



**REGULAR MEETING  
OF THE BOARD OF TRUSTEES**

**October 9, 2024, 6:00 PM**

**AGENDA**

All public members seeking to observe and/or to address the local legislative body in person or otherwise electronically can do so in the manner described below.

**HOW TO OBSERVE THE MEETING:**

**In-person:** *Regular meetings* of the Board of Trustees shall be held on the 2<sup>nd</sup> Wednesday of each calendar month at 6:00 p.m. in the Board Room of the San Mateo County Mosquito and Vector Control District, 1351 Rollins Road, Burlingame, California.

**All Trustees must attend the meeting in person unless a valid exception applies under AB 2449 or existing Brown Act requirements.**

**Telephone:** You can listen to the meeting via Zoom at (408) 636-0968 or (669) 900-6833.

Enter the **Meeting ID# 650-344-8592** followed by the pound (#) key. If the line is busy, more phone numbers can be found on Zoom's website at <https://zoom.us/u/abb4GNs5xM>.

**Computer:** Watch the live streaming of the meeting from a computer by navigating to <https://zoom.us/j/6503448592> using a computer with internet access that meets Zoom's system requirements (see <https://support.zoom.us/hc/en-us/articles/201362023-System-Requirements-for-PC-Mac-and-Linux>)

**Mobile:** Log in through the Zoom mobile app on a smartphone and enter **Meeting ID# 650-344-8592**.

**HOW TO SUBMIT PUBLIC COMMENTS:**

**Live Participation:** Public comments may be made by members of the public via Zoom. During the meeting, the Board President or designee will publicly announce the opportunity to comment. Use the "raise hand" feature (or press \*9 to "raise hand" on the phone) during the public comment period for the agenda item you wish to address. The Zoom host will call on people to speak by the name provided or the last four digits of the phone number for dial-in attendees.

**Written Comments:** Public comments may be submitted by email to [comments@smcmvcd.org](mailto:comments@smcmvcd.org), write "Public Comment" in the subject line. In the body of the email, include the agenda item number and title, as well as your comments. If you want your comment read aloud at the meeting (not to exceed three minutes at staff's cadence), prominently write "Read Aloud at Meeting" at the top of the email. All comments received before 12:00 PM, the day of the meeting, will be included as an agenda supplement on the District's website under the relevant meeting

date and provided to the Trustees at the meeting. Comments received after this time will be read aloud at the meeting.

**ACCESSIBILITY INFORMATION:**

Board Meetings are accessible to people with disabilities and others who need assistance. Individuals who need special assistance or a disability-related modification or accommodation (including auxiliary aids or services) to observe and/or participate in this meeting and access meeting-related materials should contact Brian Weber, District Manager, at least 48 hours before the meeting at (650) 344-8592 or [bweber@smcmvcd.org](mailto:bweber@smcmvcd.org). Advanced notification will enable the District to resolve such requests to ensure swift accessibility.

**PUBLIC RECORDS:**

Public records that relate to any item on the open session agenda for a meeting are available for public inspection. Those records distributed after the agenda posting deadline for the meeting are available for public inspection at the same time they are distributed to all or a majority of the members of the Board. The Board has designated the District's website at <https://www.smcmvcd.org/board-meetings> as the place to make those public records available for inspection. The documents may also be obtained by calling the District Manager.

**CEQA NOTICE:**

Unless expressly stated otherwise on the agenda (that an MND or EIR is being considered), discretionary actions taken on agenda items will include a finding by the Board that the action is exempt under CEQA. More information about the CEQA determination can be found in the corresponding staff report.

**1. CALL TO ORDER**

**2. PLEDGE OF ALLEGIANCE**

**3. ROLL CALL**

- Announcements/Consideration and Approval of Requests by Trustees to Participate Remotely Pursuant to AB 2449 (Government Code 54943(f)).
- The Secretary of the Board will take roll call.

**4. PUBLIC COMMENTS AND ANNOUNCEMENTS**

This time is reserved for public members to address the Board relative to matters of the District that are not on the agenda. No action may be taken on non-agenda items

unless authorized by law. Comments will be limited to three minutes per person (or six minutes where a translator is used). Speaker cards are available for those making a public comment.

## **5. CONSENT CALENDAR**

All items on the Consent Calendar will be considered by one (or more) action(s) of the Board unless any Trustee would like to discuss any item listed, in which case, it may be pulled from the Consent Calendar.

### **A. Approval of Minutes**

1. Board Meeting Minutes from September 11, 2024

### **B. Approval of Financial Reports**

1. Financial Report for FY 2024-25 as of August 31, 2024

## **REGULAR AGENDA**

## **6. BOARD COMMITTEE REPORTS**

The Chair of each committee listed below will provide a report on the committee's actions and present any recommendations to the Board.

### **A. Finance Committee Report**

1. Finance Committee Report – September 30, 2024

**Report by:** Ron Collins, Finance Committee Chair

**ACTION:** No action, information only

2. Construction Project status for the District's storage and office facility located at 1415 North Carolan, Burlingame

**Report by:** District Manager, Brian Weber

**ACTION:** No action, information only

**7. STAFF REPORTS**

- A. Operations Director Casey Stevenson will give a Special Presentation on the Mapvision Program, which District staff use to collect and analyze field data.
- B. Laboratory Director Angie Nakano will provide an update on Laboratory activities.
- C. Public Health Education and Outreach Officer Rachel Curtis-Robles will provide an update on the District Public Outreach Program
- D. Information & Technology Director Matthew Nienhuis will provide an update on the Information and Technology Program

**8. MANAGER'S REPORT**

Manager Weber will provide an update on relevant District information.

**9. BOARD MEMBER COMMENTS AND ANNOUNCEMENTS**

**10. ADJOURNMENT**

**Minutes of the Regular Meeting of the BOARD OF TRUSTEES**  
**September 11, 2024, 6:00 PM**

- 1. CALL TO ORDER** By President Mason Brutschy at 6:00 PM sharp.
- 2. PLEDGE OF ALLEGIANCE** Led by President Brutschy
- 3. ROLL CALL:**

**TRUSTEES PRESENT:**

Mason Brutschy	Town of Atherton	By Zoom
Chuck Cotten	City of Belmont	
Michael Goldman	Brisbane	
Rena Gilligan	City of Burlingame	
Laura Walsh	Town of Colma	
Desiree LaBeaud	County-at-Large	
Glenn R. Sylvester	City of Daly City	
Donna Rutherford	City of East Palo Alto	
Paul Norton	City of Foster City	
Kati Martin	City of Half Moon Bay	
D. Scott Smith	Town of Hillsborough	
Catherine Carlton	City of Menlo Park	
Muhammad Baluom	City of Millbrae	
Peter DeJarnatt	City of Pacifica	
Robert Riechel	City of San Bruno	By Zoom
Ron Collins	City of San Carlos	
Michael Yoshida	City of South San Francisco	
Paul Fregulia	Town of Woodside	

