

## California Arbovirus Surveillance Bulletin #21

Week 34 Friday, August 23, 2019



### Weekly Update

#### **Humans**

A total of 31 human cases of West Nile virus (WNV) illness were reported this week from 6 counties: Butte (1), Fresno (25), Imperial (1), Kern (1), San Diego (2), and San Joaquin (1). **These are the first WNV human cases reported from Kern and San Diego counties this year.** In 2019, 45 WNV human cases have been reported from 11 counties. Of the 45 reported cases, 21 (47%) were classified as neuroinvasive disease and 2 (4%) fatalities have been reported. The median age of the individuals is 57 years (range: 15–93 years) and 27 (60%) are male. Dates of symptom onset range from May 12 to August 10. In addition to the 45 cases, 11 asymptomatic infections have also been reported from Kern (3), Madera (1), San Bernardino (4), San Joaquin (1), Stanislaus (1), and Sutter (1) counties. At this time last year, 31 human cases of WNV illness had been reported from 14 counties.

#### **Dead Birds**

A total of 14 WNV positive dead birds were reported this week from 8 counties: Fresno (1), Los Angeles (2), Orange (1), Placer (1), Sacramento (5), San Joaquin (2), Stanislaus (1), and Tuolumne (1). **This is the first detection of WNV activity in Tuolumne County and the first positive bird from Stanislaus County this year.** In 2019, a total of 81 WNV positive dead birds have been reported from 13 counties. At this time last year, 363 WNV positive dead birds had been reported from 18 counties.

#### **Mosquito Pools**

##### West Nile virus

A total of 284 WNV positive mosquito pools were reported this week from 19 counties: Butte (12), Fresno (60), Kern (13), Kings (10), Lake (1), Los Angeles (9), Madera (10), Merced (3), Placer (7), Riverside (2), Sacramento (8), San Bernardino (8), San Joaquin (36), Shasta (2), Stanislaus (41), Sutter (3), Tulare (53), Yolo (4), and Yuba (2). In 2019, a total of 2,269 WNV positive mosquito pools have been reported from 23 counties. At this time last year, 1,296 WNV positive mosquito pools had been reported from 27 counties.

##### St. Louis encephalitis virus

This week, a total of 20 mosquito pools were reported positive for St. Louis encephalitis virus (SLEV) from 5 counties: Fresno (7), Kern (3), Riverside (4), Stanislaus (1), and Tulare (5). **This is the first detection of SLEV activity in Stanislaus County this year.** In 2019, a total of 154 SLEV positive mosquito pools have been reported from 7 counties: Fresno (31), Imperial (3), Kern (47), Kings (1), Riverside (20), Stanislaus (1), and Tulare (51). At this time last year, 247 SLEV positive mosquito pools had been reported from 7 counties.

#### **Sentinel Chickens**

A total of 19 WNV seroconversions were reported this week from 4 counties: Butte (12), Glenn (1), Merced (3), and Sutter (3). **These are the first WNV positive chickens reported from Butte and Glenn counties this year.** In 2019, 45 WNV positive chickens have been reported from 8 counties. At this time last year, 76 WNV positive chickens had been reported from 12 counties.

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<b>YTD WNV Activity by Element and County, 2019</b>					
<b>County</b>	<b>Humans</b>	<b>Horses</b>	<b>Dead Birds</b>	<b>Mosquito Pools</b>	<b>Sentinel Chickens</b>
Butte	2			30	12
Fresno	26	1	9	379	
Glenn				1	1
Imperial	3			1	
Kern	1	1	1	106	
Kings				45	
Lake				4	
Los Angeles	2		9	24	7
Madera				50	
Merced			2	23	9
Orange			12	4	
Placer			2	43	4
Riverside				491	
Sacramento			21	37	
San Bernardino	1	1		40	
San Diego	2		1		
San Joaquin	2		5	139	
Shasta				3	
Solano	1				
Stanislaus	1	1	1	118	
Sutter				12	4
Tulare	4		15	684	7
Tuolumne			1		
Ventura				1	
Yolo				15	
Yuba			2	19	1
<b>Totals</b>	<b>45</b>	<b>4</b>	<b>81</b>	<b>2,269</b>	<b>45</b>

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2018 & 2019 YTD West Nile Virus Comparisons		
	2018	2019
Total # Dead Bird Reports	5,753	3,868
# Positive Counties	35	26
# Human Cases	31	45
# Positive Dead Birds / # Tested	363 / 1,506	81 / 1,198
# Positive Mosquito Pools / # Tested	1,296 / 29,113	2,269 / 29,483
# Seroconversions / # Tested	76 / 6,586	45 / 5,679

### TESTING SUMMARIES

#### Humans

		WNV	SLE	WEE
Human Cases	Week	31	0	0
	YTD	45	0	0

#### Dead Birds

		Number Tested	WNV Positive
Dead Birds	Week	55	14
	YTD	1,198	81

#### Chickens

		Number Tested	WNV Positive	SLEV Positive	WEEV Positive
Chicken Sera	Week	257	19	0	0
	YTD	5,679	45	0	0

#### Mosquitoes

		Positive / Total Tested					
Mosquito Pools	Week	WNV	SLEV	WEEV	CHIK	DENV	ZIKA
		284 / 1,939	20 / 1,811	0 / 1,678	0 / 151	0 / 151	0 / 151
		YTD	2,269 / 29,483	154 / 26,793	0 / 25,107	0 / 541	0 / 541

