June 29th, 2007
Volume 2

# Vector Borne Disease Bulletin

**In This Issue:**



## *A Note from the Editor:*

Welcome to the second issue of the newly revised Vector-borne Disease Bulletin! The intent of this bulletin is to keep you better informed about vector-borne disease investigations and surveillance conducted by the California Department of Health Services and collaborating state and local agencies in California. This second quarterly publication includes a brief summary of surveillance results since May 1st 2007. Look for the next bulletin at the end of September. In the meantime, please email me with any suggestions you might have for making this bulletin more useful for your work and research. Thanks to everyone who contributed to this bulletin.

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## Reorganization

On July 1st 2007 the California Department of Health Services (CDHS) will reorganize into the California Department of Public Health (CDPH) and the Department of Health Care Services (DHCS). You will find the Infectious Diseases Branch, Vector-Borne Disease Section in the newly formed California Department of Public Health.


## Mosquito-borne Virus Surveillance

West Nile virus (WNV) activity has been detected in 15 California counties in 2007 to date. The first confirmed human case of WNV in California in 2007 was reported from Kern County in June. The case was initially identified through screening done at a blood bank; the individual subsequently developed symptoms consistent with West Nile fever. One other WNV-positive blood donor was identified and reported from Kern County, however, this individual has not developed symptoms and is currently classified as an asymptomatic infection.

*National West Nile virus activity summary for 2006:*

MMWR

www.cdc.gov/mmwr/preview/mmwrhtml/mm5622a3.htm

## YTD Summary of WNV Activity by Element and County, 2007*

| County | Humans[a] | Horses | Dead Birds | Mosquito Pools | Sentinel Chickens | Tree Squirrels |
|---|---|---|---|---|---|---|
| Fresno | | | 4 | | | |
| Imperial | | | | | 1 | |
| Kern | 2 | | 10 | 25 | | |
| Los Angeles | | | 2 | 2 | 1 | |
| Orange | | | 8 | | | |
| Riverside | | | | 1 | | |
| Sacramento | | | 1 | | | |
| San Bernardino | | | 1 | | | |
| San Diego | | | 5 | | | |
| Santa Clara | | | 16 | | | |
| Shasta | | | 1 | | | |
| Stanislaus | | | 9 | 4 | | |
| Sonoma | | 2 | | | | |
| Sutter | | | | 1 | | |
| Tehama | | | 1 | | | |
| **Totals** | **2** | **2** | **58** | **33** | **2** | **0** |

*As of 6/22/07
[a] Includes cases and asymptomatic infections

## 2007 vs. 2006 YTD West Nile Virus Comparisons*

| | 2007 | 2006 |
|---|---|---|
| # Dead Bird Reports | 10,748 | 17,137 |
| # Positive Counties | 15 | 14 |
| # Human cases / # Tested | 1/ 437 | 1/ 566 |
| # Horse cases / # Tested | 2 / 130 | 0 / 1721 |
| # Positive Dead Birds / # Tested | 58 / 1,768 | 31 / 2,016 |
| # Positive Mosquito Pools / # Tested | 33 /6,549 | 13 / 6,135 |
| # Positive Chickens Sera / # Tested | 2 / 10,459 | 4 / 12,086 |
| # Positive Squirrels / # Tested | 0 / 53 | 0 / 30 |

* As of 6/22/07

*2007 Mosquito-borne Virus Surveillance and Response Plan:*

*http://westnile.ca.gov/resources.php*


*For updated and historical West Nile virus information visit the California West Nile virus Website:*
*www.westnile.ca.gov*

## Featured Publication

Padgett, K.A., Reisen, W.K., Kahl-Purcell, N., Fang, Y., Cahoon-Young, B., Carney, R., Anderson, N., Zucca, L., Woods, L., Husted, S., & V.L. Kramer. 2007. **West Nile Virus Infection in Tree Squirrels (Rodentia: Sciuridae) in California, 2004-2005.** Am. J. Trop. Med. Hyg. 76(5): 810-813.

A recent article in the *American Journal of Tropical Medicine and Hygiene* (May 2007) provides support for reporting and testing tree squirrels as part of California's West Nile virus (WNV) surveillance program. Three tree squirrel species in California were found to be susceptible to WNV in all regions of the state and were useful for WNV surveillance, with prevalence and peak of WNV infection mirroring that of dead birds. Furthermore, some tree squirrels had sufficient virus in their blood to be able to potentially infect mosquitoes.