**PRESENT: 18 Trustees (2 by Zoom)**

**TRUSTEES ABSENT:**

Ray Williams	Town of Portola Valley
Kat Lion	Redwood City
VACANT	City of San Mateo

**OTHERS PRESENT:**

District Manager, Brian Weber (by Zoom)  
Finance Director, Richard Arrow (by Zoom)  
General Counsel, Christine Crowl (for Alexandra Barnhill) (By Zoom)

Assistant Manager and Operation Director, Casey Stevenson  
Lab Director, Angie Nakano  
Public Health Education and Outreach Officer, Rachel Curtis-Robles  
IT Director, Matthew Nienhuis (by Zoom)

**4. PUBLIC COMMENTS AND ANNOUNCEMENTS**

- Trustees made no requests to participate remotely under AB 2449 (Government Code 54943(f)).
- Richard Arrow, Brian Weber, Matthew Nienhuis, and Trustees Brutschy and Riechel attended via Zoom from the CSDA Conference at 44400 Indian Wells Lane, Indian Wells, CA, 92210, under the traditional Brown Act teleconferencing rules.
- No public comment was made. No members of the public were present for the duration of the meeting, so public comment was not made on any of the agenda items at this meeting.

**5. BOARD MEMBER OATH OF OFFICE**

- Michael A. “Mike” Goldman, City of Brisbane, was sworn in by Special Counsel Christine Crowl, and he signed the Oath of office.

**6. CONSENT CALENDAR: Motion by Donna Rutherford with Second by D. Scott Smith: (all approved without comment) Votes: 18 YES; 0 No; 0 Abstain; 2 Absent**

**A. Approval of Minutes**

1. Board Meeting Minutes from July 10, 2024

**B. Approval of Financial Reports**

1. Financial Report for FY 2024-25 as of July 31, 2024

**C. Approval of Purchases**

1. Purchase sole-source mosquito control larvicides from Azelis and Clarke for \$82,604.63 to manage the mosquito populations in San Mateo County.
2. Purchase 3,000 gallons of BVA 2 larvicide oil from Azelis Solutions, which was selected through a competitive bidding process for a not to exceed amount of \$38,000.

**REGULAR AGENDA**

**7. BOARD COMMITTEE REPORTS**

The Chair of each committee listed below will provide a report on the committee's actions and present any recommendations to the Board.

**A. Finance Committee Report**

1. Finance Committee Report – September 3, 2024

**Ron Collins, Finance Committee Chair**, gave the report. There was a brief discussion highlighting the financial condition and results of district operations. The long-term financial plan and OPEB accounts were also discussed.

**ACTION:** No action, information only

2. The Board Reviewed the FY 2023-24 Financial Report as of June 30, 2024, and approved the following transfers with the report:

- Transfer the remaining FY 2023-24 fund balance of \$1.3 million to the Real Estate Acquisition Fund to be applied towards the 1415 N. Carolan Ave construction project.
- Transfer \$4,000 from the Administration budget to the Utilities budget to cover a budget overage in utility costs.

**ACTION:** Motion to approve the report was made by Robert Riechel and seconded by Peter DeJarnatt. Votes: 18 Yes; 0 No; 0 Abstain; 2 absent.

3. Construction Project status for the district's storage and office facility located at 1415 N. Carolan, Burlingame

**Report by:** District Manager Brian Weber stated that, in ongoing collaboration with Capital Project Management and the architectural firm Aetypic, the architectural plans for 1415 North Carolan, Burlingame, are nearing fifty percent completion.

**ACTION:** No action, information only

4. Review of Long-Term Financial Plan

**Report by:** Finance Director, Richard Arrow, CPA Notes: High level projections were reviewed by Richard with Trustee Brutschy. Revenues from the assessed valuation on real property are about 6% per year. This matched the County prediction used. Other projections using the general CPI for line items of service/supplies, etc., are 3.5% or 3% thereafter.

**ACTION:** No action, information only

**8. STAFF REPORTS**

- A. Operations Director Casey Stevenson provided an update on Field Operations. Note that seasonal workers are winding down their activities. The District currently employs only four seasonal workers.
- B. Laboratory Director Angie Nakano provided an update on Laboratory activities. Note: There have been many WNV detections in birds, currently 26 for our county, and no mosquito detections.
- C. Public Health Education and Outreach Officer Rachel Curtis-Robles provided an update on the District Public Outreach Program. Note: A concerned citizen called the bomb squad in Atherton because a mosquito trap was hanging in a tree, and Casey Stevenson, Operations Manager, helped manage this.
- D. Information & Technology Director Matthew Nienhuis provided an update on the Information and Technology Program. Note: Mr. Nienhuis discussed the Social Security Number data breach and steps that can be taken to protect your identity.

**9. MANAGER’S REPORT**

Manager Weber provided an update on relevant District information. Note: At the CSDA Conference, the district was recognized with a transparency certificate and District of Distinction.

- 10. BOARD MEMBER COMMENTS AND ANNOUNCEMENTS: The next board meeting will be Wednesday, October 9<sup>th</sup>, 2024.** Kat Lion will conduct the annual review of Manager Brian Weber with the team. HRA cards have been sent out to the trustees, and David Griever of Mid America is setting this up; trustees must go online to get login IDs.

- 11. ADJOURNMENT: 6:54 pm**





**Item 5B**

**Preliminary  
Monthly Financial Report  
Month Ending August 2024**

**Staff Recommendation:** Motion to recommend approval of the August 31, 2024, preliminary Financial Report.

**Statement of Revenues, Expenditures and Change in Fund Balance**

Total revenues received from July 1 through August 31, 2024 (YTD) were \$ 413,291, total expenditures YTD were \$ 1,635,668, and the change in fund balance was (\$ 1,222,377). The District had \$ 3,836,024 in cash available in County Treasury and \$ 5,488,175 in CalCLASS.

