

California Arbovirus Surveillance Bulletin #20

Week 33 Friday, August 16, 2019



Weekly Update

Humans

Four human cases of West Nile virus (WNV) illness were reported this week from Butte (1), San Joaquin (1), Solano (1), and Tulare (1) counties. **These are the first WNV human cases reported from Butte, San Joaquin, and Solano counties this year.** In 2019, a total of 14 human WNV cases have been reported from 9 counties. Of the 14 reported cases, 9 (64%) were classified as neuroinvasive disease and 1 (7%) was fatal. The median age of the individuals is 55 years (range: 15–76 years) and 8 (57%) are male. In addition to the 14 cases, 10 asymptomatic infections have been reported from Kern (3), Madera (1), San Bernardino (3), San Joaquin (1), Stanislaus (1), and Sutter (1) counties. At this time last year, 21 human cases of WNV illness had been reported from 12 counties.

Dead Birds

A total of 9 WNV positive dead birds were reported this week from 6 counties: Kern (1), Los Angeles (1), Merced (1), Placer (1), Sacramento (4), and Tulare (1). **These are the first WNV positive birds reported from Kern and Placer counties this year.** In 2019, a total of 67 WNV positive dead birds have been reported from 11 counties. At this time last year, 316 WNV positive dead birds had been reported from 18 counties.

Mosquito Pools

West Nile virus

A total of 341 WNV positive mosquito pools were reported this week from 20 counties: Butte (16), Fresno (43), Glenn (1), Kern (13), Kings (12), Lake (1), Los Angeles (5), Madera (10), Merced (1), Orange (2), Placer (13), Riverside (7), Sacramento (6), San Bernardino (14), San Joaquin (63), Stanislaus (46), Sutter (6), Tulare (68), Yolo (9), and Yuba (5). **This is the first detection of WNV activity in Glenn County this year.** In 2019, a total of 1,988 WNV positive mosquito pools have been reported from 23 counties. At this time last year, 1,119 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 (2), Kern (5), Kings (1), Riverside (7), and Tulare (5). This is the first detection of SLEV activity in Kings County this year. In 2019, a total of 134 SLEV positive mosquito pools have been reported from 6 counties: Fresno (24), Imperial (3), Kern (44), Kings (1), Riverside (16), and Tulare (46). At this time last year, 212 SLEV positive mosquito pools had been reported from 7 counties.

Sentinel Chickens

A total of 16 WNV seroconversions were reported this week from Los Angeles (4), Merced (1), Placer (4), and Tulare (7) counties. **These are the first WNV positive chickens reported from Placer and Tulare counties this year.** In 2019, a total of 26 WNV positive chickens have been reported from 6 counties. At this time last year, 44 WNV positive chickens had been reported from 8 counties.

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YTD WNV Activity by Element and County, 2019				
County	Humans	Dead Birds	Mosquito Pools	Sentinel Chickens
Butte	1		18	
Fresno	1	8	319	
Glenn			1	
Imperial	2		1	
Kern		1	93	
Kings			35	
Lake			3	
Los Angeles	2	7	15	7
Madera			40	
Merced		2	20	6
Orange		11	4	
Placer		1	36	4
Riverside			489	
Sacramento		16	29	
San Bernardino	1		32	
San Diego		1		
San Joaquin	1	3	103	
Shasta			1	
Solano	1			
Stanislaus	1		77	
Sutter			9	1
Tulare	4	15	631	7
Ventura			1	
Yolo			14	
Yuba		2	17	1
Totals	14	67	1,988	26

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2018 & 2019 YTD West Nile Virus Comparisons		
	2018	2019
Total # Dead Bird Reports	5,471	3,710
# Positive Counties	34	25
# Human Cases	21	14
# Positive Dead Birds / # Tested	316 / 1,407	67 / 1,143
# Positive Mosquito Pools / # Tested	1,119 / 27,421	1,988 / 27,544
# Seroconversions / # Tested	44 / 6,173	26 / 5,422

TESTING SUMMARIES

Humans

		WNV	SLE	WEE
Human Cases	Week	4	0	0
	YTD	14	0	0

Dead Birds

		Number Tested	WNV Positive
Dead Birds	Week	58	9
	YTD	1,143	67

Chickens

		Number Tested	WNV Positive	SLEV Positive	WEEV Positive
Chicken Sera	Week	327	16	0	0
	YTD	5,422	26	0	0

Mosquitoes

		Positive / Total Tested					
		WNV	SLEV	WEEV	CHIK	DENV	ZIKA
Mosquito Pools	Week	341 / 2,274	20 / 2,028	0 / 1,862	0 / 31	0 / 31	0 / 31
	YTD	1,988 / 27,544	134 / 24,982	0 / 23,429	0 / 390	0 / 390	0 / 390

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POSITIVES

Dead Birds

County	Agency	City	Zip Code	Species	Date Reported	Virus
Kern	Kern MVCD	Bakersfield	93308	California Scrub-Jay	8/12/2019	WNV
Los Angeles	Los Angeles Co Veterinarian	Los Angeles	90064	American Crow	8/14/2019	WNV
Merced	Merced Co MAD	Merced	95341	Unknown	8/5/2019	WNV
Placer	Placer MVCD	Roseville	95747	California Scrub-Jay	8/8/2019	WNV
Sacramento	Sacramento-Yolo MVCD	Elk Grove	95624	California Scrub-Jay	8/7/2019	WNV
Sacramento	Sacramento-Yolo MVCD	Elk Grove	95624	Mourning Dove	8/10/2019	WNV
Sacramento	Sacramento-Yolo MVCD	Elk Grove	95624	Yellow-billed Magpie	8/7/2019	WNV
Sacramento	Sacramento-Yolo MVCD	Herald	95638	House Finch	8/9/2019	WNV
Tulare	Delta VCD	Visalia	93292	Finch	8/12/2019	WNV