*Head lice guidelines for child care settings and "A Parent's Guide to Head Lice" can be found at:*

*http://www.calsurv.org/headlice*

# Plague Surveillance

**Mammals testing positive for plague (*Yersinia pestis*), January- June, 2007**

| County | Location | Date | Host | No. positive | Results |
|---|---|---|---|---|---|
| Inyo | Baker Creek | 15-May | California Ground Squirrel | 2 | 1:128, 1:256 |
| Inyo | Diaz Lake | 22-May | California Ground Squirrel | 1 | 1:512 |
| Inyo | Taboose Creek | 8-May | California Ground Squirrel | 4 | 1:128,1:256, 1:512,1:2048 |
| Kern | Bakersfield | 19-Jan | Coyote | 1 | 1:512 |
| Kern | Hart Flat | 30- Apr | Domestic Cat | 1 | POS |
| Kern | Kernville | 19-Jan | Coyote | 1 | 1:256 |
| **Total No. Mammals Positive for Plague** | | | | **10** | |

# Tick-borne Disease Surveillance


*This tick identification card is available for printing at:*

*http://www.dhs.ca.gov/ps/dcdc/disb/lymedisease.htm*

The California Department of Health Services has recorded 12 cases of Lyme disease between January and May 2007.

***Ixodes pacificus* ticks tested for evidence of *Borrelia* species, California, 2007.**

| County | Location | No. ticks tested | No. pools tested | No. pools positive: DFA *Borrelia* spp. | No. pools positive: PCR *Borrelia* spp.[a] | No. pools positive: PCR *B. burgdorferi*[b] | Laboratory |
|---|---|---|---|---|---|---|---|
| Alameda | Tilden Park – Jewel Lake Trail | 2 | 2 | 0 | | | CDHS-VBDS |
| | Tilden Park – Laurel Canyon Road | 7 | 7 | 0 | | | CDHS-VBDS |
| Butte | Loafer Creek SRA | 113 | 13 | | 2 | 1 | US Army |
| Calaveras | Parrots Ferry Road | 19 | 3 | | 0 | | US Army |
| Contra Costa | Tilden Park – Nimitz Trail | 49 | 49 | 0 | | | CDHS-VBDS |
| Los Angeles | Griffith Park-Zoo and Fern Trails | 183 | 19 | | 0 | | US Army |
| Mariposa | Indian Flat Campground | 2 | 1 | | 1 | 1 | US Army |
| | Mariposa Reservoir | 19 | 3 | | 2 | 2 | US Army |
| | McCabe Campground | 29 | 4 | | 0 | | US Army |
| | Midpines | 3 | 1 | | 0 | | US Army |
| Santa Clara | Henry Coe SP – Corral Trail | 75 | 8 | | 4 | 2 | US Army |
| | Henry Coe SP – Corral Trail | 1* | 1 | | 0 | | US Army |
| | Henry Coe SP – Forest Trail | 280 | 29 | | 9 | 9 | US Army |
| Sonoma | Diamond A | 110 | 11 | | 1 | 0 | US Army |
| | Tilton Road – Sebastopol | 71 | 9 | | 0 | | US Army |
| Tuolumne | Columbia SP – Karen Baker Smith Trail | 4 | 2 | | 0 | | US Army |
| Total tested | | 966 | 162 | | | | |
| **Total pools positive** | | | | **0** | **19** | **15** | |

* Nymphs

Laboratory: US Army, United States Army Center for Health Promotion and Preventive Medicine – West
CDHS-VBDS, California Department of Health Services, Vector-Borne Disease Section

[a] PCR primer sets were specific for *Borrelia* genus.
[b] PCR primer sets were specific for *B. burgdorferi*.

*Special thanks to Daniela Muhawi for contributing the cartoons in this bulletin*

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**Our new web address will be:**

**http://cdph.ca.gov**

# Rocky Mountain Spotted Fever

**Emerging Vector-Borne Disease in the Spotlight**

Rocky Mountain spotted fever (RMSF) is a potentially lethal tick-borne disease caused by the bacterium, *Rickettsia rickettsii*. Vectors of *R. rickettsii* in the United States include the Rocky Mountain Wood Tick (*Dermacentor andersoni*) and the American dog tick (*Dermacentor variabilis*). In California, the Rocky Mountain Wood Tick is a known vector of *R. rickettsii.*

In early 2007, tick surveillance was conducted in Aliso and Wood Canyons Wilderness Parks, Orange County, CA in response to a possible human RMSF case. Although the human case was not confirmed, Orange County Vector Control District collected a *D. occidentalis* that tested positive at the Centers for Disease Control and Prevention for *R. rickettsii*.

In a separate investigation, published in the January 2007 Journal of Medical Entomology by Wikswo, *et al*., the first detection in California (Riverside County) of *Rickettsia rickettsii* (the agent of RMSF) and *Bartonella henselae* (the agent of Cat Scratch Disease) from the brown dog tick (*Rhipicephalus sanguineus*) was reported. The brown dog tick has recently been implicated as a vector of RMSF in Arizona. The brown dog tick rarely bites humans though the risk of RMSF may increase concurrent with severe tick infestations.

## *Featured Publication*

Wikswo, M. E., Hu, R., Metzger, M.E., & M.E. Eremeeva. 2007. **Detection of *Rickettsia rickettsii* and *Bartonella henselae* in *Rhipicephalus sanguineus* ticks in California.** J. Med. Ent. 44(1): 158-162.

**If you have questions about the information contained in this report, please contact your DHS VBDS Regional Biologist, or VBDS Headquarters at 916-552-9730.**