

# California Arbovirus Surveillance Bulletin # 1

Week 4 Friday, January 29, 2010

## Weekly Summary

### WEEKLY COMMENTS



No arbovirus activity has been detected in 2010.

### 2009 Summary

#### **Humans**

In 2009, 110 human cases of West Nile virus (WNV) were identified in 19 counties (reported as of January 29, 2010): Butte (2), Contra Costa (5), El Dorado (1), Fresno (13), Kern (19), Kings (3), Los Angeles (20), Madera (1), Merced (4), Monterey (1), Orange (3), Riverside (3), San Bernardino (2), San Diego (3), San Joaquin (10), Stanislaus (13), Tulare (4), Yolo (2), and Yuba (1). Of the 110 individuals, 65 (59%) developed neuroinvasive symptoms. For cases for which data were available, 67 (61%) were male and the median age was 54 years (range: 7-88 years). The median age of the four WNV-associated fatalities was 71 (range: 50-84). In addition, 23 WNV-positive blood donation samples were reported in 2009; 7 of the individuals developed symptoms and were reclassified as cases.

#### **Horses**

In 2009, WNV infections were detected in 18 horses from 12 counties. At the time of onset, all cases were unvaccinated. Eight (44%) of the horses died or were euthanized as a result of their illness.

#### **Dead Birds & Tree Squirrels**

In 2009, the WNV hotline received over 15,000 dead bird reports from the public in 57 counties. Of the 2,803 carcasses deemed suitable for testing, WNV was detected in 515 (18%) carcasses from 36 counties. 55 known species tested positive for WNV.

In 2009, 307 dead tree squirrels were reported through the WNV hotline; 103 carcasses were tested and WNV was detected in 10 carcasses (10%) from seven counties. These included four eastern fox squirrels, five eastern gray squirrels, and one western gray squirrel.

#### **Mosquito Pools**

In 2009, 27,603 mosquito pools were collected and tested for WNV from 37 counties; WNV was detected in 1,063 (3.9%) mosquito pools from 27 counties. WNV was identified from six *Culex* species (*Cx. erythrothorax*, *Cx. pipiens*, *Cx. quinquefasciatus*, *Cx. restuans*, *Cx. stigmatosoma*, *Cx. tarsalis*), *Culiseta inornata*, *Aedes vexans*, and *Anopheles freeborni*. St. Louis encephalitis (SLE) and western equine encephalomyelitis (WEE) viruses were not detected in mosquito pools in 2009.

#### **Sentinel Chickens**

In 2009, 224 sentinel chicken flocks were distributed throughout 38 counties in California. Approximately 24,000 blood samples from 1,982 chickens were tested for antibodies to SLE, WEE, and WNV. A total of 443 seroconversions to WNV were detected among 93 flocks from 23 counties. No SLE and WEE seroconversions were detected in 2009.

2009 & 2008 West Nile Virus Comparisons		
	2008	2009
Total # Dead Bird Reports	33,684	15,472
# Positive Counties	49	42
# Human Cases	445	110
# Horse Cases	32	18
# Positive Dead Birds / # Tested	2,568 / 6,100	515 / 2,803
# Positive Mosquito Pools / # Tested	2,003 / 32,115	1,063 / 27,603
# Seroconversions / # Total Chickens	584 / 2,298	443 / 1,982
# Positive Squirrels / # Tested	33 / 219	10 / 103

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## YTD WNV Activity by Element and County, 2009

County	Humans	Horses	Dead Birds	Mosquito Pools	Sentinel Chickens	Squirrels
Alameda			10	1		
Amador			1			
Butte	2		13	5	36	
Colusa			2			
Contra Costa	5	1	45	17	13	2
El Dorado	1		9			
Fresno	13	1	62	132	17	1
Glenn			6		3	
Imperial				3	42	
Kern	19		28	138	104	1
Kings	3		9	105		
Lake			2	2	1	
Los Angeles	20	1	82	99	41	
Madera	1		11	3	7	
Merced	4	3	9	11	14	
Modoc			1			
Mono				1		
Monterey	1		4			
Napa					3	
Orange	3		10	16		
Placer			4	40	11	
Riverside	3	1	2	27	37	
Sacramento		2	28	36	2	1
San Bernardino	2		18	54	14	2
San Diego	3		39	5	5	
San Francisco			1			
San Joaquin	10	3	24	83	10	
San Luis Obispo			1			
San Mateo			1			
Santa Barbara			1			
Santa Clara			14	14		2
Santa Cruz			1			
Shasta		1	9	2		
Solano		1	3	2	13	
Stanislaus	13	2	28	94	25	
Sutter				25	11	
Tehama		1			2	1
Tulare	4	1	25	131	28	
Tuolumne			2			
Ventura			3			
Yolo	2		7	16	4	
Yuba	1			1		
<b>Total</b>	<b>110</b>	<b>18</b>	<b>515</b>	<b>1063</b>	<b>443</b>	<b>10</b>