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## POSITIVES

### Dead Birds

County	Agency	City	Zip Code	Species	Date Reported	Virus
Fresno	Fresno MVCD	Biola	93606	Unknown - songbird	8/22/2019	WNV
Los Angeles	Los Angeles Co Veterinarian	Los Angeles	90094	Unknown	8/19/2019	WNV
Los Angeles	Los Angeles Co Veterinarian	Woodland Hills	91364	American Crow	8/19/2019	WNV
Orange	Orange Co VCD	Anaheim	92805	American Crow	8/12/2019	WNV
Placer	Placer MVCD	Roseville	95661	American Crow	8/21/2019	WNV
Sacramento	Sacramento-Yolo MVCD	Citrus Heights	95621	American Crow	8/19/2019	WNV
Sacramento	Sacramento-Yolo MVCD	Elk Grove	95624	California Scrub-Jay	8/13/2019	WNV
Sacramento	Sacramento-Yolo MVCD	Elk Grove	95624	California Scrub-Jay	8/18/2019	WNV
Sacramento	Sacramento-Yolo MVCD	Rancho Cordova	95742	American Robin	8/14/2019	WNV
Sacramento	Sacramento-Yolo MVCD	Sacramento	95828	Mourning Dove	8/13/2019	WNV
San Joaquin	San Joaquin Co MVCD	Manteca	95336	Northern Mockingbird	8/21/2019	WNV
San Joaquin	San Joaquin Co MVCD	Manteca	95336	Northern Mockingbird	8/21/2019	WNV
Stanislaus	Turlock MAD	Turlock	95382	Unknown - songbird	8/19/2019	WNV
Tuolumne	Tuolumne Co Dept of Env Health	Jamestown	95327	California Scrub-Jay	8/19/2019	WNV

### Mosquito Pools

County	Site Code	Pool #	Species	City	# in Pool	Trap Type	Collected	Virus
Butte	BUCO127	332	Cx. tarsalis	Palermo	50	CO2	8/20/19	WNV
Butte	BUCO127	333	Cx. tarsalis	Palermo	32	CO2	8/20/19	WNV
Butte	BUCO129	303	Cx. tarsalis	Gridley	50	CO2	8/12/19	WNV
Butte	BUCO129	304	Cx. tarsalis	Gridley	50	CO2	8/12/19	WNV
Butte	BUCO129	305	Cx. tarsalis	Gridley	50	CO2	8/12/19	WNV
Butte	BUCO129	318	Cx. tarsalis	Gridley	50	CO2	8/13/19	WNV
Butte	BUCO129	320	Cx. tarsalis	Gridley	50	CO2	8/13/19	WNV
Butte	BUCO143	329	Cx. tarsalis	Palermo	50	CO2	8/20/19	WNV
Butte	BUCO143	330	Cx. tarsalis	Palermo	50	CO2	8/20/19	WNV
Butte	BUCO35	314	Cx. tarsalis	Gridley	50	CO2	8/13/19	WNV
Butte	BUCO35	316	Cx. tarsalis	Gridley	50	CO2	8/13/19	WNV
Butte	BUCO91	325	Cx. tarsalis	Biggs	50	CO2	8/19/19	WNV
Fresno	CNSL1250	567	Cx. quinquefasciatus	Fresno	36	GRVD	8/16/19	WNV
Fresno	CNSL1430	573	Cx. quinquefasciatus	Fresno	50	GRVD	8/16/19	WNV
Fresno	CNSL1430	574	Cx. quinquefasciatus	Fresno	42	GRVD	8/16/19	WNV
Fresno	CNSL1536	558	Cx. quinquefasciatus	Clovis	29	GRVD	8/16/19	WNV
Fresno	CNSL1718	563	Cx. quinquefasciatus	Fresno	29	GRVD	8/16/19	WNV
Fresno	CNSL1868	576	Cx. quinquefasciatus	Fresno	20	GRVD	8/16/19	WNV
Fresno	CNSL1991	571	Cx. quinquefasciatus	Fresno	29	GRVD	8/16/19	WNV
Fresno	CNSL3063	522	Cx. quinquefasciatus	Reedley	50	BGSENT	8/13/19	WNV
Fresno	CNSL3064	521	Cx. quinquefasciatus	Reedley	50	GRVD	8/13/19	SLEV
Fresno	CNSL3064	521	Cx. quinquefasciatus	Reedley	50	GRVD	8/13/19	WNV
Fresno	CNSL3110	548	Cx. quinquefasciatus	Parlier	18	GRVD	8/15/19	WNV
Fresno	CNSL3295	523	Cx. quinquefasciatus	Reedley	12	GRVD	8/13/19	WNV
Fresno	CNSL3382	526	Cx. quinquefasciatus	Reedley	13	GRVD	8/13/19	WNV
Fresno	CNSL3383	525	Cx. quinquefasciatus	Reedley	20	GRVD	8/13/19	WNV
Fresno	CNSL4022	533	Cx. quinquefasciatus	Selma	16	GRVD	8/14/19	WNV
Fresno	CNSL4056	518	Cx. quinquefasciatus	Fowler	16	GRVD	8/13/19	WNV
Fresno	CNSL4168	531	Cx. quinquefasciatus	Selma	19	GRVD	8/14/19	WNV
Fresno	CNSL4173	513	Cx. quinquefasciatus	Fowler	39	GRVD	8/13/19	WNV
Fresno	CNSL4181	517	Cx. quinquefasciatus	Fowler	43	GRVD	8/13/19	WNV