Mosquito Pools

County	Site Code	Pool #	Species	City	# in Pool	Trap Type	Collected	Virus
Butte	BUCO113	280	Cx. tarsalis		50	CO2	8/7/19	WNV
Butte	BUCO113	282	Cx. tarsalis		50	CO2	8/7/19	WNV
Butte	BUCO117	268	Cx. tarsalis		50	CO2	8/6/19	WNV
Butte	BUCO118	255	Cx. tarsalis	Durham	50	CO2	8/5/19	WNV
Butte	BUCO118	257	Cx. tarsalis	Durham	50	CO2	8/5/19	WNV
Butte	BUCO123	277	Cx. tarsalis		50	CO2	8/7/19	WNV
Butte	BUCO123	278	Cx. tarsalis		50	CO2	8/7/19	WNV
Butte	BUCO167	266	Cx. tarsalis		50	CO2	8/6/19	WNV
Butte	BUCO38	225	Cx. tarsalis		50	CO2	7/30/19	WNV
Butte	BUCO38	227	Cx. tarsalis		50	CO2	7/30/19	WNV
Butte	BUCO43	235	Cx. tarsalis		50	CO2	7/31/19	WNV
Butte	BUCO43	272	Cx. tarsalis		50	CO2	8/6/19	WNV
Butte	BUCO68	299	Cx. tarsalis		50	CO2	8/12/19	WNV
Butte	BUCO69	253	Cx. pipiens	Oroville	50	CO2	8/5/19	WNV
Butte	BUCO71	295	Cx. tarsalis		50	CO2	8/12/19	WNV
Butte	BUCO71	297	Cx. tarsalis		50	CO2	8/12/19	WNV
Fresno	CNSL1137	475	Cx. quinquefasciatus	Fresno	50	GRVD	8/7/19	WNV
Fresno	CNSL1339	506	Cx. quinquefasciatus	Fresno	17	GRVD	8/9/19	WNV
Fresno	CNSL1344	456	Cx. quinquefasciatus		50	GRVD	8/6/19	SLEV
Fresno	CNSL1344	456	Cx. quinquefasciatus		50	GRVD	8/6/19	WNV
Fresno	CNSL1454	476	Cx. quinquefasciatus	Fresno	50	GRVD	8/7/19	WNV
Fresno	CNSL1530	454	Cx. quinquefasciatus	Mayfair	50	GRVD	8/6/19	WNV
Fresno	CNSL1657	502	Cx. quinquefasciatus	Fresno	42	GRVD	8/9/19	WNV
Fresno	CNSL1663	464	Cx. quinquefasciatus		15	GRVD	8/7/19	SLEV
Fresno	CNSL1666	478	Cx. quinquefasciatus	Clovis	27	GRVD	8/8/19	WNV
Fresno	CNSL1698	474	Cx. quinquefasciatus	Fresno	45	GRVD	8/7/19	WNV
Fresno	CNSL1856	470	Cx. quinquefasciatus	Fresno	39	BGSENT	8/7/19	WNV
Fresno	CNSL1918	505	Cx. quinquefasciatus	Fresno	34	GRVD	8/9/19	WNV
Fresno	CNSL1973	489	Cx. quinquefasciatus		50	GRVD	8/8/19	WNV
Fresno	CNSL1973	490	Cx. quinquefasciatus		43	BGSENT	8/8/19	WNV