	<b>General</b>	<b>Capital</b>	<b>Total</b>
	<b>Fund</b>	<b>Fund</b>	<b>Funds</b>
<b>Beginning Fund Balance 7/1/2024:</b>	\$ 10,450,609	\$ 678,478	\$ 11,129,087
Revenues/Resources	\$ 413,291	\$ -	\$ 413,291
Due To (From) Funds	33,892	(33,892)	-
Expenditures	\$ 1,616,791	\$ 18,877	\$ 1,635,668
<b>Change in Fund Balance</b>	<b>(1,169,608)</b>	<b>(52,769)</b>	<b>\$ (1,222,377)</b>
<b>* Ending Fund Balance</b>	<b>\$ 9,281,002</b>	<b>\$ 625,709</b>	<b>\$ 9,906,710</b>

<b>* Components of Fund Balance:</b>			
<b>Nonspendable (Inventory)</b>	\$ 170,595	\$ -	\$ 170,595
<b>Pension Rate Stabilization Reserve</b>	\$ 114,879	\$ -	\$ 114,879
<b>Assigned (Capital Improvements)</b>	\$ -	\$ 625,709	\$ 625,709
<b>Public Health Emergency Fund</b>	\$ 200,000	\$ -	\$ 200,000
<b>Natural Disaster Emergency Fund</b>	\$ 200,000	\$ -	\$ 200,000
<b>Real Property Acquisiton Fund</b>	\$ 6,684,670	\$ -	\$ 6,684,670
<b>Debt Service Repayment Fund</b>	\$ -	\$ -	\$ -
<b>Unrestricted Fund Balance</b>	\$ 1,910,857	\$ -	\$ 1,910,857
<b>Total</b>	<b>\$ 9,281,002</b>	<b>\$ 625,709</b>	<b>\$ 9,906,710</b>



**Budget Variances**

**Revenues**

Actual revenues received through August 31, 2024, were \$413,291, which exceeded the budget by \$ 38,834. This difference is immaterial.

**Expenditures**

Expenditures through August 31, 2024, were \$ 1,635,668, which exceeded the budget by \$ 106,053 primarily due to the timing of expenditures contained in the table below:

Budget Category	Under	Variance	Budget	Explanation
Salaries & Wages	Over	\$119,166	127.7%	Timing differences between budget and actual
Employee Benefits	Over	\$44,553	112.4%	Timing differences between budget and actual
Administration	Over	\$22,676	145.9%	Timing differences between budget and actual
Insurance	Under	\$12,964	93.2%	Timing differences between budget and actual
Operations	Under	\$15,600	67.7%	Timing differences between budget and actual
Public Outreach	Under	\$23,344	21.7%	Timing differences between budget and actual
Computer Hardware & Software	Under	\$15,344	37.0%	Timing differences between budget and actual
Training, Board and Staff	Under	\$15,180	41.3%	Timing differences between budget and actual
Fleet Maintenance	Under	\$6,953	49.7%	Timing differences between budget and actual
Capital Improvements	Over	\$7,158	161.1%	Timing differences between budget and actual

The Board’s budget level of control is at the category level, for example Salaries, Benefits, Admin., Operations, etc. The above table provides explanations for variances over \$5,000.

**Questions**

Please direct all inquiries related to this financial reporting package to the District Manager, Brian Weber, before the board meeting to allow for adequate research. He can be reached at the District office at (650) 344-8592 or via email at [bweber@smcmvcd.org](mailto:bweber@smcmvcd.org).

**Approval**

This month’s financial statements are fairly presented. The District Manager and Finance Director approved all disbursements and the monthly bank reconciliation. A Board Officer and the District Manager signed all checks.



**Attachments:**

1. Statement of Financial Position/Balance Sheet

2. Statement of Revenues, Expenditures and Change in Fund Balance

3. Budget Variance Reports

Month

YTD

YTD compared with adopted budget.

4. Accounts Receivable Aging Summary

On the August 31, 2024, accounts receivable outstanding greater than 90 days total is \$ 123.25 from the San Francisco Parks Department. Staff are currently contacting agencies to ensure collections.

5. Cash Activity & Reconciliation to County

The District's accounting system is fully reconciled with the County statement.

6. Payroll Disbursement

All payroll disbursements were made to employees and trustees for their monthly stipends. All employees were paid per District salary and wage schedule and longevity policies.

7. Check Detail

This month, the District wrote General Fund checks numbers from 2946 to 3007. Last month's check number ended at 2945. All checks written were to vendors on account, retired employees, or reimbursements to current employees, per District policy. In August 2024, 62 checks written from the General Fund totaled \$ 255,811.65. In addition, the District wrote 2 checks from the Capital Fund totaling \$ 15,103.64 (check numbers 1285 through 1286).

8. Purchase Card Report and Bank Statement

All card purchases for the month were from commercial vendors and met the District purchase card policy. A copy of the purchase card bank statement is attached. Also, descriptions of all purchases from Amazon are included in the attached detailed purchase card transactions report.

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San Mateo County Mosquito & Vector Control District  
 Balance Sheet  
 As of Aug 31, 2024

	Total Aug 31, 24	General Fund	Capital Fund
<b>ASSETS</b>			
<b>Current Assets</b>			
<b>Checking/Savings</b>			
1010 · Cash-County Treasury-GF x2706	3,210,764	3,210,764	
1013 · Checking -US Bank - GF x3353	(145,502)	(145,502)	
1018 · Cash-Cal CLASS	5,488,175	5,488,175	
1020 · Cash-County Treasury-CPF x2705	625,260	-	625,260
1023 · Checking -US Bank - CPF x4183	-	-	-
1026 · County Funds - FMV	(44,372)	(44,822)	450
1030 · Petty Cash	400	400	
1035 · PARS Pension Rate Stabilization	114,879	114,879	
<b>Total Checking/Savings</b>	<b>9,249,604</b>	<b>8,623,895</b>	<b>625,710</b>
<b>Accounts Receivable</b>			
1100 · Accounts Receivable	44,197	44,197	
1105 · Interest Receivable	-	-	
<b>Total Accounts Receivable</b>	<b>44,197</b>	<b>44,197</b>	<b>-</b>
<b>Other Current Assets</b>			
1106 · Other Receivables	294	294	
1220 · VCJPA-Member Contingency Fund	500,948	500,948	
1230 · Pesticide Inventory	170,595	170,595	
1300 · Prepaid Items	-	-	
<b>Total Other Current Assets</b>	<b>671,837</b>	<b>671,837</b>	<b>-</b>
<b>Total Current Assets</b>	<b>9,965,638</b>	<b>9,339,929</b>	<b>625,710</b>
<b>TOTAL ASSETS</b>	<b>9,965,638</b>	<b>9,339,929</b>	<b>625,710</b>
<b>LIABILITIES &amp; FUND BALANCE</b>			
<b>Liabilities</b>			
<b>Current Liabilities</b>			
<b>Accounts Payable</b>			
2000 · Accounts Payable	58,927	58,927	-
<b>Total Accounts Payable</b>	<b>58,927</b>	<b>58,927</b>	<b>-</b>
<b>Credit Cards</b>			
1040 · US Bank Purchase Card	-	-	
<b>Total Credit Cards</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Other Current Liabilities</b>			
2200 · Accrued Wages	-	-	
<b>Total Other Current Liabilities</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total Current Liabilities</b>	<b>58,927</b>	<b>58,927</b>	<b>-</b>
<b>Total Liabilities</b>			
	58,927	58,927	-
<b>Fund Balance</b>			
Beginning Fund Balance, 7/1/2024	11,129,087	10,450,609	678,478
Due To (From) Funds	-	33,892	(33,892)
Revenues Over Expenditures	(1,222,377)	(1,203,500)	(18,877)
<b>Ending Fund Balance *</b>	<b>9,906,710</b>	<b>9,281,002</b>	<b>625,709</b>
<b>TOTAL LIABILITIES &amp; FUND BALANCE</b>	<b>9,965,638</b>	<b>9,339,929</b>	<b>625,709</b>
Check Total:	1	(0)	1
<b>* COMPONENTS OF ENDING FUND BALANCE</b>			
Nonspendable (Inventory)	170,595	170,595	-
Pension Rate Stabilization Reserve	114,879	114,879	
Assigned (Capital Improvements)	625,709	-	625,709
Public Health Emergency Fund	200,000	200,000	-
Natural Disaster Emergency Fund	200,000	200,000	-
Real Property Acquisiton Fund	6,684,670	6,684,670	-
Debt Service Repayment Fund	-	-	-
Unrestricted Fund Balance (Includes Working Capital)	1,910,857	1,910,857	-
<b>Total Fund Balance</b>	<b>9,906,710</b>	<b>9,281,002</b>	<b>625,709</b>