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Fresno	CNSL4184	520	Cx. quinquefasciatus	Fowler	17	GRVD	8/13/19	WNV
Fresno	CNSL4198	514	Cx. quinquefasciatus	Fowler	12	GRVD	8/13/19	WNV
Fresno	CNSL4226	519	Cx. quinquefasciatus	Fowler	13	GRVD	8/13/19	WNV
Fresno	CNSL5037	530	Cx. quinquefasciatus	Kingsburg	21	GRVD	8/14/19	WNV
Fresno	CNSL5181	532	Cx. quinquefasciatus	Kingsburg	50	GRVD	8/14/19	WNV
Fresno	CNSL8020	512	Cx. quinquefasciatus	Clovis	12	GRVD	8/13/19	WNV
Fresno	CNSL8035	559	Cx. quinquefasciatus	Clovis	50	GRVD	8/16/19	WNV
Fresno	CNSL8047	562	Cx. quinquefasciatus	Fresno	42	GRVD	8/16/19	WNV
Fresno	CNSL8067	572	Cx. quinquefasciatus	Fresno	22	GRVD	8/16/19	WNV
Fresno	CNSL8070	575	Cx. quinquefasciatus	Fresno	16	GRVD	8/16/19	SLEV
Fresno	CNSL8093	538	Cx. quinquefasciatus	Fresno	15	GRVD	8/14/19	WNV
Fresno	CNSL8117	561	Cx. quinquefasciatus	Clovis	13	GRVD	8/16/19	WNV
Fresno	FRNO112	444	Cx. quinquefasciatus	Fresno	50	GRVD	8/13/19	WNV
Fresno	FRNO112	445	Cx. quinquefasciatus	Fresno	50	GRVD	8/13/19	WNV
Fresno	FRNO112	446	Cx. quinquefasciatus	Fresno	50	GRVD	8/13/19	WNV
Fresno	FRNO112	447	Cx. quinquefasciatus	Fresno	50	GRVD	8/13/19	WNV
Fresno	FRNO112	481	Cx. quinquefasciatus	Fresno	50	GRVD	8/20/19	WNV
Fresno	FRNO112	482	Cx. quinquefasciatus	Fresno	50	GRVD	8/20/19	WNV
Fresno	FRNO112	483	Cx. quinquefasciatus	Fresno	50	GRVD	8/20/19	WNV
Fresno	FRNO116	477	Cx. quinquefasciatus	Fresno	34	GRVD	8/20/19	WNV
Fresno	FRNO15	478	Cx. quinquefasciatus	Fresno	14	GRVD	8/20/19	WNV
Fresno	FRNO165	441	Cx. quinquefasciatus	Fresno	50	GRVD	8/13/19	SLEV
Fresno	FRNO165	442	Cx. quinquefasciatus	Fresno	15	GRVD	8/13/19	SLEV
Fresno	FRNO189	497	Cx. quinquefasciatus	Fresno	19	GRVD	8/22/19	WNV
Fresno	FRNO214	453	Cx. quinquefasciatus	Kerman	45	GRVD	8/13/19	WNV
Fresno	FRNO218	428	Cx. quinquefasciatus	Fresno	38	GRVD	8/8/19	SLEV
Fresno	FRNO218	428	Cx. quinquefasciatus	Fresno	38	GRVD	8/8/19	WNV
Fresno	FRNO219	464	Cx. quinquefasciatus	Fresno	50	GRVD	8/14/19	WNV
Fresno	FRNO238	465	Cx. quinquefasciatus	Fresno	50	GRVD	8/14/19	WNV
Fresno	FRNO238	466	Cx. quinquefasciatus	Fresno	50	GRVD	8/14/19	WNV
Fresno	FRNO31	429	Cx. quinquefasciatus	Fresno	11	GRVD	8/13/19	WNV
Fresno	FRNO35	426	Cx. quinquefasciatus	Fresno	50	GRVD	8/8/19	WNV
Fresno	FRNO35	427	Cx. quinquefasciatus	Fresno	50	GRVD	8/8/19	WNV
Fresno	FRNO61	425	Cx. quinquefasciatus	Sunnyside	20	GRVD	8/8/19	WNV
Fresno	FRNO7	443	Cx. quinquefasciatus	Fresno	17	GRVD	8/13/19	WNV
Fresno	FRNO8	450	Cx. quinquefasciatus	Fresno	50	GRVD	8/13/19	WNV
Fresno	FRNO8	451	Cx. quinquefasciatus	Fresno	50	GRVD	8/13/19	WNV
Fresno	FRNO8	459	Cx. quinquefasciatus	Fresno	16	CO2	8/13/19	WNV
Fresno	FRNO8006	487	Cx. quinquefasciatus	Kerman	50	GRVD	8/20/19	WNV
Fresno	FRNO8006	488	Cx. quinquefasciatus	Kerman	50	GRVD	8/20/19	WNV
Fresno	FRNO8007	491	Cx. quinquefasciatus	Fresno	25	GRVD	8/21/19	WNV
Fresno	FRNO8011	454	Cx. quinquefasciatus	Fresno	31	GRVD	8/13/19	WNV
Fresno	FRWS1202	227	Cx. tarsalis	Firebaugh	50	CO2	8/20/19	WNV
Fresno	FRWS200003	223	Cx. tarsalis	Firebaugh	50	CO2	8/20/19	SLEV
Fresno	FRWS200003	225	Cx. tarsalis	Firebaugh	50	CO2	8/20/19	WNV
Fresno	FRWS200003	226	Cx. quinquefasciatus	Firebaugh	41	CO2	8/20/19	WNV
Fresno	FRWS2105	231	Cx. tarsalis	Firebaugh	50	CO2	8/20/19	SLEV
Fresno	FRWS5110	233	Cx. tarsalis	Tranquillity	45	CO2	8/20/19	WNV
Kern	DLNO107	190	Cx. quinquefasciatus	Delano	50	BGSENT	8/15/19	SLEV
Kern	DLNO107	190	Cx. quinquefasciatus	Delano	50	BGSENT	8/15/19	WNV
Kern	DLNO111	198	Cx. quinquefasciatus	Delano	33	GRVD	8/16/19	WNV
Kern	DLNO115	207	Cx. quinquefasciatus	Delano	17	GRVD	8/20/19	WNV
Kern	DLNO2	194	Cx. quinquefasciatus	Delano-McFarland	50	CO2	8/15/19	WNV
Kern	DLNO22	205	Cx. quinquefasciatus	Delano	14	GRVD	8/20/19	WNV