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Fresno	CNSL1987	479	Cx. quinquefasciatus	Clovis	50	GRVD	8/8/19	WNV
Fresno	CNSL1987	482	Cx. quinquefasciatus	Clovis	28	BGSENT	8/8/19	WNV
Fresno	CNSL2469	487	Cx. quinquefasciatus	Sanger	47	GRVD	8/8/19	WNV
Fresno	CNSL4016	500	Cx. quinquefasciatus	Selma	50	GRVD	8/9/19	WNV
Fresno	CNSL4095	496	Cx. quinquefasciatus	Selma	28	GRVD	8/9/19	WNV
Fresno	CNSL4178	497	Cx. quinquefasciatus	Selma	29	GRVD	8/9/19	WNV
Fresno	CNSL4179	503	Cx. quinquefasciatus	Selma	17	GRVD	8/9/19	WNV
Fresno	CNSL6244	509	Cx. quinquefasciatus	Riverdale	25	GRVD	8/9/19	WNV
Fresno	CNSL6297	510	Cx. quinquefasciatus		50	GRVD	8/9/19	WNV
Fresno	CNSL6297	511	Cx. tarsalis		50	BGSENT	8/9/19	WNV
Fresno	CNSL8033	467	Cx. quinquefasciatus	Fresno	50	GRVD	8/7/19	WNV
Fresno	CNSL8054	480	Cx. quinquefasciatus	Clovis	15	GRVD	8/8/19	WNV
Fresno	CNSL8075	459	Cx. quinquefasciatus	Fresno	50	GRVD	8/6/19	WNV
Fresno	CNSL8084	492	Cx. quinquefasciatus	Fresno	25	GRVD	8/8/19	WNV
Fresno	CNSL8090	468	Cx. quinquefasciatus	Fresno	50	GRVD	8/7/19	WNV
Fresno	CNSL8111	473	Cx. quinquefasciatus	Clovis	43	GRVD	8/7/19	WNV
Fresno	CNSL8113	481	Cx. quinquefasciatus		37	GRVD	8/8/19	WNV
Fresno	CNSL8114	493	Cx. quinquefasciatus	Fresno	18	GRVD	8/8/19	WNV
Fresno	CNSL8115	494	Cx. quinquefasciatus	Fresno	16	GRVD	8/8/19	WNV
Fresno	CNSL9005	462	Cx. quinquefasciatus	Clovis	50	GRVD	8/6/19	WNV
Fresno	CNSL9085	461	Cx. quinquefasciatus	Clovis	50	GRVD	8/6/19	WNV
Fresno	CNSL9131	491	Cx. quinquefasciatus	Fresno	23	GRVD	8/8/19	WNV
Fresno	CNSL9199	477	Cx. quinquefasciatus	Clovis	50	GRVD	8/8/19	WNV
Fresno	FRNO207	420	Cx. quinquefasciatus	Fresno	48	GRVD	8/8/19	WNV
Fresno	FRWS100006	207	Cx. tarsalis		50	CO2	8/13/19	WNV
Fresno	FRWS100006	208	Cx. tarsalis		50	CO2	8/13/19	WNV
Fresno	FRWS100007	211	Cx. tarsalis		50	CO2	8/13/19	WNV
Fresno	FRWS1101	202	Cx. tarsalis		50	CO2	8/13/19	WNV
Fresno	FRWS1101	205	Cx. tarsalis		50	CO2	8/13/19	WNV
Fresno	FRWS5101	221	Cx. tarsalis		50	CO2	8/13/19	WNV
Fresno	FRWS5101	222	Cx. tarsalis		50	CO2	8/13/19	WNV
Glenn	BUCO47	258	Cx. tarsalis	Hamilton City	50	CO2	8/5/19	WNV
Kern	DLNO113	184	Cx. quinquefasciatus	Delano	33	GRVD	8/13/19	WNV
Kern	DLNO114	188	Cx. quinquefasciatus	Delano	28	GRVD	8/13/19	WNV
Kern	DLNO128	183	Cx. quinquefasciatus	Delano	8	GRVD	8/13/19	SLEV
Kern	DLNO21	176	Cx. quinquefasciatus		50	CO2	8/8/19	WNV
Kern	DLNO29	186	Cx. quinquefasciatus	Delano	12	GRVD	8/13/19	WNV
Kern	KERN2040	490	Cx. quinquefasciatus	Arvin	50	GRVD	8/6/19	SLEV
Kern	KERN2040	490	Cx. quinquefasciatus	Arvin	50	GRVD	8/6/19	WNV
Kern	KERN2049	491	Cx. quinquefasciatus	Lamont	36	GRVD	8/6/19	WNV
Kern	KERN29	492	Cx. quinquefasciatus		50	CO2	8/6/19	WNV
Kern	KERN3030	500	Cx. tarsalis		35	CO2	8/7/19	WNV
Kern	KERN45	493	Cx. quinquefasciatus		35	CO2	8/6/19	SLEV
Kern	KERN45	493	Cx. quinquefasciatus		35	CO2	8/6/19	WNV
Kern	KERN60	494	Cx. tarsalis		40	CO2	8/6/19	WNV
Kern	KERN83	498	Cx. quinquefasciatus		50	CO2	8/6/19	WNV
Kern	WEST6257	133	Cx. tarsalis	Rosedale	50	CO2	8/14/19	SLEV
Kern	WEST6258	136	Cx. tarsalis		50	CO2	8/14/19	SLEV
Kern	WEST6300	139	Cx. tarsalis		50	CO2	8/14/19	WNV
Kern	WEST6302	138	Cx. tarsalis		50	CO2	8/14/19	WNV
Kings	KNGS3004	383	Cx. tarsalis		50	CO2	8/8/19	WNV
Kings	KNGS3004	385	Cx. tarsalis		50	CO2	8/8/19	WNV

