.

***Culex erythrothorax*:** The tule mosquito is a distinctive reddish-colored species associated with coastal and inland permanent wetlands, particularly the San Joaquin Marsh. Although females do not disperse far from breeding sources to bite, their often painful bite is usually followed by a severe local reaction. The tule mosquito overwinters as mature larvae, unlike most *Culex* species that overwinter as adult females. Emergence occurs as early as late February with continuous breeding extending well into the fall during favorable years. This species has been found naturally infected with WNV, WEE, and SLE, but is considered a less competent vector of these mosquito-borne diseases.

***Culex stigmatosoma*:** This close relative of *Culex tarsalis* is sometimes referred to as the foul water mosquito as a consequence of its breeding habits in association with either stagnant or polluted waters. Females are on the wing throughout the county from spring to early fall, seldom bite humans, and only rarely enter homes. This species has been demonstrated to be

an efficient vector of WNV and St. Louis encephalitis (SLE) virus, and thus, represents an important link in the maintenance of these viruses in birds.

***Aedes squamiger*:** The California salt marsh mosquito is a late winter and early spring species that breeds in coastal wetlands flooded by seasonal rainfall. Larvae usually occur in rainwater filled depressions in association with pickleweed and salt grass. It is an extremely aggressive day and dusk biter with the capacity to disperse long distances to obtain a blood meal. Bolsa Chica populations have been found naturally infected with a California group (CE) encephalitis (Morro Bay) virus. The potential impact of this virus on residents inhabiting coastal areas is unknown.

***Aedes taeniorhynchus*:** This summer species is sometimes called the dark salt marsh mosquito because of its highly contrasting black and white coloration. Larvae develop in upland pickleweed flats that are flooded by high tides. It is an aggressive biter during the day and at dusk, and can be troublesome to coastal residents living near breeding sources.

***Culiseta incidens*:** The cool weather mosquito is most often encountered from February through June. It is found throughout the county in association with a variety of larval habits that include rainwater pools, artificial containers, and ornamental ponds. Although this mosquito is not considered a major pest, females will occasionally enter homes or bite residents outdoors near breeding sources.

***Anopheles hermsi*:** This spring, summer, and fall mosquito is found sporadically throughout the county in association with breeding sources containing floating mats of filamentous algae. As a competent vector of human malaria, this species has been involved with the autochthonous (indigenous) transmission of this disease in San Diego County. Malaria transmission is possible in Orange County if residents are bitten by females that have been infected as a consequence of feeding on either a resident or transient experiencing a typical relapse.

***Culiseta inornata***: The impressive large winter mosquito is encountered during the cooler months of the year. Larvae develop in all types of natural sources. Abundant larval populations occur in association with *Ae. squamiger* in salt marsh habitats. At times, this species can be locally troublesome to coastal residents. Elsewhere, this species has been involved with the transmission of a number of mosquito-borne encephalitides: WEE, SLE, and CE (Jamestown Canyon) viruses.

***Culiseta particeps***: Similar to *Culiseta inornata*, this distinctive species with scale patches on the wings usually breeds during the cooler months of the year. Larvae occur in shaded alga-laden pools along foothill streams both inland and near the coast.

***Aedes nigromaculis***: Once a significant pest associated with irrigated pastures supporting the bygone dairy industry, this species has gone by the way of the dairy and is considered to be regionally extinct. The last known collection records were from Hettinga Dairy in Cypress in 1972.

***Aedes sierrensis***: The western tree hole mosquito occurs along the coast and inland where suitable habitat supports native oak, cottonwood, willow, and sycamore. Though this species breeds in tree holes and rot cavities containing highly tannic rainwater, breeding can occur opportunistically in old tires and artificial containers. It is a highly competent vector of canine heartworm.

***Aedes dorsalis***: This species, like *Ae. nigromaculis*, may be either regionally extinct or highly localized along our coastal strand. Both adult and larval records have been scarce for many years. Females have been found naturally infected with WEE, SLE, and CE viruses.