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Kern	DLNO39	203	Cx. quinquefasciatus	Delano	35	GRVD	8/20/19	WNV
Kern	DLNO50	201	Cx. quinquefasciatus	McFarland	11	GRVD	8/16/19	WNV
Kern	KERN1156	507	Cx. quinquefasciatus	Arvin-Lamont	50	CO2	8/13/19	WNV
Kern	KERN117	514	Cx. quinquefasciatus	West Kern	50	CO2	8/16/19	WNV
Kern	KERN3023	506	Cx. quinquefasciatus	Wasco	50	CO2	8/13/19	WNV
Kern	KERN3030	510	Cx. tarsalis	Shafter	50	CO2	8/14/19	WNV
Kern	KERN31	508	Cx. tarsalis	Arvin-Lamont	50	CO2	8/13/19	WNV
Kern	KERN42	516	Cx. tarsalis		50	CO2	8/16/19	SLEV
Kern	KERN42	516	Cx. tarsalis		50	CO2	8/16/19	WNV
Kern	WEST6254	144	Cx. quinquefasciatus	Ford City	24	GRVD	8/21/19	SLEV
Kings	KNGS3018	401	Cx. tarsalis	Hanford	50	CO2	8/13/19	WNV
Kings	KNGS3018	402	Cx. tarsalis	Hanford	50	CO2	8/13/19	WNV
Kings	KNGS3022	399	Cx. tarsalis	Hanford	50	CO2	8/13/19	WNV
Kings	KNGS3030	404	Cx. tarsalis	Lemoore	50	CO2	8/14/19	WNV
Kings	KNGS3030	406	Cx. tarsalis	Lemoore	50	CO2	8/14/19	WNV
Kings	KNGS3072	412	Cx. tarsalis	Hanford	27	CO2	8/15/19	WNV
Kings	KNGS3110	421	Cx. tarsalis	Hanford	50	CO2	8/16/19	WNV
Kings	KNGS4445	396	Cx. pipiens	Lemoore	16	BGSENT	8/13/19	WNV
Kings	KNGS5519	398	Cx. pipiens	Hanford	33	BGSENT	8/13/19	WNV
Kings	KNGS8033	419	Cx. tarsalis	Hanford	50	CO2	8/16/19	WNV
Lake	LAKE200	519	Cx. tarsalis	Spring Valley	30	CO2	8/15/19	WNV
Los Angeles	ANTV4320	95	Cx. quinquefasciatus	Lancaster	11	BGSENT	8/21/19	WNV
Los Angeles	ANTV833655	98	Cx. quinquefasciatus	Lancaster	6	GRVD	8/22/19	WNV
Los Angeles	GRLA2030	5725	Cx. quinquefasciatus	Los Angeles	11	GRVD	8/15/19	WNV
Los Angeles	GRLA2097	765	Cx. quinquefasciatus	La Mirada	33	GRVD	8/15/19	WNV
Los Angeles	GRLA2675	5733	Cx. quinquefasciatus	Los Angeles	42	CO2	8/15/19	WNV
Los Angeles	GRLA2724	5723	Cx. quinquefasciatus	Los Angeles	30	CO2	8/15/19	WNV
Los Angeles	GRLA2955	769	Cx. quinquefasciatus	Cerritos	46	GRVD	8/15/19	WNV
Los Angeles	GRLA3028	5727	Cx. quinquefasciatus	Los Angeles	50	BGSENT	8/15/19	WNV
Los Angeles	GRLA3036	5726	Cx. quinquefasciatus	Los Angeles	50	GRVD	8/15/19	WNV
Madera	MADR1109	216	Cx. tarsalis	Madera	39	CO2	8/15/19	WNV
Madera	MADR195	220	Cx. tarsalis	Chowchilla	50	CO2	8/16/19	WNV
Madera	MADR265	205	Cx. quinquefasciatus	Madera	50	CO2	8/13/19	WNV
Madera	MADR265	206	Cx. tarsalis	Madera	25	CO2	8/13/19	WNV
Madera	MADR309	202	Cx. quinquefasciatus	Madera	40	CO2	8/13/19	WNV
Madera	MADR309	203	Cx. tarsalis	Madera	22	CO2	8/13/19	WNV
Madera	MADR3334	214	Cx. tarsalis	Parkwood	18	CO2	8/15/19	WNV
Madera	MADR3334	215	Cx. quinquefasciatus	Parkwood	28	CO2	8/15/19	WNV
Madera	MADR889	213	Cx. tarsalis	Madera	50	CO2	8/14/19	WNV
Madera	MADR896	211	Cx. tarsalis	Madera	50	CO2	8/14/19	WNV
Merced	MERC402	508	Cx. pipiens	Hilmar	36	CO2	8/20/19	WNV
Merced	MERC612	505	Cx. pipiens	Delhi	50	CO2	8/20/19	WNV
Merced	MERC878651	525	Cx. pipiens	Merced	26	BGSENT	8/22/19	WNV
Placer	PLCR1113	1698	Cx. tarsalis	Lincoln	50	CO2	8/20/19	WNV
Placer	PLCR139	1722	Cx. tarsalis	Roseville	50	CO2	8/21/19	WNV
Placer	PLCR191373	1672	Cx. tarsalis	Lincoln	50	CO2	8/20/19	WNV
Placer	PLCR194232	1676	Cx. tarsalis	Lincoln	50	CO2	8/20/19	WNV
Placer	PLCR198710	1668	Cx. tarsalis	Lincoln	44	CO2	8/20/19	WNV
Placer	PLCR199138	1742	Cx. tarsalis	Lincoln	3	CO2	8/22/19	WNV
Placer	PLCR668	1659	Cx. tarsalis	Lincoln	6	CO2	8/20/19	WNV
Riverside	COAV0	4605	Cx. tarsalis		50	CO2	8/16/19	SLEV
Riverside	COAV123	4632	Cx. tarsalis		50	CO2	8/20/19	SLEV
Riverside	COAV123	4633	Cx. tarsalis		38	CO2	8/20/19	SLEV
Riverside	COAV45	4635	Cx. tarsalis		50	CO2	8/20/19	WNV