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Kings	KNGS3004	386	Cx. tarsalis		38	CO2	8/8/19	WNV
Kings	KNGS3022	374	Cx. tarsalis		44	CO2	8/6/19	WNV
Kings	KNGS3043	370	Cx. tarsalis		50	CO2	8/6/19	WNV
Kings	KNGS3043	371	Cx. tarsalis		50	CO2	8/6/19	WNV
Kings	KNGS3083	377	Cx. tarsalis		25	CO2	8/7/19	WNV
Kings	KNGS3108	391	Cx. tarsalis		50	CO2	8/8/19	WNV
Kings	KNGS3108	392	Cx. tarsalis		50	CO2	8/8/19	SLEV
Kings	KNGS3108	392	Cx. tarsalis		50	CO2	8/8/19	WNV
Kings	KNGS3108	393	Cx. tarsalis		21	CO2	8/8/19	WNV
Kings	KNGS5511	382	Cx. pipiens	Hanford	10	BGSENT	8/8/19	WNV
Kings	KNGS8038	388	Cx. tarsalis		50	CO2	8/8/19	WNV
Lake	LAKE130	492	Cx. tarsalis		50	CO2	8/13/19	WNV
Los Angeles	GRLA2023	5666	Cx. quinquefasciatus	Los Angeles	32	GRVD	8/7/19	WNV
Los Angeles	GRLA2031	5667	Cx. quinquefasciatus	Los Angeles	37	GRVD	8/7/19	WNV
Los Angeles	GRLA2920	735	Cx. quinquefasciatus	Carson	22	CO2	8/9/19	WNV
Los Angeles	GRLA3051	722	Cx. quinquefasciatus	Signal Hill	50	GRVD	8/8/19	WNV
Los Angeles	SGVA64	596	Cx. quinquefasciatus	West Covina	50	GRVD	8/8/19	WNV
Madera	MADR1109	192	Cx. tarsalis		40	CO2	8/7/19	WNV
Madera	MADR12	199	Cx. tarsalis	Madera Acres	45	CO2	8/9/19	WNV
Madera	MADR178	193	Cx. quinquefasciatus		50	CO2	8/7/19	WNV
Madera	MADR195	200	Cx. quinquefasciatus		39	CO2	8/9/19	WNV
Madera	MADR195	201	Cx. tarsalis		50	CO2	8/9/19	WNV
Madera	MADR227	189	Cx. quinquefasciatus	Parkwood	31	CO2	8/7/19	WNV
Madera	MADR227	190	Cx. tarsalis	Parkwood	50	CO2	8/7/19	WNV
Madera	MADR3334	187	Cx. tarsalis	Parkwood	43	CO2	8/7/19	WNV
Madera	MADR3334	188	Cx. quinquefasciatus	Parkwood	37	CO2	8/7/19	WNV
Madera	MADR85	185	Cx. quinquefasciatus	Madera	36	CO2	8/6/19	WNV
Merced	MERC2	479	Cx. tarsalis		50	CO2	8/14/19	WNV
Orange	ORCO17	2910	Cx. quinquefasciatus	Santa Ana	30	GRVD	8/13/19	WNV
Orange	ORCO319	2805	Cx. quinquefasciatus	Buena Park	8	GRVD	8/7/2019	WNV
Placer	PLCR1022	1531	Cx. tarsalis	Roseville	50	CO2	8/13/19	WNV
Placer	PLCR1113	1480	Cx. tarsalis		50	CO2	8/13/19	WNV
Placer	PLCR1114	1475	Cx. tarsalis		50	CO2	8/13/19	WNV
Placer	PLCR139	1558	Cx. tarsalis	Roseville	50	CO2	8/13/19	WNV
Placer	PLCR17	1440	Cx. tarsalis	Sheridan	50	CO2	8/13/19	WNV
Placer	PLCR198707	1499	Cx. tarsalis		50	CO2	8/13/19	WNV
Placer	PLCR198707	1500	Cx. tarsalis		50	CO2	8/13/19	WNV
Placer	PLCR198707	1501	Cx. tarsalis		50	CO2	8/13/19	WNV
Placer	PLCR198715	1525	Cx. tarsalis	Roseville	50	CO2	8/13/19	WNV
Placer	PLCR30	1564	Cx. tarsalis	Lincoln	50	CO2	8/13/19	WNV
Placer	PLCR668	1582	Cx. tarsalis		50	CO2	8/14/19	WNV
Placer	PLCR668	1583	Cx. tarsalis		50	CO2	8/14/19	WNV
Placer	PLCR95	1452	Cx. tarsalis	Lincoln	44	CO2	8/13/19	WNV
Riverside	COAV0	4526	Cx. quinquefasciatus	Rancho Mirage	19	GRVD	8/13/19	WNV
Riverside	COAV10	4513	Cx. tarsalis	Oasis	50	CO2	8/13/19	SLEV
Riverside	COAV10	4516	Cx. tarsalis	Oasis	50	CO2	8/13/19	SLEV
Riverside	COAV13	4552	Cx. tarsalis	Oasis	50	CO2	8/13/19	WNV
Riverside	COAV13	4554	Cx. tarsalis	Oasis	50	CO2	8/13/19	SLEV
Riverside	COAV13	4555	Cx. tarsalis	Oasis	50	CO2	8/13/19	WNV
Riverside	COAV13	4556	Cx. tarsalis	Oasis	50	CO2	8/13/19	SLEV