***Aedes washinoi* (formerly *Ae. increpitus*)**: *Aedes washinoi* occurs along the coast and sporadically inland where it can be locally annoying to residents following wet winters. Larvae develop in fresh water located in the upland portions of salt marshes and in floodwater sections of coastal and inland streams.

***Anopheles franciscanus***: On the wing during the spring, summer, and fall, this species is found at a limited number of sites within the county. It breeds in sources supporting abundant algal-growths and floating mats of vegetation. This species seldom bites humans and does not experimentally transmit human malaria in the laboratory.

***Anopheles punctipennis***: This rare species is restricted to the San Clemente area of extreme south county. Adults are active during the spring, summer, and

fall. Females are important vectors of human malaria in riparian areas of the Central Valley of California. Its potential involvement with the transmission of human malaria in the county is arguable.

***Culex apicalis***: Another rare species apparently limited to the south county area where it breeds in the quiet backwaters of streams during the spring, summer, and early fall. Females feed on birds, reptiles, and possibly amphibians.

***Culex boharti***: This extremely rare species is presumably active during the spring, summer, and fall. Females seek blood from reptiles and amphibians, particularly toads and frogs. Larvae, which are unique in having the middle abdominal segment clear, usually develop in shaded pools along foothill streams in upland areas bordering the Santa Ana Mountains.

***Culex restuans***: Considered by most mosquito biologists to be one of California's rarer species. It is found in riparian habitats in south Orange County and the Santa Ana Watershed in eastern Orange County. Adults are active during the spring and fall with little activity during the summer and winter months. This species can vector WNV.

***Culex thriambus***: This spring, summer, and fall species closely resembles both *Culex tarsalis* and *Culex stigmatosoma*, but is more limited in its distribution. Usually encountered in foothill riparian habitats where breeding occurs in open and sunlit pools along streams and other water courses. It is occasionally collected from animal water troughs and streamside rock holes.

***Orthopodomyia signifera***: This exotic tree hole breeding mosquito is a rare find in the county. Where encountered, it shares "tree hole space" with *Ae. sierrensis* in the moist canyons of the coastal foothills and Santa Ana Mountains.

## *Vector Management Update*

### **California Sets Record for West Nile Virus Activity**

California Department of Public Health

April 8, 2015

SACRAMENTO – It was a record-breaking year for West Nile virus activity in 2014 California Department of Public Health (CDPH) Director and State Health Officer Dr. Karen Smith announced today.

California had the second-highest number of human cases of West Nile virus (WNV) in 2014 since the virus first invaded California in 2003. In 2014, California recorded 801 cases of the potentially fatal disease. In 2005, CDPH detected 880 cases of WNV.

The highest number of cases was in Orange County (263 cases) and the highest incidence occurred in Glenn County (35.3 cases per 100,000 population).

The level of WNV activity last year broke several records including:

- Five-hundred-sixty-one cases of West Nile neuroinvasive disease (WNND), the more serious neurological form of the disease often resulting in encephalitis or meningitis, were detected.
- The number of fatal WNV cases, 31, exceeded all previous years.
- The proportion of mosquitoes infected with WNV was the highest level ever detected in California (mosquito infection rate = 6.0; epidemic conditions equate with 5.0).
- The prevalence of WNV infection in tested dead birds, 60 percent, was the highest ever detected in California.

It is possible that the ongoing drought contributed to West Nile virus activity by creating more limited sources of water for birds and mosquitoes, according to Dr. Smith.

“As birds and mosquitoes sought water, they came into closer contact and amplified the virus, particularly in urban areas. The lack of water could have caused some sources of water to stagnate, making the water sources more attractive for mosquitoes to lay eggs,” said Dr. Smith.

It is not possible to predict the level of WNV activity in 2015 because activity is influenced by many factors including climate, the number and types of birds and mosquitoes in an area, and the level of immunity in birds to WNV.