Statement of Revenues, Expenditures Budget vs. Actual  
July 2024 through June 2025

Month of Report:  
Aug, 2024

GENERAL FUND:

Ordinary Revenues/Expenditures

Revenues

	Annual Budget	YTD Actual	Annual Variance	%	YTD Budget	YTD Variance	%	Monthly Budget	Monthly Actual	Monthly Variance	%
Total 4000 · PROGRAM REVENUES	2,935,053	43,528	(2,891,525)	1.5%	76,493	(32,965)	56.9%	52,108	21,518	(30,590)	41.3%
Total 4100 · PROPERTY TAX REVENUES	3,904,536	414	(3,904,122)	0.0%	3,264	(2,850)	12.7%	3,264	414	(2,850)	12.7%
Total 4200 · OTHER TAX REVENUES	850,000	321,216	(528,784)	37.8%	292,034	29,182	110.0%	292,034	321,216	29,182	110.0%
Total 4300 · OTHER REVENUES	399,000	48,132	(350,868)	12.1%	2,666	45,466	1805.4%	1,355	25,107	23,752	1852.9%

<b>Total Revenues</b>	<b>8,088,589</b>	<b>413,291</b>	<b>(7,675,298)</b>	<b>5.1%</b>	<b>374,457</b>	<b>38,834</b>	<b>110.4%</b>	<b>348,761</b>	<b>368,256</b>	<b>19,495</b>	<b>105.6%</b>
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Expenditures

Total 5000 · SALARIES & WAGES	3,474,347	548,250	2,926,097	15.8%	429,084	119,166	127.8%	282,982	409,453	126,471	144.7%
Total 5100 · EMPLOYEE BENEFITS	1,537,067	403,441	1,133,626	26.2%	358,888	44,553	112.4%	102,552	91,504	(11,048)	89.2%
Total 5200 · TRAINING - BOARD & STAFF	90,586	10,674	79,912	11.8%	25,854	(15,180)	41.3%	17,476	1,928	(15,548)	11.0%
Total 5300 · ADMINISTRATION	414,650	72,728	341,922	17.5%	50,052	22,676	145.3%	12,274	36,489	24,215	297.3%
Total 5400 · INSURANCE	190,812	177,848	12,964	93.2%	190,812	(12,964)	93.2%	-	-	-	0.0%
Total 5450 · COMPUTER HARDWARE & SOFTWARE	75,969	9,023	66,946	11.9%	24,367	(15,344)	37.0%	9,315	5,976	(3,339)	64.2%
Total 5500 · FACILITIES MAINTENANCE	54,640	3,252	51,388	6.0%	6,683	(3,431)	48.7%	3,268	936	(2,332)	28.6%
Total 5550 · UTILITIES	73,963	13,219	60,744	17.9%	10,619	2,600	124.5%	6,259	7,910	1,651	126.4%
Total 5600 · FLEET MAINTENANCE	52,686	6,865	45,821	13.0%	13,818	(6,953)	49.7%	7,834	987	(6,847)	12.6%
Total 5700 · OPERATIONS	253,722	32,658	221,064	12.9%	48,258	(15,600)	67.7%	34,720	10,471	(24,249)	30.2%
Total 5800 · LABORATORY	105,394	14,526	90,868	13.8%	12,809	1,717	113.4%	7,754	4,320	(3,434)	55.7%
Total 5900 · PUBLIC OUTREACH	127,070	6,213	120,857	4.9%	28,557	(22,344)	21.8%	17,431	3,575	(13,856)	20.5%
Total 6500 · DEBT SERVICE	318,095	318,094	1	100.0%	318,095	1	100.0%	-	-	-	0.0%

<b>Total Expenditures</b>	<b>6,769,001</b>	<b>1,616,791</b>	<b>(5,152,210)</b>	<b>23.9%</b>	<b>1,517,896</b>	<b>98,895</b>	<b>106.5%</b>	<b>501,865</b>	<b>573,548</b>	<b>71,683</b>	<b>114.3%</b>
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<b>General Fund Net Revenues Over Expenditures</b>	<b>1,319,588</b>	<b>(1,203,500)</b>	<b>(2,523,088)</b>		<b>(1,143,439)</b>	<b>(60,061)</b>		<b>(153,104)</b>	<b>(205,292)</b>	<b>(52,188)</b>	
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CAPITAL IMPROVEMENT FUND:

Total 6000 · CAPITAL IMPROVEMENTS REVENUE	-	-	-	0.0%	-	-	0.0%	-	-	-	0.0%
Total 6000 · CAPITAL IMPROVEMENTS EXPENDITURES	1,319,588	18,877	1,300,711	1.4%	11,719	7,158	161.1%	5,859	15,306	9,447	261.2%

<b>Capital Improvement Fund Net Revenue Over Expenditures</b>	<b>(1,319,588)</b>	<b>(18,877)</b>	<b>1,300,711</b>		<b>(11,719)</b>	<b>(7,158)</b>		<b>(5,859)</b>	<b>(15,306)</b>	<b>(9,447)</b>	
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**San Mateo County Mosquito & Vector Control District**