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Riverside	COAV13	4556	Cx. tarsalis	Oasis	50	CO2	8/13/19	WNV
Riverside	COAV132	4563	Cx. tarsalis		50	CO2	8/13/19	SLEV
Riverside	COAV132	4564	Cx. tarsalis		50	CO2	8/13/19	SLEV
Riverside	COAV34	4558	Cx. tarsalis		26	CO2	8/13/19	WNV
Riverside	COAV540	4518	Cx. tarsalis		33	CO2	8/13/19	WNV
Riverside	COAV8	4510	Cx. tarsalis	Oasis	50	CO2	8/13/19	WNV
Riverside	COAV9	4546	Cx. tarsalis		23	CO2	8/13/19	SLEV
Sacramento	SAYO201008	4191	Cx. tarsalis		50	CO2	8/13/19	WNV
Sacramento	SAYO201008	4194	Cx. tarsalis		50	CO2	8/13/19	WNV
Sacramento	SAYO212033	4116	Cx. tarsalis	Sacramento	48	CO2	8/13/19	WNV
Sacramento	SAYO233001	4133	Cx. pipiens	Elk Grove	50	GRVD	8/13/19	WNV
Sacramento	SAYO233015	4158	Cx. tarsalis	Florin	5	CO2	8/13/19	WNV
Sacramento	SAYO271	4136	Cx. pipiens	Elk Grove	8	BGSENT	8/13/19	WNV
San Bernardino	SANB270	761	Cx. tarsalis	Highland	2	CO2	8/7/19	WNV
San Bernardino	SANB270	762	Cx. quinquefasciatus	Highland	2	CO2	8/7/19	WNV
San Bernardino	SANB270	763	Ae.aegypti	Highland	2	CO2	8/7/19	WNV
San Bernardino	SANB326	741	Cx. tarsalis	Rialto	13	CO2	8/6/19	WNV
San Bernardino	SANB371	738	Cx. tarsalis	San Bernardino	18	CO2	8/6/19	WNV
San Bernardino	SANB371	740	Cx. stigmatosoma	San Bernardino	2	CO2	8/6/19	WNV
San Bernardino	WVAL4263	1985	Cx. stigmatosoma	Ontario	6	BGSENT	8/9/19	WNV
San Bernardino	WVAL4268	2018	Cx. quinquefasciatus	Chino	37	BGSENT	8/14/19	WNV
San Bernardino	WVAL5005	2004	Cx. quinquefasciatus	Rancho Cucamonga	17	GRVD	8/13/19	WNV
San Bernardino	WVAL6005	1998	Cx. quinquefasciatus	Ontario	13	GRVD	8/13/19	WNV
San Bernardino	WVAL8002	2035	Cx. tarsalis	Chino	50	CO2	8/14/19	WNV
San Bernardino	WVAL8003	2045	Cx. tarsalis	Chino	50	CO2	8/14/19	WNV
San Bernardino	WVAL8003	2046	Cx. tarsalis	Chino	41	CO2	8/14/19	WNV
San Bernardino	WVAL9005	1997	Cx. quinquefasciatus	Upland	10	GRVD	8/13/19	WNV
San Joaquin	SJCM8000	1426	Cx. pipiens	Manteca	8	CO2	8/12/19	WNV
San Joaquin	SJCM8004	1492	Cx. tarsalis	Lodi	50	CO2	8/12/19	WNV
San Joaquin	SJCM8004	1493	Cx. tarsalis	Lodi	50	CO2	8/12/19	WNV
San Joaquin	SJCM8004	1494	Cx. tarsalis	Lodi	46	CO2	8/12/19	WNV
San Joaquin	SJCM8004	1495	Cx. pipiens	Lodi	50	CO2	8/12/19	WNV
San Joaquin	SJCM8004	1496	Cx. pipiens	Lodi	21	CO2	8/12/19	WNV
San Joaquin	SJCM8010	1524	Cx. tarsalis	Ripon	50	CO2	8/12/19	WNV
San Joaquin	SJCM8010	1525	Cx. tarsalis	Ripon	50	CO2	8/12/19	WNV
San Joaquin	SJCM8010	1526	Cx. tarsalis	Ripon	50	CO2	8/12/19	WNV
San Joaquin	SJCM8010	1527	Cx. tarsalis	Ripon	16	CO2	8/12/19	WNV
San Joaquin	SJCM8010	1528	Cx. pipiens	Ripon	50	CO2	8/12/19	WNV
San Joaquin	SJCM8010	1529	Cx. pipiens	Ripon	49	CO2	8/12/19	WNV
San Joaquin	SJCM8041	1533	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8041	1534	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8041	1535	Cx. pipiens		50	CO2	8/12/19	WNV
San Joaquin	SJCM8041	1537	Cx. pipiens		50	CO2	8/12/19	WNV
San Joaquin	SJCM8041	1538	Cx. pipiens		50	CO2	8/12/19	WNV
San Joaquin	SJCM8056	1476	Cx. tarsalis		30	CO2	8/12/19	WNV
San Joaquin	SJCM8074	1561	Cx. tarsalis	Morada	8	CO2	8/15/19	WNV
San Joaquin	SJCM8076	1559	Cx. tarsalis		18	CO2	8/14/19	WNV
San Joaquin	SJCM8076	1560	Cx. pipiens		33	CO2	8/14/19	WNV
San Joaquin	SJCM8106	1417	Cx. pipiens	Escalon	50	CO2	8/12/19	WNV
San Joaquin	SJCM8106	1421	Cx. pipiens	Escalon	50	CO2	8/12/19	WNV