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Riverside	COAV604	4708	Cx. quinquefasciatus	Palm Springs	10	GRVD	8/22/19	WNV
Riverside	COAV611	4654	Cx. tarsalis		50	CO2	8/20/19	SLEV
Sacramento	SAYO214013	4397	Cx. pipiens	Carmichael	5	CO2	8/16/19	WNV
Sacramento	SAYO233029	4548	Cx. pipiens	Elk Grove	8	GRVD	8/20/19	WNV
Sacramento	SAYO233051	4436	Cx. tarsalis	Florin	1	GRVD	8/16/19	WNV
Sacramento	SAYO233079	4537	Cx. pipiens	Elk Grove	47	GRVD	8/20/19	WNV
Sacramento	SAYO234019	4288	Cx. pipiens	Elk Grove	3	GRVD	8/14/19	WNV
Sacramento	SAYO235001	4393	Cx. pipiens	Sloughhouse	4	GRVD	8/16/19	WNV
Sacramento	SAYO245026	4385	Cx. pipiens	Wilton	14	CO2	8/16/19	WNV
Sacramento	SAYO261003	4480	Cx. tarsalis	Isleton	14	CO2	8/16/19	WNV
San Bernardino	WVAL127	2065	Cx. quinquefasciatus	Ontario	5	GRVD	8/20/19	WNV
San Bernardino	WVAL5004	2059	Cx. quinquefasciatus	Rancho Cucamonga	30	GRVD	8/20/19	WNV
San Bernardino	WVAL6002	2079	Cx. quinquefasciatus	Ontario	49	CO2	8/21/19	WNV
San Bernardino	WVAL6013	2080	Cx. stigmatosoma	Ontario	6	CO2	8/21/19	WNV
San Bernardino	WVAL7002	2070	Cx. quinquefasciatus	Montclair	5	GRVD	8/20/19	WNV
San Bernardino	WVAL8003	2088	Cx. quinquefasciatus	Chino	7	CO2	8/21/19	WNV
San Bernardino	WVAL8003	2090	Cx. tarsalis	Chino	50	CO2	8/21/19	WNV
San Bernardino	WVAL9006	2062	Cx. quinquefasciatus	Upland	8	GRVD	8/20/19	WNV
San Joaquin	SJCM8000	1595	Cx. pipiens	Manteca	6	CO2	8/20/19	WNV
San Joaquin	SJCM8010	1634	Cx. tarsalis	Ripon	8	CO2	8/20/19	WNV
San Joaquin	SJCM8018	1590	Cx. tarsalis	Stockton	50	CO2	8/20/19	WNV
San Joaquin	SJCM8018	1591	Cx. tarsalis	Stockton	40	CO2	8/20/19	WNV
San Joaquin	SJCM8018	1592	Cx. pipiens	Stockton	7	CO2	8/20/19	WNV
San Joaquin	SJCM8022	1583	Cx. tarsalis	Stockton	45	CO2	8/20/19	WNV
San Joaquin	SJCM8041	1611	Cx. pipiens	Lodi	50	CO2	8/20/19	WNV
San Joaquin	SJCM8056	1632	Cx. tarsalis	Manteca	24	CO2	8/20/19	WNV
San Joaquin	SJCM8056	1633	Cx. pipiens	Manteca	15	CO2	8/20/19	WNV
San Joaquin	SJCM8100	1655	Cx. tarsalis	Tracy	35	CO2	8/20/19	WNV
San Joaquin	SJCM8106	1672	Cx. pipiens	Escalon	50	CO2	8/22/19	WNV
San Joaquin	SJCM8160	1639	Cx. tarsalis	Manteca	26	CO2	8/20/19	WNV
San Joaquin	SJCM8160	1640	Cx. pipiens	Manteca	7	CO2	8/20/19	WNV
San Joaquin	SJCM8161	1594	Cx. pipiens	Ripon	25	CO2	8/20/19	WNV
San Joaquin	SJCM8203	1626	Cx. tarsalis	Thornton	50	CO2	8/20/19	WNV
San Joaquin	SJCM8203	1627	Cx. tarsalis	Thornton	17	CO2	8/20/19	WNV
San Joaquin	SJCM8203	1628	Cx. pipiens	Thornton	21	CO2	8/20/19	WNV
San Joaquin	SJCM8204	1643	Cx. tarsalis	Thornton	50	CO2	8/20/19	WNV
San Joaquin	SJCM8206	1662	Cx. tarsalis	Thornton	50	CO2	8/20/19	WNV
San Joaquin	SJCM8206	1663	Cx. tarsalis	Thornton	50	CO2	8/20/19	WNV
San Joaquin	SJCM8206	1664	Cx. tarsalis	Thornton	50	CO2	8/20/19	WNV
San Joaquin	SJCM8206	1665	Cx. tarsalis	Thornton	50	CO2	8/20/19	WNV
San Joaquin	SJCM8206	1666	Cx. tarsalis	Thornton	50	CO2	8/20/19	WNV
San Joaquin	SJCM8206	1667	Cx. tarsalis	Thornton	21	CO2	8/20/19	WNV
San Joaquin	SJCM8206	1668	Cx. pipiens	Thornton	54	CO2	8/20/19	WNV
San Joaquin	SJCM8208	1688	Cx. tarsalis	Lockford	50	CO2	8/22/19	WNV
San Joaquin	SJCM8208	1689	Cx. tarsalis	Lockford	50	CO2	8/22/19	WNV
San Joaquin	SJCM8208	1690	Cx. tarsalis	Lockford	28	CO2	8/22/19	WNV
San Joaquin	SJCM8208	1691	Cx. pipiens	Lockford	16	CO2	8/22/19	WNV
San Joaquin	SJCM8210	1674	Cx. tarsalis	Escalon	23	CO2	8/22/19	WNV
San Joaquin	SJCM8210	1675	Cx. pipiens	Escalon	50	CO2	8/22/19	WNV
San Joaquin	SJCM8210	1676	Cx. tarsalis	Escalon	50	CO2	8/22/19	WNV
San Joaquin	SJCM8210	1677	Cx. tarsalis	Escalon	50	CO2	8/22/19	WNV
San Joaquin	SJCM8210	1678	Cx. pipiens	Escalon	34	CO2	8/22/19	WNV
San Joaquin	SJCM8213	1646	Cx. pipiens	Lodi	22	CO2	8/20/19	WNV