08/31/2024

**A/R Aging Summary**

As of August 31, 2024

	<b>Current</b>	<b>1 - 30</b>	<b>31 - 60</b>	<b>61 - 90</b>	<b>91 and over</b>	<b>Total</b>
City of Foster City	6,596.41	6,817.67				13,414.08
City of Pacifica Public Works Wastewater	80.23					80.23
City of Redwood City, Public Works	4,900.43	4,156.80				9,057.23
City of San Francisco, Parks	5,437.58	5,123.23	105.65		123.25	10,789.71
City of San Francisco, Public Utilities	70.43	140.86				211.29
City of San Mateo, Wastewater Treatment	228.29	233.17				461.46
City of South San Francisco Water Quality	168.06	84.03				252.09
San Francisco Int'l Airport	624.90	899.98	440.19			1,965.07
Sewer Authority Mid-Coastside	78.08	78.08				156.16
Silicon Valley Clean Water	348.28	348.28				696.56
Stanford University - Jasper Ridge	2,985.33	4,128.12				7,113.45
<b>TOTAL</b>	<b>\$ 21,518.02</b>	<b>\$ 22,010.22</b>	<b>\$ 545.84</b>	<b>\$ 0.00</b>	<b>\$ 123.25</b>	<b>\$ 44,197.33</b>

**San Mateo County Mosquito & Vector Control District**

09/26/2024

**A/R Aging Summary**

As of September 26, 2024

	<b>Current</b>	<b>1 - 30</b>	<b>31 - 60</b>	<b>61 - 90</b>	<b>91 and over</b>	<b>Total</b>
City of Foster City	6,596.41					6,596.41
City of Pacifica Public Works Wastewater	80.23					80.23
City of Redwood City, Public Works	4,900.43					4,900.43
City of San Francisco, Parks	5,437.58	5,123.23			123.25	10,684.06
City of San Francisco, Public Utilities	70.43	140.86				211.29
City of San Mateo, Wastewater Treatment	228.29					228.29
City of South San Francisco Water Quality	168.06					168.06
San Francisco Int'l Airport	624.90	899.98	440.19			1,965.07
Sewer Authority Mid-Coastside	78.08					78.08
Silicon Valley Clean Water	348.28	348.28				696.56
Stanford University - Jasper Ridge	2,985.33	4,128.12				7,113.45
<b>TOTAL</b>	<b>\$ 21,518.02</b>	<b>\$ 10,640.47</b>	<b>\$ 440.19</b>	<b>\$ 0.00</b>	<b>\$ 123.25</b>	<b>\$ 32,721.93</b>

**San Mateo County Mosquito and Vector Control District**  
**Cash Activity & Reconciliation to County Statement**  
**General Fund**  
**August 31, 2024**

<b>GF-Aug 2024</b>
------------------------

**Beginning Cash per District as of Jul 31, 2024** 3,314,808

<b>Reductions</b>	
Payroll Related (ADP)	(368,790)
Checks Written	(255,812)
Transfer to Cal CLASS	-
Bank Fee	(130)
<b>Total Reductions</b>	<b>(624,731)</b>

<b>Additions</b>	
Abatement Services	14,635
Property Tax Revenue	414
Quarterly Interest	-
ERAF Rebate	321,216
Special Benefit Assessment	-
Voided Cks #2735 & #2810	1,988
Misc Deposit	36,932
<b>Total Additions</b>	<b>375,185</b>

**Ending Cash per District as of Aug 31, 2024** 3,065,262

**Cash per County General Fund Statement** 3,065,262

Difference -

COUNTY OF SAN MATEO      Verbose      [ D E T A I L E D   T R I A L   B A L A N C E ]      08/01/2024-08/31/2024      Page 2  
 FRI, SEP 13, 2024, 11:23 AM --req: EASRANIN--leg: GL JL--loc: CONTROL---job:17324746 J1156---prog: GL501 <1.86>--report id: GLTBAL01

SORT ORDER: SUB ACCT within SUB UNIT

SELECT ORG SUB UNIT: 02705-02706

Lg SUB UNIT Title	Director	St Tr	FDGP	FUND	SUB FUND	DEPT	DIVISION	SECTION	PROGRAM	BUDGET
GL 02706 County Mosquito Abatemen	Controller	A	07	02706	02706	00140	00000	00000	00000	00000

SUB ACCT	Date	Primary Ref.	Transaction Description	Debit	Credit	Balance
0111 Claim on Cash			Prior to 08/01/24	5,025,943.17	1,711,135.43	3,314,807.74
	08/06/24	RJ15CFT2	Daily Cash Float Tsfr-Op Fd JE	1,012.07	0.00	3,315,819.81
	08/13/24	RJ15CFT2	Daily Cash Float Tsfr-Op Fd JE	13,644.12	0.00	3,329,463.93
	08/19/24	JE560489	AutoID: JME819F4 Job: 17283 JE	0.00	129.68	3,329,334.25
	08/22/24	ER18224	AutoID: ITX822C4 Job: 17270 JE	293,540.80	0.00	3,622,875.05
	08/22/24	ER48224	AutoID: ITX822A4 Job: 17274 JE	27,675.41	0.00	3,650,550.46
	08/22/24	SPS8224	AutoID: ITX822E4 Job: 17281 JE	414.44	0.00	3,650,964.90
	08/24/24	RJ15CFT2	Daily Cash Float Tsfr-Op Fd JE	36,911.01	0.00	3,687,875.91
	08/31/24	JE561198	AutoID: JNE904B4 Job: 17314 JE	1,987.52	0.00	3,689,863.43
	08/31/24	JE561190	AutoID: JNE904A4 Job: 17314 JE	0.00	624,601.64	3,065,261.79
		DR	<b>* SUB ACCT Total *</b>	5,401,128.54*	2,335,866.75*	<b>3,065,261.79*</b>

San Mateo County Mosquito and Vector Control District  
 Cash Activity & Reconciliation to County Statement  
 Capital Project Fund  
 August 31, 2024

CPF-Aug  
2024

Beginning Cash per District as of <b>Jul 31, 2024</b>	640,565
<b>Reductions</b>	
Checks Written	(15,104)
Bank Fee	(202)
Transfer-Out to General Fund	-
<b>Total Reductions</b>	(15,306)
<b>Additions</b>	
Quarterly Interest	-
Transfer-In from General Fund	-
<b>Total Additions</b>	-
Ending Cash per District as of <b>Aug 31, 2024</b>	625,260
Cash per County Capital Project Fund Statement	625,260
Difference	-

COUNTY OF SAN MATEO      Verbose      [D E T A I L E D    T R I A L    B A L A N C E]      08/01/2024-08/31/2024      Page 1  
 FRI, SEP 13, 2024, 11:23 AM --req: EASRANIN--leg: GL JL--loc: CONTROL---job:17324746 J1156---prog: GL501 <1.86>--report id: GLTBAL01