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San Joaquin	SJCM8106	1422	Cx. pipiens	Escalon	6	CO2	8/12/19	WNV
San Joaquin	SJCM8143	1530	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8143	1531	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8143	1532	Cx. tarsalis		14	CO2	8/12/19	WNV
San Joaquin	SJCM8154	1478	Cx. tarsalis	Lathrop	17	CO2	8/12/19	WNV
San Joaquin	SJCM8160	1482	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8160	1484	Cx. pipiens		18	CO2	8/12/19	WNV
San Joaquin	SJCM8161	1497	Cx. tarsalis	Ripon	19	CO2	8/12/19	WNV
San Joaquin	SJCM8161	1498	Cx. pipiens	Ripon	50	CO2	8/12/19	WNV
San Joaquin	SJCM8199	1468	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8199	1469	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8199	1470	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8199	1471	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8199	1472	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8199	1473	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8199	1474	Cx. tarsalis		9	CO2	8/12/19	WNV
San Joaquin	SJCM8199	1475	Cx. pipiens		42	CO2	8/12/19	WNV
San Joaquin	SJCM8203	1514	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8203	1515	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8203	1516	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8203	1517	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8203	1519	Cx. pipiens		48	CO2	8/12/19	WNV
San Joaquin	SJCM8204	1520	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8204	1521	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8204	1522	Cx. tarsalis		42	CO2	8/12/19	WNV
San Joaquin	SJCM8204	1523	Cx. pipiens		32	CO2	8/12/19	WNV
San Joaquin	SJCM8206	1508	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8206	1510	Cx. tarsalis		50	CO2	8/12/19	WNV
San Joaquin	SJCM8206	1512	Cx. pipiens		50	CO2	8/12/19	WNV
San Joaquin	SJCM8210	1540	Cx. tarsalis		18	CO2	8/12/19	WNV
San Joaquin	SJCM8210	1541	Cx. pipiens		50	CO2	8/12/19	WNV
San Joaquin	SJCM8210	1542	Cx. pipiens		50	CO2	8/12/19	WNV
San Joaquin	SJCM8210	1543	Cx. pipiens		50	CO2	8/12/19	WNV
San Joaquin	SJCM8210	1544	Cx. pipiens		31	CO2	8/12/19	WNV
San Joaquin	SJCM8218	1447	Cx. pipiens		50	CO2	8/12/19	WNV
San Joaquin	SJCM8218	1448	Cx. pipiens		50	CO2	8/12/19	WNV
San Joaquin	SJCM8218	1450	Cx. pipiens		50	CO2	8/12/19	WNV
San Joaquin	SJCM8218	1455	Cx. pipiens		50	CO2	8/12/19	WNV
San Joaquin	SJCM8228	1480	Cx. tarsalis		21	CO2	8/12/19	WNV
San Joaquin	SJCM8228	1481	Cx. pipiens		41	CO2	8/12/19	WNV
Stanislaus	TRLK1107	682	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK1202	700	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK1202	703	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK1202	704	Cx. tarsalis		26	CO2	8/13/19	WNV
Stanislaus	TRLK1209	670	Cx. pipiens	Ceres	50	CO2	8/13/19	WNV
Stanislaus	TRLK1214	719	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK1214	721	Cx. tarsalis		50	CO2	8/13/19	WNV
Stanislaus	TRLK1219	706	Cx. pipiens		36	CO2	8/13/19	WNV
Stanislaus	TRLK1301	680	Cx. pipiens	Denair	27	CO2	8/13/19	WNV
Stanislaus	TRLK1301	681	Cx. tarsalis	Denair	34	CO2	8/13/19	WNV
Stanislaus	TRLK1308	749	Cx. tarsalis		50	CO2	8/13/19	WNV

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Stanislaus	TRLK1308	750	Cx. tarsalis		50	CO2	8/13/19	WNV
Stanislaus	TRLK1308	751	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK1308	752	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK1308	754	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK1308	757	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK1309	699	Cx. pipiens		30	CO2	8/13/19	WNV
Stanislaus	TRLK17131	712	Cx. pipiens	Turlock	45	CO2	8/13/19	WNV
Stanislaus	TRLK18102	770	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK18102	772	Cx. tarsalis		50	CO2	8/13/19	WNV
Stanislaus	TRLK18102	773	Cx. tarsalis		50	CO2	8/13/19	WNV
Stanislaus	TRLK18102	777	Cx. tarsalis		50	CO2	8/13/19	WNV
Stanislaus	TRLK18102	778	Cx. tarsalis		50	CO2	8/13/19	WNV
Stanislaus	TRLK18135	764	Cx. tarsalis		50	CO2	8/13/19	WNV
Stanislaus	TRLK18135	765	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK18135	766	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK18135	767	Cx. pipiens		32	CO2	8/13/19	WNV
Stanislaus	TRLK1835	688	Cx. tarsalis		36	CO2	8/13/19	WNV
Stanislaus	TRLK1906	690	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK19260	781	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK19260	782	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK407	707	Cx. pipiens	Turlock	50	CO2	8/13/19	WNV
Stanislaus	TRLK432	731	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK432	733	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK432	734	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK432	735	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK432	737	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK432	738	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK432	739	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK432	742	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK432	743	Cx. tarsalis		50	CO2	8/13/19	WNV
Stanislaus	TRLK432	745	Cx. tarsalis		50	CO2	8/13/19	WNV
Stanislaus	TRLK432	748	Cx. tarsalis		44	CO2	8/13/19	WNV
Stanislaus	TRLK516	683	Cx. pipiens		50	CO2	8/13/19	WNV
Stanislaus	TRLK526	762	Cx. pipiens		40	CO2	8/13/19	WNV
Stanislaus	TRLK526	763	Cx. tarsalis		46	CO2	8/13/19	WNV
Sutter	SUYA30	349	Cx. tarsalis		45	REST	8/12/19	WNV
Sutter	SUYA30	350	Cx. tarsalis		44	REST	8/12/19	WNV
Sutter	SUYA44	357	Cx. tarsalis		50	CO2	8/13/19	WNV
Sutter	SUYA63	346	Cx. tarsalis		43	REST	8/12/19	WNV
Sutter	SUYA70	381	Cx. tarsalis	Yuba City	14	CO2	8/14/19	WNV
Sutter	SUYA9	372	Cx. tarsalis	Sutter	33	CO2	8/14/19	WNV
Tulare	DLNO71	179	Cx. quinquefasciatus		50	CO2	8/8/19	WNV
Tulare	DLNO8	177	Cx. quinquefasciatus		50	CO2	8/8/19	WNV
Tulare	DLNO8	178	Cx. quinquefasciatus		50	CO2	8/8/19	WNV
Tulare	DLTA6236	2290	Cx. quinquefasciatus		49	CO2	7/24/19	WNV
Tulare	DLTA6236	2291	Cx. tarsalis		25	CO2	7/24/19	WNV
Tulare	DLTA6236	2292	Cx. stigmatosoma		32	CO2	7/24/19	WNV
Tulare	DLTA6312	2680	Cx. quinquefasciatus		32	CO2	8/14/19	WNV
Tulare	DLTA6312	2681	Cx. tarsalis		33	CO2	8/14/19	WNV
Tulare	DLTA6312	2682	Cx. stigmatosoma		50	CO2	8/14/19	WNV
Tulare	DLTA6312	2684	Cx. stigmatosoma		50	CO2	8/14/19	WNV
Tulare	DLTA6312	2685	Cx. stigmatosoma		26	CO2	8/14/19	WNV