As the weather warms up, mosquitoes become more abundant. Unseasonably warm weather this year could lead to increased mosquito abundance and promote an early start to the WNV disease season. The WNV season typically begins in the summer and tapers off in the fall months, with the highest risk for disease occurring in mid-July through September.

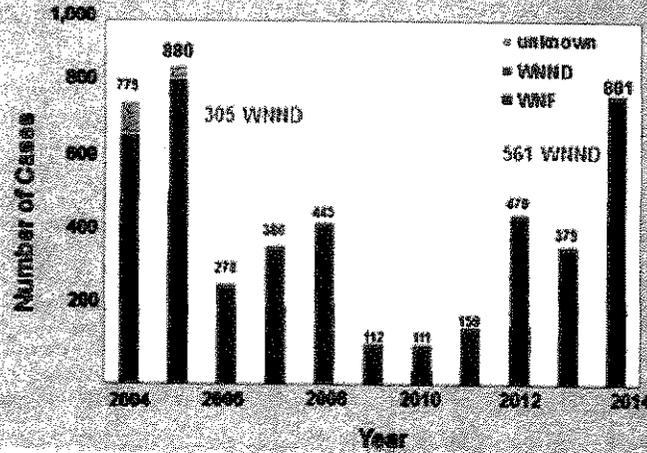
West Nile virus is transmitted to humans and animals by the bite of an infected mosquito. For most people, the risk of serious illness is low. However, some individuals – less than one percent – can develop a serious neurologic illness, such as encephalitis or meningitis. People 50 years of age or older and people with diabetes and/or high blood pressure have the greatest risk of developing serious complications.

CDPH recommends that individuals prevent exposure to mosquito bites and West Nile virus by practicing the “Three Ds:”

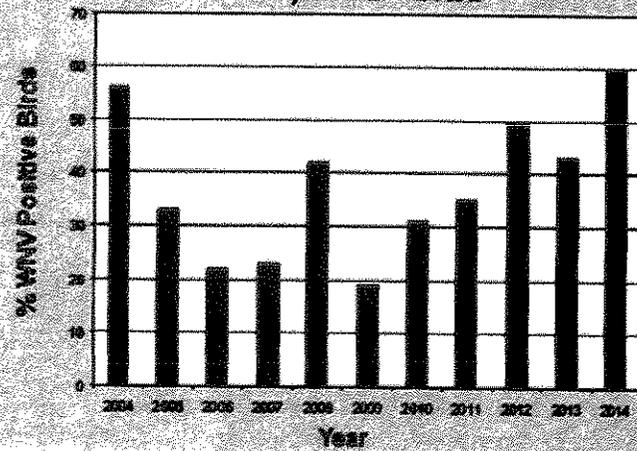
1. **DEET**- Apply insect repellent containing DEET, picaradin, oil of lemon eucalyptus, or IR3535 according to label instructions. Repellents keep the mosquitoes from biting you. DEET can be used safely on infants and children 2 months of age and older.
2. **DAWN AND DUSK** - Mosquitoes bite in the early morning and evening so it is important to wear protective clothing and repellent if you are outside during these times. Make sure that your doors and windows have tight-fitting screens to keep out mosquitoes. Repair or replace screens with tears or holes.
3. **DRAIN** - Mosquitoes lay their eggs on standing water. Eliminate all sources of standing water on your property, including in flower pots, old car tires and buckets. If you know of a swimming pool that is not being properly maintained, please contact your local mosquito and vector control agency.

California’s West Nile virus website includes the latest information on West Nile virus activity in the state. Californians are encouraged to report all dead birds through the website. Starting April 15, dead birds can be reported by calling toll-free 1-877-WNV-BIRD (968-2473).

### Human WNV Cases in CA, 2004 - 2014



### Prevalence of WNV in Dead Birds CA, 2004 - 2014



### Minimum Infection Rates in *Culex* Mosquito Species July - September, 2004 - 2014