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San Joaquin	SJCM8223	1575	Cx. pipiens	Stockton	21	CO2	8/20/19	WNV
Shasta	SHAS10020	308	Cx. pipiens	Anderson	20	CO2	8/20/19	WNV
Shasta	SHAS375	307	Cx. tarsalis	Bella Vista	14	CO2	8/20/19	WNV
Stanislaus	EAST1081	19169	Cx. tarsalis	East Oakdale	37	CO2	8/16/19	WNV
Stanislaus	EAST1088	19164	Cx. pipiens	Modesto	2	GRVD	8/15/19	WNV
Stanislaus	EAST2010	19165	Cx. tarsalis	Modesto	28	CO2	8/15/19	WNV
Stanislaus	TRLK1301	829	Cx. pipiens	Denair	50	CO2	8/22/19	WNV
Stanislaus	TRLK1301	831	Cx. pipiens	Denair	50	CO2	8/22/19	WNV
Stanislaus	TRLK1301	834	Cx. tarsalis	Denair	29	CO2	8/22/19	WNV
Stanislaus	TRLK1673	799	Cx. pipiens	Turlock	50	CO2	8/20/19	WNV
Stanislaus	TRLK1673	800	Cx. pipiens	Turlock	50	CO2	8/20/19	WNV
Stanislaus	TRLK1673	801	Cx. tarsalis	Patterson	35	CO2	8/20/19	WNV
Stanislaus	TRLK17152	836	Cx. pipiens	Denair	50	CO2	8/22/19	WNV
Stanislaus	TRLK17152	837	Cx. pipiens	Denair	50	CO2	8/22/19	WNV
Stanislaus	TRLK17152	838	Cx. pipiens	Denair	50	CO2	8/22/19	WNV
Stanislaus	TRLK17152	841	Cx. pipiens	Denair	50	CO2	8/22/19	WNV
Stanislaus	TRLK17152	843	Cx. pipiens	Denair	50	CO2	8/22/19	WNV
Stanislaus	TRLK17152	844	Cx. pipiens	Denair	50	CO2	8/22/19	WNV
Stanislaus	TRLK17152	845	Cx. pipiens	Denair	41	CO2	8/22/19	WNV
Stanislaus	TRLK17152	846	Cx. tarsalis	Denair	15	CO2	8/22/19	WNV
Stanislaus	TRLK17251	852	Cx. pipiens	Turlock	23	CO2	8/22/19	WNV
Stanislaus	TRLK19125	822	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK19125	823	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK19125	824	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK19125	825	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK19277	853	Cx. pipiens	Turlock	50	CO2	8/22/19	WNV
Stanislaus	TRLK19277	854	Cx. pipiens	Turlock	50	CO2	8/22/19	WNV
Stanislaus	TRLK424	796	Cx. pipiens	Turlock	34	CO2	8/20/19	WNV
Stanislaus	TRLK424	798	Cx. tarsalis	Patterson	50	CO2	8/20/19	WNV
Stanislaus	TRLK432	807	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	808	Cx. pipiens	Turlock	50	CO2	8/15/19	SLEV
Stanislaus	TRLK432	808	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	809	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	810	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	811	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	812	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	813	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	814	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	815	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	816	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	817	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	818	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	820	Cx. pipiens	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK432	821	Cx. tarsalis	Turlock	50	CO2	8/15/19	WNV
Stanislaus	TRLK806	787	Cx. tarsalis	Grayson	34	CO2	8/20/19	WNV
Sutter	SUYA3	395	Cx. tarsalis	Yuba City	19	CO2	8/20/19	WNV
Sutter	SUYA31	389	Cx. tarsalis	Rio Oso	34	REST	8/19/19	WNV
Sutter	SUYA63	390	Cx. tarsalis	Live Oak	24	REST	8/19/19	WNV
Tulare	DLNO16	206	Cx. quinquefasciatus	Earl mart	29	GRVD	8/20/19	WNV
Tulare	DLNO60	193	Cx. quinquefasciatus	Earl mart	50	CO2	8/15/19	WNV
Tulare	DLNO89	197	Cx. quinquefasciatus	Terra Bella	17	GRVD	8/16/19	WNV
Tulare	DLNO96	192	Cx. quinquefasciatus	Earl mart	50	CO2	8/15/19	WNV
Tulare	DLTA6404	2757	Cx. quinquefasciatus	Dinuba	50	CO2	8/16/19	WNV
Tulare	DLTA6404	2759	Cx. tarsalis	Dinuba	31	CO2	8/16/2019	WNV