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Tulare	DLTA6408	2598	Cx. quinquefasciatus	Dinuba	12	GRVD	8/9/19	WNV
Tulare	DLTA6408	2656	Cx. quinquefasciatus	Dinuba	31	GRVD	8/13/19	WNV
Tulare	DLTA6416	2654	Cx. quinquefasciatus		24	GRVD	8/13/19	WNV
Tulare	DLTA6417	2650	Cx. quinquefasciatus	Dinuba	19	GRVD	8/13/19	WNV
Tulare	DLTA6420	2737	Cx. quinquefasciatus		50	GRVD	8/15/19	WNV
Tulare	DLTA6420	2738	Cx. quinquefasciatus		50	GRVD	8/15/19	WNV
Tulare	DLTA6420	2739	Cx. quinquefasciatus		40	GRVD	8/15/19	WNV
Tulare	DLTA6420	2740	Cx. stigmatosoma		13	GRVD	8/15/19	WNV
Tulare	DLTA7625	2672	Cx. quinquefasciatus	Woodlake	21	GRVD	8/13/19	WNV
Tulare	DLTA8411	2611	Cx. quinquefasciatus		50	CO2	8/13/19	WNV
Tulare	DLTA8413	2701	Cx. quinquefasciatus	Visalia	48	GRVD	8/14/19	WNV
Tulare	DLTA8413	2702	Cx. quinquefasciatus	Visalia	10	GRVD	8/14/19	WNV
Tulare	DLTA8414	2621	Cx. tarsalis		30	CO2	8/13/19	WNV
Tulare	DLTA8414	2635	Cx. tarsalis		23	CO2	8/13/19	WNV
Tulare	DLTA8415	2622	Cx. quinquefasciatus	Visalia	50	CO2	8/13/19	WNV
Tulare	DLTA8415	2623	Cx. quinquefasciatus	Visalia	50	CO2	8/13/19	WNV
Tulare	DLTA8415	2624	Cx. quinquefasciatus	Visalia	50	CO2	8/13/19	WNV
Tulare	DLTA8415	2625	Cx. quinquefasciatus	Visalia	50	CO2	8/13/19	WNV
Tulare	DLTA8415	2626	Cx. quinquefasciatus	Visalia	50	CO2	8/13/19	WNV
Tulare	DLTA8415	2627	Cx. quinquefasciatus	Visalia	50	CO2	8/13/19	WNV
Tulare	DLTA8415	2628	Cx. quinquefasciatus	Visalia	46	CO2	8/13/19	WNV
Tulare	DLTA8415	2629	Cx. tarsalis	Visalia	28	CO2	8/13/19	WNV
Tulare	DLTA8419	2664	Cx. quinquefasciatus	Goshen	11	GRVD	8/13/19	WNV
Tulare	DLTA8419	2742	Cx. quinquefasciatus	Goshen	10	GRVD	8/15/19	WNV
Tulare	DLTA8422	2653	Cx. quinquefasciatus	Visalia	19	GRVD	8/13/19	SLEV
Tulare	DLTA8422	2716	Cx. quinquefasciatus	Visalia	36	GRVD	8/14/19	WNV
Tulare	DLTA8424	2657	Cx. quinquefasciatus	Visalia	13	GRVD	8/13/19	WNV
Tulare	DLTA8425	2734	Cx. quinquefasciatus	Visalia	13	GRVD	8/15/19	WNV
Tulare	DLTA8426	2719	Cx. quinquefasciatus	Visalia	15	GRVD	8/14/19	WNV
Tulare	DLTA8426	2746	Cx. quinquefasciatus	Visalia	21	BGSENT	8/15/19	WNV
Tulare	DLTA8427	2605	Cx. quinquefasciatus	Visalia	50	GRVD	8/9/19	WNV
Tulare	DLTA8427	2720	Cx. quinquefasciatus	Visalia	21	GRVD	8/14/19	WNV
Tulare	DLTA8434	2593	Cx. quinquefasciatus		25	GRVD	8/9/19	WNV
Tulare	DLTA8434	2705	Cx. quinquefasciatus		42	BGSENT	8/14/19	SLEV
Tulare	DLTA8434	2736	Cx. quinquefasciatus		36	GRVD	8/15/19	WNV
Tulare	DLTA8435	2699	Cx. quinquefasciatus	Visalia	12	GRVD	8/14/19	WNV
Tulare	DLTA8509	2723	Cx. quinquefasciatus		20	CO2	8/15/19	WNV
Tulare	DLTA8514	2636	Cx. quinquefasciatus		11	BGSENT	8/13/19	WNV
Tulare	DLTA8520	2599	Cx. quinquefasciatus	Visalia	23	GRVD	8/9/19	WNV
Tulare	DLTA8520	2663	Cx. quinquefasciatus	Visalia	12	GRVD	8/13/19	WNV
Tulare	DLTA8520	2741	Cx. quinquefasciatus	Visalia	28	GRVD	8/15/19	WNV
Tulare	DLTA8521	2704	Cx. quinquefasciatus		45	GRVD	8/14/19	WNV
Tulare	DLTA8527	2689	Cx. quinquefasciatus	Visalia	38	GRVD	8/14/19	WNV
Tulare	DLTA8528	2712	Cx. quinquefasciatus	Visalia	18	GRVD	8/14/19	WNV
Tulare	DLTA8530	2638	Cx. quinquefasciatus	Visalia	39	GRVD	8/13/19	SLEV
Tulare	DLTA8531	2590	Cx. quinquefasciatus	Visalia	45	GRVD	8/9/19	WNV
Tulare	DLTA8532	2594	Cx. quinquefasciatus	Visalia	19	GRVD	8/9/19	WNV
Tulare	DLTA8533	2694	Cx. quinquefasciatus	Visalia	23	GRVD	8/14/19	SLEV
Tulare	DLTA8533	2694	Cx. quinquefasciatus	Visalia	23	GRVD	8/14/19	WNV
Tulare	DLTA8534	2646	Cx. quinquefasciatus	Visalia	50	GRVD	8/13/19	WNV
Tulare	DLTA9401	2643	Cx. quinquefasciatus	Visalia	26	GRVD	8/13/19	WNV
Tulare	DLTA9402	2732	Cx. quinquefasciatus	Visalia	40	GRVD	8/15/19	SLEV
Tulare	DLTA9402	2732	Cx. quinquefasciatus	Visalia	40	GRVD	8/15/19	WNV