SORT ORDER: SUB ACCT within SUB UNIT

SELECT    ORG SUB UNIT: 02705-02706

Lg SUB UNIT Title	Director	St Tr	FDGP	FUND	SUB FUND	DEPT	DIVISION	SECTION	PROGRAM	BUDGET
GL 02705 SMC Mosq Abate-CP Proj F	Controller	A	07	02705	02705	00140	00000	00000	00000	00000
=====										
SUB ACCT	Date	Primary Ref.	Transaction Description	Debit	Credit	Balance				
=====										
0111 Claim on Cash			Prior to 08/01/24	678,028.17	37,462.72	640,565.45				
	08/19/24	JE560489	AutoID: JME819F4 Job: 17283 JE	0.00	202.25	640,363.20				
	08/31/24	JE561190	AutoID: JNE904A4 Job: 17314 JE	0.00	15,103.64	625,259.56				
		DR	<b>* SUB ACCT Total *</b>	678,028.17*	52,768.61*	<b>625,259.56*</b>				



**San Mateo County Mosquito and Vector Control District**  
**ADP Payroll Disbursement**  
 August 31, 2024

<b>Aug 2024</b>
---------------------

	<u>August 2, 2024</u>	<u>August 16, 2024</u>	<u>August 30, 2024</u>	Footnotes:
<b>Payroll ACH Disbursement (including Net Pay &amp; Taxes )</b>				
Total Net Pay	90,067	87,939	94,282	
Federal W/H Tax	16,835	16,557	18,567	
Social Security Tax	1,783	1,468	1,573	A
Medicare	3,973	3,899	3,950	
CA W/H Tax	7,127	7,029	7,900	
CA SUI/DI	1,749	1,627	1,642	
<b>Total</b>	<b>121,533</b>	<b>118,519</b>	<b>127,914</b>	
<b>ADP Process Fees PPE 7/13, 7/27</b>	<b>354</b>	<b>298</b>		
<b>ADP Fee Time &amp; Attendance 8/16</b>		<b>173</b>		
<b>Total amount for the period:</b>	<b>121,886</b>	<b>118,990</b>	<b>127,914</b>	
<b>Total amount for the month:</b>			<b>368,790</b>	

**Footnotes:**

A. Social Security expenditure incurred for seasonal employees and Trustees stipends

**SAN MATEO COUNTY MOSQUITO & VECTOR CONTROL DISTRICT**  
**Check Detail Report**

August 1-31, 2024

<b>GF-Aug</b> <b>2024</b>
------------------------------

Account	Num	Date	Name	Amount	Memo/Description
1013 Checking - US Bank - GF x3353					
1013 Checking - US Bank - GF x3353	2946	08/13/2024	American Fidelity Assurance Company	-\$ 1,669.16	Flexible Spending Account (Employee Contrib) PP 7/4/2024
1013 Checking - US Bank - GF x3353	2947	08/13/2024	Public Agency Retirement Services (PARS)	-\$ 318.36	PLAN ID: R3-ARS18A
1013 Checking - US Bank - GF x3353	2948	08/13/2024	Charles P. Hansen	-\$ 603.91	Retiree Health Insurance Reimb-Aug '24
1013 Checking - US Bank - GF x3353	2949	08/13/2024	Dennis J Jewell	-\$ 897.65	Retiree Health Insurance Reimb-Aug '24/ 2024 Drug Reimb
1013 Checking - US Bank - GF x3353	2950	08/13/2024	Great-West Life & Annuity Co	-\$ 7,522.77	Group No. 98368 Deferred Comp
1013 Checking - US Bank - GF x3353	2951	08/13/2024	San Mateo County Retirement Assoc.	-\$ 42,665.84	SM M.A.D.
1013 Checking - US Bank - GF x3353	2952	08/13/2024	U.S. Bank PARS Account # 6746022400	-\$ 634.41	Agency: San Mateo County Mosquito & Vector Control
1013 Checking - US Bank - GF x3353	2953	08/13/2024	Aim To Please Janitorial Services	-\$ 1,633.25	San Mateo County Mosquito VCD
1013 Checking - US Bank - GF x3353	2954	08/13/2024	Airgas Dry Ice	-\$ 698.89	Payer #4317638
1013 Checking - US Bank - GF x3353	2955	08/13/2024	Amazon Capital Services	-\$ 2,690.89	Account # ARX6UTA334CO6
1013 Checking - US Bank - GF x3353	2956	08/13/2024	Bay Alarm Company	-\$ 195.00	San Mateo County Mosquito
1013 Checking - US Bank - GF x3353	2957	08/13/2024	Cintas Corporation #0464	-\$ 872.20	Payer #15914933
1013 Checking - US Bank - GF x3353	2958	08/13/2024	City of Foster City HR	-\$ 582.00	Customer #2134/2528
1013 Checking - US Bank - GF x3353	2959	08/13/2024	Colorprint	-\$ 30.97	Acct. No. 2781
1013 Checking - US Bank - GF x3353	2960	08/13/2024	Comcast	-\$ 140.11	Bus Internet 08/15/24-09/14/24 (1415 N Carolan)
1013 Checking - US Bank - GF x3353	2961	08/13/2024	Eco Medical Inc.	-\$ 104.00	San Mateo County Mosquito and Vector Control
1013 Checking - US Bank - GF x3353	2962	08/13/2024	Flyers Energy LLC	-\$ 4,887.32	Account: **0895
1013 Checking - US Bank - GF x3353	2963	08/13/2024	FRMS	-\$ 33,971.65	51-San Mateo Cty Mosquito VCD
1013 Checking - US Bank - GF x3353	2964	08/13/2024	Grainger	-\$ 261.48	Acct. No. *****4680 Ops Supplies
1013 Checking - US Bank - GF x3353	2965	08/13/2024	Lampire Biological Laboratories, Inc.	-\$ 371.00	SANMAT
1013 Checking - US Bank - GF x3353	2966	08/13/2024	Life Technologies Corporation	-\$ 24.18	Bill To: 68653775
1013 Checking - US Bank - GF x3353	2967	08/13/2024	MidAmerica Administrative & Retirement	-\$ 1,800.00	Plan ID: SMCOSWEXGS