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Tulare	DLTA6404	2760	Cx. stigmatosoma	Dinuba	29	CO2	8/16/19	WNV
Tulare	DLTA6404	2761	Cx. quinquefasciatus	Dinuba	34	CO2	8/16/19	WNV
Tulare	DLTA6404	2762	Cx. tarsalis	Dinuba	50	CO2	8/16/19	WNV
Tulare	DLTA6404	2763	Cx. tarsalis	Dinuba	10	CO2	8/16/19	WNV
Tulare	DLTA6404	2764	Cx. stigmatosoma	Dinuba	39	CO2	8/16/19	WNV
Tulare	DLTA6404	2765	Cx. quinquefasciatus	Dinuba	40	CO2	8/16/19	WNV
Tulare	DLTA6404	2766	Cx. quinquefasciatus	Dinuba	15	CO2	8/16/19	WNV
Tulare	DLTA6404	2768	Cx. quinquefasciatus	Dinuba	50	CO2	8/16/19	WNV
Tulare	DLTA6407	2835	Cx. quinquefasciatus	Dinuba	26	GRVD	8/20/19	WNV
Tulare	DLTA6416	2786	Cx. quinquefasciatus		16	GRVD	8/16/19	WNV
Tulare	DLTA6508	2785	Cx. quinquefasciatus	Orosi	18	GRVD	8/16/19	WNV
Tulare	DLTA6531	2800	Cx. quinquefasciatus	Orosi	36	CO2	8/20/19	WNV
Tulare	DLTA6532	2795	Cx. tarsalis	Orosi	10	CO2	8/20/19	WNV
Tulare	DLTA6532	2796	Cx. quinquefasciatus	Orosi	29	CO2	8/20/19	WNV
Tulare	DLTA6532	2797	Cx. tarsalis	Orosi	15	CO2	8/20/19	WNV
Tulare	DLTA8413	2790	Cx. quinquefasciatus	Visalia	14	GRVD	8/16/19	WNV
Tulare	DLTA8413	2841	Cx. quinquefasciatus	Visalia	47	CO2	8/21/19	WNV
Tulare	DLTA8414	2823	Cx. quinquefasciatus	Visalia	14	GRVD	8/20/19	SLEV
Tulare	DLTA8414	2846	Cx. quinquefasciatus	Visalia	50	CO2	8/21/19	SLEV
Tulare	DLTA8415	2850	Cx. quinquefasciatus	Visalia	50	CO2	8/21/19	WNV
Tulare	DLTA8415	2860	Cx. quinquefasciatus	Visalia	50	CO2	8/21/19	SLEV
Tulare	DLTA8415	2864	Cx. quinquefasciatus	Visalia	50	CO2	8/21/19	WNV
Tulare	DLTA8415	2866	Cx. quinquefasciatus	Visalia	50	CO2	8/21/19	WNV
Tulare	DLTA8422	2808	Cx. quinquefasciatus	Visalia	50	BGSENT	8/20/19	WNV
Tulare	DLTA8422	2827	Cx. quinquefasciatus	Visalia	50	BGSENT	8/20/19	WNV
Tulare	DLTA8422	2830	Cx. quinquefasciatus	Visalia	50	BGSENT	8/20/19	WNV
Tulare	DLTA8422	2831	Cx. quinquefasciatus	Visalia	50	BGSENT	8/20/19	WNV
Tulare	DLTA8422	2833	Cx. quinquefasciatus	Visalia	37	GRVD	8/20/19	WNV
Tulare	DLTA8423	2818	Cx. quinquefasciatus	Visalia	36	BGSENT	8/20/19	WNV
Tulare	DLTA8424	2824	Cx. quinquefasciatus	Visalia	50	GRVD	8/20/19	SLEV
Tulare	DLTA8426	2791	Cx. quinquefasciatus	Visalia	19	GRVD	8/16/19	WNV
Tulare	DLTA8436	2776	Cx. quinquefasciatus	Visalia	17	GRVD	8/16/19	WNV
Tulare	DLTA8519	2881	Cx. quinquefasciatus	Visalia	18	GRVD	8/21/19	WNV
Tulare	DLTA9403	2782	Cx. quinquefasciatus	Visalia	50	GRVD	8/16/19	WNV
Tulare	DLTA9403	2783	Cx. quinquefasciatus	Visalia	34	GRVD	8/16/19	WNV
Tulare	DLTA9512	2877	Cx. quinquefasciatus	Farmersville	42	GRVD	8/21/19	WNV
Tulare	DLTA9606	2816	Cx. quinquefasciatus	Farmersville	35	GRVD	8/20/19	WNV
Tulare	TLRE192408	16	Cx. quinquefasciatus	Tulare	50	GRVD	8/20/19	WNV
Tulare	TLRE192412	15	Cx. quinquefasciatus	Visalia	33	GRVD	8/20/19	WNV
Tulare	TLRE192435	10	Cx. quinquefasciatus	Tulare	18	GRVD	8/15/19	WNV
Tulare	TLRE192435	11	Cx. quinquefasciatus	Tulare	43	GRVD	8/15/19	SLEV
Tulare	TLRE192435	11	Cx. quinquefasciatus	Tulare	43	GRVD	8/15/19	WNV
Tulare	TLRE192436	12	Cx. quinquefasciatus	Tulare	38	GRVD	8/20/19	WNV
Tulare	TLRE202401	1	Cx. quinquefasciatus	Tulare	50	GRVD	8/1/19	WNV
Tulare	TLRE202404	3	Cx. quinquefasciatus	Tulare	50	GRVD	8/1/19	WNV
Tulare	TLRE202410	8	Cx. quinquefasciatus	Tulare	42	GRVD	8/13/19	WNV
Tulare	TLRE202410	9	Cx. quinquefasciatus	Tulare	50	GRVD	8/13/19	WNV
Tulare	TLRE202412	5	Cx. quinquefasciatus	Tulare	50	GRVD	8/13/19	WNV
Tulare	TLRE202413	6	Cx. quinquefasciatus	Tulare	50	GRVD	8/13/19	WNV
Tulare	TLRE202413	7	Cx. quinquefasciatus	Tulare	50	GRVD	8/13/19	WNV
Tulare	TLRE202507	13	Cx. quinquefasciatus	Tulare	14	GRVD	8/20/19	WNV
Tulare	TLRE202507	14	Cx. quinquefasciatus	Tulare	18	GRVD	8/20/19	WNV
Yolo	SAYO114001	4578	Cx. tarsalis	Knights Landing	50	CO2	8/20/19	WNV
Yolo	SAYO125016	4309	Cx. tarsalis	Woodland	50	CO2	8/16/19	WNV