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Tulare	DLTA9403	2642	Cx. quinquefasciatus		17	GRVD	8/13/19	WNV
Tulare	DLTA9411	2708	Cx. quinquefasciatus		18	GRVD	8/14/19	WNV
Tulare	DLTA9412	2726	Cx. quinquefasciatus	Visalia	17	GRVD	8/15/19	WNV
Tulare	DLTA9501	2608	Cx. quinquefasciatus	Farmersville	13	GRVD	8/9/19	WNV
Tulare	DLTA9504	2641	Cx. quinquefasciatus	Visalia	23	GRVD	8/13/19	WNV
Tulare	DLTA9504	2676	Cx. quinquefasciatus	Visalia	19	BGSENT	8/13/19	WNV
Tulare	DLTA9504	2718	Cx. quinquefasciatus	Visalia	21	GRVD	8/14/19	WNV
Tulare	DLTA9511	2597	Cx. quinquefasciatus		27	GRVD	8/9/19	WNV
Tulare	DLTA9604	2725	Cx. quinquefasciatus	Exeter	22	BGSENT	8/15/19	WNV
Yolo	SAYO114001	4222	Cx. tarsalis		50	CO2	8/13/19	WNV
Yolo	SAYO116002	4211	Cx. tarsalis	Knights Landing	50	CO2	8/13/19	WNV
Yolo	SAYO116002	4212	Cx. tarsalis	Knights Landing	50	CO2	8/13/19	WNV
Yolo	SAYO116002	4213	Cx. tarsalis	Knights Landing	50	CO2	8/13/19	WNV
Yolo	SAYO116002	4214	Cx. tarsalis	Knights Landing	50	CO2	8/13/19	WNV
Yolo	SAYO116002	4215	Cx. tarsalis	Knights Landing	50	CO2	8/13/19	WNV
Yolo	SAYO116002	4217	Cx. pipiens	Knights Landing	36	CO2	8/13/19	WNV
Yolo	SAYO136010	4019	Cx. tarsalis		50	CO2	8/9/19	WNV
Yolo	SAYO145013	4088	Cx. tarsalis	Davis	50	CO2	8/13/19	WNV
Yuba	SUYA10	347	Cx. pipiens	Olivehurst	14	REST	8/12/19	WNV
Yuba	SUYA10	365	Cx. tarsalis	Olivehurst	47	CO2	8/13/19	WNV
Yuba	SUYA10	366	Cx. tarsalis	Olivehurst	47	CO2	8/13/19	WNV
Yuba	SUYA4	379	Cx. tarsalis	Wheatland	32	CO2	8/14/19	WNV
Yuba	SUYA8	360	Cx. tarsalis	Marysville	40	CO2	8/13/19	WNV

Sentinel Chickens

County	Site Code	City	Date Bled	Virus	Band 01	Band 02	Band 03	Band 04	Band 05	Band 06	Band 07
Los Angeles	LACW1007	Baldwin Hills	8/8/2019	WNV	1633	1634					
Los Angeles	LACW1009	Los Angeles	8/7/2019	WNV	1638	1639					
Merced	MERC0502	Hilmar	8/2/2019	WNV	1532						
Placer	PLCR0758	Lincoln	8/12/2019	WNV	4614	4616	4617	4618			
Tulare	TLRE202436	Tulare	8/9/2019	WNV	1771	1772	1773	1774	1776	1779	1781

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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.

Website Information: For updated information on WNV in California, please visit the California WNV website, www.westnile.ca.gov, or the California Vectorborne Disease Surveillance System website, www.calsurv.org. For national information on WNV and other arboviruses, please visit the CDC websites: www.cdc.gov and https://wwwn.cdc.gov/arbovet/maps/ADB_Diseases_Map/index.html