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## 2010 TEST SUMMARIES

### Human & Horse Cases

		Number Tested	WNV		WEE		SLE		Other	
			Imported	Local	Imported	Local	Imported	Local	Imported	Local
Humans Tested*	Week	6	0	0	0	0	0	0	0	0
	YTD	47	0	0	0	0	0	0	0	0
Horses Tested	Week	0	--	--	0	0	0	0	0	0
	YTD	0	--	--	0	0	0	0	0	0

### Dead Birds & Tree Squirrels

		Number Tested	WNV Positive
Dead Birds	Week	14	0
	YTD	14	0
Tree Squirrels	Week	0	--
	YTD	0	--

### Sentinel Chickens & Mosquito Pools

		Number Tested	WNV Positive	SLE Positive	WEE Positive
Chicken Sera	Week	0	--	0	0
	YTD	0	--	0	0
Mosquito Pools: RT-PCR	Week	0	--	0	0
	YTD	11	0	0	0
Mosquito Pools: RAMP	Week	0	--	N/A	N/A
	YTD	0	--	N/A	N/A

## TEST PROTOCOLS

### Humans:

Specimens are tested by local laboratories with an IgM or IgG immunofluorescent assay (IFA) and/or an IgM enzyme immunoassay (EIA). Specimens with inconclusive results are forwarded to the California Department of Public Health Viral and Rickettsial Disease Laboratory (VRDL) for further testing or confirmation by plaque reduction neutralization test (PRNT).

\*Human denominator data only includes specimens tested at VRDL and does not include additional negative specimens that are tested by local agencies only.

### Horses:

Serum or brain tissue specimens from horses displaying neurological symptoms are submitted to the California Animal Health and Safety Laboratory (CAHFS) and tested by EIA and PRNT.

### Dead Birds and Tree Squirrels:

Dead birds and tree squirrels are necropsied at CAHFS laboratory at University of California, Davis. Oral swabs from American Crows and kidney tissue from all other dead birds and squirrels are forwarded to the UC Davis Center for Vectorborne Diseases (CVEC) for West Nile virus testing using the singleplex RT-PCR Taqman assay and confirmed with a second primer set. The WNV Dead Bird Surveillance Coordinator, Erin Parker, can be reached directly at (510) 412-6254.

### Sentinel Chickens:

Dried blood spot specimens from sentinel chickens are submitted to the California Department of Public Health Vector-Borne Disease Laboratory and tested for the presence of antibodies to West Nile, western equine encephalomyelitis (WEE), and St. Louis encephalitis (SLE) viruses by EIA and IFA. Positive samples are confirmed by western-blot or PRNT.

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## **Mosquito Pools:**

Mosquito pools are submitted to CVEC and screened for WEE, SLE, and WNV viral RNA using a Taqman multiplex RT-PCR. CVEC will cease confirmation testing on PCR-positive pools of *Cx. tarsalis* and *Cx. quinquefasciatus* but will continue to confirm multiplex PCR-positive results for other mosquito species using singleplex RT-PCR.

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*Prepared by the Vector-Borne Disease Section (Infectious Diseases Branch), California Department of Public Health, 850 Marina Bay Parkway, Richmond, CA 94804. Questions concerning this bulletin should be addressed to Tina Feiszli by phone (510) 412-6298 or email: [tina.feiszli@cdph.ca.gov](mailto:tina.feiszli@cdph.ca.gov)*

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**Website Information:** For updated information on WNV in California, please visit the California WNV website, [www.westnile.ca.gov](http://www.westnile.ca.gov), or the California Vectorborne Disease Surveillance System website, [www.calsurv.org](http://www.calsurv.org). For national information on WNV and other arboviruses, please visit the CDC website, [www.cdc.gov](http://www.cdc.gov), and the USGS website, [www.westnilemaps.usgs.gov](http://www.westnilemaps.usgs.gov).