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Yolo	SAYO135016	4362	Cx. pipiens	Woodland	12	CO2	8/16/19	WNV
Yolo	SAYO136008	4318	Cx. tarsalis	Davis	50	CO2	8/16/19	WNV
Yuba	SUYA39	398	Cx. tarsalis	Marysville	33	CO2	8/21/19	WNV
Yuba	SUYA40	403	Cx. tarsalis	Linda	45	CO2	8/21/19	WNV

### Sentinel Chickens

County	Site Code	City	Date Bled	Virus	Band 01	Band 02	Band 03	Band 04	Band 05	Band 06
Butte	BUCO0003	Oroville	8/13/2019	WNV	1956					
Butte	BUCO0004	Gridley	8/13/2019	WNV	1960	1961				
Butte	BUCO0005	Honcut	8/13/2019	WNV	1966	1967	1968	1969	1983	1995
Butte	BUCO0006	Chico	8/13/2019	WNV	1974					
Butte	BUCO0007	Chico	8/13/2019	WNV	1977	1979				
Glenn	GLEN9701	Willows	8/14/2019	WNV	2153					
Merced	MERC0006	Merced	8/16/2019	WNV	1521	1523				
Merced	MERC1302	Los Banos	8/16/2019	WNV	1537					
Sutter	SUYA0030	Live Oak	8/15/2019	WNV	1844	1845	1847			

## 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 with a plaque reduction neutralization test (PRNT).

### Dead Birds

Oral swab samples collected from bird carcasses are tested at the UC Davis Arbovirus Research and Training laboratory (DART) or at a local agency for West Nile virus by RT-qPCR.

### Sentinel Chickens:

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

### Mosquito Pools:

Mosquito pools are tested at DART or at a local agency for West Nile, western equine encephalomyelitis, and St. Louis encephalitis viral RNA using a multiplex RT-qPCR. Invasive *Aedes* mosquitoes (*Ae. aegypti* and *Ae. albopictus*) are also tested at DART for chikungunya, dengue, and Zika viral RNA by a separate RT-qPCR.

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) 412-6253 or email: [tina.feiszli@cdph.ca.gov](mailto:tina.feiszli@cdph.ca.gov).

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 websites: [www.cdc.gov](http://www.cdc.gov) and [https://wwwn.cdc.gov/arbovet/maps/ADB\\_Diseases\\_Map/index.html](https://wwwn.cdc.gov/arbovet/maps/ADB_Diseases_Map/index.html)