**SAN MATEO COUNTY MOSQUITO & VECTOR CONTROL DISTRICT**  
**Check Detail Report**

August 1-31, 2024

<b>GF-Aug</b> <b>2024</b>
------------------------------

Account	Num	Date	Name	Amount	Memo/Description
1013 Checking - US Bank - GF x3353	2968	08/13/2024	Muhammad Baluom	-\$ 91.25	Jul-2024 Brd Mtg Stipend returned by ADP for Acct Closed
1013 Checking - US Bank - GF x3353	2969	08/13/2024	Pacific Office Automation	-\$ 298.25	Customer #446374
1013 Checking - US Bank - GF x3353	2970	08/13/2024	PG&E	-\$ 2,593.76	PG&E Bill for Rollins and Carolan
1013 Checking - US Bank - GF x3353	2971	08/13/2024	Pitney Bowes Global Financial Services	-\$ 209.35	Acct No.: *****5214 Postage machine rental
1013 Checking - US Bank - GF x3353	2972	08/13/2024	Quench USA, Inc.	-\$ 225.52	Account: D322868
1013 Checking - US Bank - GF x3353	2973	08/13/2024	RankPlus SEO	-\$ 742.00	San Mateo County Vector Control
1013 Checking - US Bank - GF x3353	2974	08/13/2024	Recology San Mateo County	-\$ 530.38	Account No. *****1072 Garbage pick up service
1013 Checking - US Bank - GF x3353	2975	08/13/2024	Redwood Trading Post	-\$ 175.78	Cust ID: *****7751 Work boots
1013 Checking - US Bank - GF x3353	2976	08/13/2024	San Mateo Lockworks Inc	-\$ 23.02	San Mateo County Mosquito (7842)
1013 Checking - US Bank - GF x3353	2977	08/13/2024	Streamline	-\$ 431.00	San Mateo County Mosquito & Vector
1013 Checking - US Bank - GF x3353	2978	08/13/2024	Target Specialty Products	-\$ 2,427.32	Customer ID: 5005852
1013 Checking - US Bank - GF x3353	2979	08/13/2024	Verizon	-\$ 1,863.22	Account No. 271667168-00002
1013 Checking - US Bank - GF x3353	2980	08/29/2024	Airgas Dry Ice	-\$ 698.64	Payer #4317638
1013 Checking - US Bank - GF x3353	2981	08/29/2024	American Fidelity Assurance	-\$ 457.98	Payor: 56840; Life/Acc/Cancer EE Insurance for Aug-2024
1013 Checking - US Bank - GF x3353	2982	08/29/2024	American Fidelity Assurance Company	-\$ 1,669.16	Payor: 56840; FSA Pay Period 9/4/2024
1013 Checking - US Bank - GF x3353	2983	08/29/2024	City of Burlingame, Water Dept	-\$ 1,001.53	Customer Name: SAN MATEO COUNTY
1013 Checking - US Bank - GF x3353	2984	08/29/2024	Clarke Mosquito Control Products, Inc.	-\$ 540.03	Customer #002486
1013 Checking - US Bank - GF x3353	2985	08/29/2024	Colorprint	-\$ 1,425.40	Acct. No. 2781
1013 Checking - US Bank - GF x3353	2986	08/29/2024	Comcast	-\$ 171.08	Business Internet 08/22/24-09/21/24 (1351 Rollins)
1013 Checking - US Bank - GF x3353	2987	08/29/2024	Flyers Energy LLC	-\$ 3,119.18	Account: 700895
1013 Checking - US Bank - GF x3353	2988	08/29/2024	Franchise Tax Board	-\$ 100.00	Virgilio Casanada / Acct. No. 562991396
1013 Checking - US Bank - GF x3353	2989	08/29/2024	Fusion LLC	-\$ 540.80	Phone System Sep-2024
1013 Checking - US Bank - GF x3353	2990	08/29/2024	Jarvis Fay LLP	-\$ 5,126.00	Legal Services thru 7/31/2024

**SAN MATEO COUNTY MOSQUITO & VECTOR CONTROL DISTRICT**  
**Check Detail Report**

August 1-31, 2024

<b>GF-Aug 2024</b>
------------------------

Account	Num	Date	Name	Amount	Memo/Description
1013 Checking - US Bank - GF x3353	2991	08/29/2024	Leading Edge Aerial Technologies, Inc.	-\$ 2,150.00	PV Aerial Application Serv-Searsville & Sharp Park 8/9/2024
1013 Checking - US Bank - GF x3353	2992	08/29/2024	Life Technologies Corporation	-\$ 4,425.03	Bill To: 68653775
1013 Checking - US Bank - GF x3353	2993	08/29/2024	Public Agency Retirement Services (PARS)	-\$ 318.36	PLAN ID: R3-ARS18A
1013 Checking - US Bank - GF x3353	2994	08/29/2024	RMT Landscape Contractors, Inc.	-\$ 869.00	Customer No: M332
1013 Checking - US Bank - GF x3353	2995	08/29/2024	Great-West Life & Annuity Co	-\$ 7,522.77	Group No. 98368 Deferred Comp
1013 Checking - US Bank - GF x3353	2996	08/29/2024	San Mateo County Retirement Assoc.	-\$ 42,665.84	SM M.A.D.
1013 Checking - US Bank - GF x3353	2997	08/29/2024	San Mateo County Retirement Assoc.	-\$ 42,665.84	SM M.A.D.
1013 Checking - US Bank - GF x3353	2998	08/29/2024	U.S. Bank PARS Account # 6746022400	-\$ 634.41	Agency: San Mateo County Mosquito & Vector Control
1013 Checking - US Bank - GF x3353	2999	08/29/2024	San Mateo Lockworks Inc	-\$ 309.14	San Mateo County Mosquito (7842) Keys & Locks
1013 Checking - US Bank - GF x3353	3000	08/29/2024	Spark Creative Design	-\$ 812.50	District Annual Report & other edits
1013 Checking - US Bank - GF x3353	3001	08/29/2024	Standard Insurance Company	-\$ 1,458.77	Policy No. 142979-0001 Long Term Insurance
1013 Checking - US Bank - GF x3353	3002	08/29/2024	VOID	\$ 0.00	Voided - Check was Mis-Printed
1013 Checking - US Bank - GF x3353	3003	08/29/2024	Stanford University	-\$ 216.00	1Yr SUNet ID e-mail sponsor from 9/9/24-9/9/25
1013 Checking - US Bank - GF x3353	3004	08/29/2024	VOID	\$ 0.00	Voided - Check was Mis-Printed
1013 Checking - US Bank - GF x3353	3005	08/29/2024	U.S. Bank PARS Account # 6746022400	-\$ 634.41	Agency: San Mateo County Mosquito & Vector Control
1013 Checking - US Bank - GF x3353	3006	08/29/2024	U.S. Bank	-\$ 23,938.92	Acct. #4246-0445-5564-6391 Credit Card
1013 Checking - US Bank - GF x3353	3007	08/29/2024	Cintas	-\$ 154.97	First Aid-Kit refill (2)
<b>Total for 1013 Checking - US Bank - GF x3353</b>				<b>-\$ 255,811.65</b>	

Note: Previous month's check numbers were 2875-2945. Current month's check numbers are 2946-3007 (62 checks).

**SAN MATEO COUNTY MOSQUITO & VECTOR CONTROL DISTRICT**  
**Check Detail Report**

August 1-31, 2024

<b>CPF-Aug 2024</b>
-------------------------

Account	Num	Date	Name	Amount	Memo/Description
1023 Checking - US Bank - CPF x4183					
1023 Checking - US Bank - CPF x4183	1285	08/13/2024	Capital Program Management Inc.	-\$ 8,249.50	Services thru 7/31/2024 (1415 N. Carolan Improv Project)
1023 Checking - US Bank - CPF x4183	1286	08/13/2024	Enterprise FM Trust	-\$ 6,854.14	Vehicle Leases Aug-2024
<b>Total for 1023 Checking - US Bank - CPF x4183</b>				<b>-\$ 15,103.64</b>	

Note: Previous month's check number were 1282-1284. Current month's check number are 1285-1286 (2 checks).



