INFORMATIONAL BULLETIN NO. 39-06-DES

DISTRICT ENVIRONMENTAL SERVICES DIVISION

WEST NILE VIRUS

What is West Nile Virus?

West Nile Virus (WNV) is a mosquito-borne virus that is common in west Asia, Africa, and the Middle East. The virus arrived in the Western Hemisphere in 1999 in New York City.

Wild birds are the animals from which the mosquito vector primarily acquires the virus. Infection has been reported in more than 300 bird species. Although many birds infected with WNV will not appear ill, WNV infection can cause serious illness and death in some bird species. The most severe illnesses are seen among the corvids, which include crows, ravens, jays, and magpies. American crows are the majority of birds reported dead due to WNV.

How Do People and Horses Contract WNV?

WNV is transmitted to people and horses by the bite of infected mosquitoes. Only certain species of mosquitoes carry the virus and very few mosquitoes are actually infected. A mosquito first acquires the infection by feeding on a bird with virus in its blood. The virus lives in the mosquito and is transmitted to a new host in the mosquito's saliva when the insect bites a person or horse for a blood meal.

Humans and horses are accidental hosts for WNV. Human-to-human transmission does not occur. WNV activity is most prevalent from May to October when mosquitoes are most abundant.

What are the Symptoms of WNV in People and Horses?

Most people infected with WNV have no symptoms whatsoever. Of those who do become ill, symptoms can include fever, headache, nausea, body aches, mild skin rash, or swollen lymph nodes. In a few cases, the disease will progress to encephalitis, an inflammation of the central nervous system. The incubation period (time between the mosquito bite and onset of illness) ranges from 5-15 days in humans. The elderly are particularly susceptible to clinical illness caused by WNV. It is estimated that 1 in 150 people who are infected with WNV will require hospitalization. There is no specific treatment for WNV, although supportive care is important.

In horses, the disease does not seem to be specific to breed or age of horse. Clinical signs of disease consist of central nervous system abnormalities similar to those caused by infection with western equine encephalomyelitis (WEE) and eastern equine encephalitis (EEE). WEE and EEE vaccines are available for horses and are recommended for use in the spring. An equine WNV vaccine is available for horses, and horse owners should contact their local veterinarian for further information.

Dead Bird Surveillance

The Riverside County Vector Control Program, is an active participant in the California Department of Public Health (CDPH) WNV Dead Bird Surveillance Program. The Riverside County Vector Control
Program submits specimens for testing. The guidelines established by the CDPH for the reporting and testing of dead birds are as follows:

- To report a dead bird, call 1-877-WNV-Bird (877-968-2473)
- Specimens should be dead less than 24 hrs. Decomposed or scavenged carcasses are of limited diagnostic value. If maggots are present, or rigor mortis has been established, the carcass is unacceptable.
- Do not touch the specimen with bare hands: wear rubber or latex gloves when picking up and handling dead or sick birds. If gloves are not available, use a plastic bag turned inside out to pick up the specimen.
- Double bag the specimen, and place on ice or refrigerate until it is received by Riverside County Vector Control staff for further processing.

Sentinel Chicken Surveillance

The Riverside County Vector Control Program has a sentinel chicken surveillance program. The program is a cooperative effort between the CDPH, the University of California, the Mosquito and Vector Control Association of California, and the Riverside County Vector Control Program. The program was established to monitor the presence of existing mosquito-borne encephalitides in California, primarily Saint Louis Encephalitis (SLE) and WEE. Now, with WNV in California, the sentinel chicken program will continue to play a vital role in disease surveillance. The program consists of placing six surveillance flocks throughout the unincorporated territory of Riverside County where high populations of susceptible mosquito vectors are known to exist, and where such areas infringe on local communities. Blood samples are collected on a biweekly basis via filter strips, and the samples are sent to **the University of California at Berkeley** laboratory where they are analyzed for antibodies to the viruses.

Wild Bird Surveillance

In order to monitor the presence of SLE, WEE, and WNV among the wild bird populations, the Riverside County Vector Control Program has established guidelines for the capture and bleeding of House Sparrows (*Passer domesticus*) and House Finches (*Carpodacus mexicanus*) which are known migratory bird species, and reservoirs of mosquito-borne encephalitides. Five modified Australian crow traps are located in selected areas of Riverside County and monitored biweekly throughout the year. Blood samples are collected from trapped specimens, and processed at our Hemet laboratory facility. Processed sera samples are then sent to the Orange County Vector Control District for virus antibody analysis.

Mosquito Surveillance

The Riverside County Vector Control Program conducts Mosquito population studies throughout the year. New Jersey light traps have been stationed in the western portion of Riverside County and in the unincorporated areas around the City of Blythe. Depending upon the time of year, contents of the traps are collected either biweekly or weekly, and mosquitoes are analyzed as to the type and abundance. The light traps play an important role in determining the abundance of mosquitoes known to be involved in virus transmission and help technicians in locating mosquito-breeding sites.

When positive results from our Departments surveillance activities occur, our Department works closely with the California Department of Public Health to implement a "Response Plan". The Response Plan outlined by the State is dependent upon many variables such as environmental conditions, adult mosquito abundance, mosquito species involved, the occurrence in sentinel chickens and/or wild birds, geographical location, any human cases, and other pertinent information. Portions of the plan being implemented may include, but are not limited to, one or more of the following: Increasing public education; accelerated mosquito control (adulticiding and larvaciding); alerting physicians and veterinarians; coordinating with the local Office of Emergency Services; and other activities as appropriate.

West Nile Virus Exposure Prevention and Control around Your Home

To decrease exposure to mosquitoes and the viruses they may carry:

- Avoid outside activity at dawn and dusk during the mosquito season (May to October). This is particularly important for the elderly and small children.
- Wear protective clothing (long pants and long sleeves) and apply DEET insect repellant when outside.
- Make sure that doors and windows have tight fitting screens. Repair or replace screens that have holes or tears in them.
- Drain all standing water on private property and stock permanent ponds with fish that eat mosquito larvae.
- Clean and maintain roof gutters on a frequent basis, especially during the spring and fall.

Riverside County has 3 separate vector control agencies within its borders. The desert area is serviced by the Coachella Valley Mosquito and Vector Control District (CVMVCD) http://cvmvcd.org/. They service the area beginning at the Banning Pass and ending at the Chiriaco Summit. The CVMVCD can be reached at (760) 342-8287. The area east of the Chiriaco Summit to the Colorado River with the exception of the City of Blythe, is covered by the Department of Environmental Health Services, Vector Control Program (VCP). The northwest area of the County near the Prado Basin and along the Santa Ana River is serviced by the Northwest Mosquito and Vector Control District (NWMVCD) http://northwestmosquitovector.org. They also service the City of Lake Elsinore, Corona and Norco. The NWMVCD can be reached at (951) 340-9792. All other unincorporated areas on the west side of the County are serviced by the VCP. If you reside in one of the incorporated cities on the west side call that city for service. You can find out who to call

for service by calling the Riverside County Vector Control District at (951) 766-9454 or by calling the California Department of Health Services hotline at 1-877-968-2473 and press option #6.

How to get Mosquito Fish

- Available through Riverside County Vector Control in Hemet area call: (951) 766-9454
- Available through Northwest Mosquito and Vector Control in Corona area call: (951) 340-9792
- Available through Coachella Valley Mosquito and Vector Control in Indio area call: (760) 342-8287

*Document available in an alternate format upon request