P.O. BOX 6343  
FARGO ND 58125-6343

Aug  
2024



ACCOUNT NUMBER [REDACTED]  
STATEMENT DATE 08-22-2024  
AMOUNT DUE \$37,700.42  
NEW BALANCE \$37,700.42  
PAYMENT DUE ON RECEIPT

000000871 01 SP 108481116108034 P  
SMCMVCD  
ATTN DISTRICT MANAGER  
1351 ROLLINS RD  
BURLINGAME CA 94010-2409

AMOUNT ENCLOSED  
\$ 13,761.50

Please make check payable to U.S. Bank

U.S. BANK CORPORATE PAYMENT SYSTEMS  
P.O. BOX 790428  
ST. LOUIS, MO 63179-0428

[REDACTED] 003770042 003770042

Please tear payment coupon at perforation.

CORPORATE ACCOUNT SUMMARY							
SMCMAD	Previous Balance	Purchases And Other Charges	Cash Advances	Cash Advance Fees	Late Payment Charges	Credits	New Balance
[REDACTED]	\$36,484.85	\$13,766.51	\$0.00	\$0.00	\$0.00	\$5.01	\$37,700.42
Company Total							

CORPORATE ACCOUNT ACTIVITY				
SMCMAD				TOTAL CORPORATE ACTIVITY
[REDACTED]				\$12,545.93 CR
Post Date	Tran Date	Reference Number	Transaction Description	Amount
08-05	08-03	74798264218000000001280	PAYMENT - THANK YOU 00000 C	12,545.93 PY

NEW ACTIVITY					
ANGELA NAKANO		CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
[REDACTED]		\$0.00	\$2,360.63	\$0.00	\$2,360.63
Post Date	Tran Date	Reference Number	Transaction Description	Amount	
07-24	07-22	24943014205010193224071	THE HOME DEPOT #0632 SAN MATEO CA	68.97	
07-31	07-30	24164074212091007301229	TARGET 00010546 SAN BRUNO CA	37.65	
08-08	08-07	24137464221001339893603	CVS/PHARMACY #09811 BURLINGAME CA	5.69	
08-13	08-13	24692164226106948280573	CARON PRODUCTS & SERVI 740-374-2770 OH	1,320.26	
08-14	08-13	24755424227732274581218	GRAINGER 800-4724643 IL	23.41	

CUSTOMER SERVICE CALL	ACCOUNT NUMBER		ACCOUNT SUMMARY	
	800-344-5696	[REDACTED]	PREVIOUS BALANCE	36,484.85
		PURCHASES & OTHER CHARGES	13,766.51	
	STATEMENT DATE	DISPUTED AMOUNT	CASH ADVANCES	.00
	08/22/24	.00	CASH ADVANCE FEES	.00
			LATE PAYMENT CHARGES	.00
			CREDITS	5.01
			PAYMENTS	12,545.93
			ACCOUNT BALANCE	37,700.42
SEND BILLING INQUIRIES TO: U.S. Bank National Association C/O U.S. Bancorp Purchasing Card Program P.O. Box 6335 Fargo, ND 58125-6335	AMOUNT DUE			
	37,700.42			

Aug  
2024



Company Name: SMCMVCD
Corporate Account Number: [REDACTED]
Statement Date: 08-22-2024

**NEW ACTIVITY**

Post Date	Tran Date	Reference Number	Transaction Description	Amount
08-14	08-12	24943014228010194255988	THE HOME DEPOT #0632 SAN MATEO CA	7.65
08-16	08-16	24692164229109510513006	CARON PRODUCTS & SERVI 740-374-2770 OH	322.00
08-19	08-16	24492164229000037123050	GENEIOUS.COM 185-84545577 MA	575.00
<b>CASEY STEVENSON</b>				
		<b>CREDITS</b>	<b>PURCHASES</b>	<b>CASH ADV</b>
		\$0.00	\$1,466.72	\$0.00
				<b>TOTAL ACTIVITY</b>
				\$1,466.72
Post Date	Tran Date	Reference Number	Transaction Description	Amount
07-25	07-23	24943014228010192242354	THE HOME DEPOT #0632 SAN MATEO CA	1,308.92
08-14	08-12	24943014228010194225114	THE HOME DEPOT #0628 SAN CARLOS CA	4.99
08-16	08-14	24943014228010190357216	HOMEDEPOT.COM 800-430-3376 GA	6.67
08-20	08-19	24445004233800108567349	SUMMIT RACING MAIL ORDER 800-230-3030 OH	83.29
08-20	08-19	2449216423300002285389	GDIT FAA 34CMY97 HTTPSFAADRONE VA	5.00
08-20	08-19	24789304232180901966955	GTO PERFORMANCE AIRBOATS 352-4019070 FL	57.85
<b>SMCMVCD ADMIN</b>				
		<b>CREDITS</b>	<b>PURCHASES</b>	<b>CASH ADV</b>
		\$5.01	\$4,657.94	\$0.00
				<b>TOTAL ACTIVITY</b>
				\$4,652.93
Post Date	Tran Date	Reference Number	Transaction Description	Amount
07-24	07-22	24071054205627124577341	CALIFORNIA SPECIAL DIS 916-4427887 CA	775.00
07-24	07-23	24231684206037859158848	OUTDOOR SUPPLY MILLBRAE MILLBRAE CA	16.26
07-24	07-22	24431064205023653813469	ALASKA AIR 0272377038053 SEATTLE WA WILLIAMS/RAYMOND 09-09-24	216.20
07-24	07-22	24431064205023653813477	SFO AS O PSP AS G SFO ALASKA AIR SEATTLE WA XXXXXXXXXXXXXXXXXXXX 00-00-00	18.00
07-29	07-27	24431064209026059220052	FASTRAK VIOLATION CENT 415-486-8655 CA	12.75
07-30	07-29	24692164211104384684983	INTUIT *CHECKS / FORMS CL.INTUIT.COM CA	469.13
07-30	07-29	24692164211104492468311	INTUIT *CHECKS / FORMS CL.INTUIT.COM CA	102.75
08-01	08-01	24000774214000009935547	MOSYLE BUS* MOSYLE BUS HTTPSBUSINESS FL	37.50
08-02	08-01	24204294214002568248083	GOOGLE ADS3907138857 650-2530000 CA	504.63
08-02	08-01	24692164214107026288989	YELPING*855 380 9357 855-380-9357 CA	90.00
08-02	08-01	24692164214107242692590	SQ *PENINSULA FEED STORE GOSQ.COM CA	68.11
08-08	08-07	24692164220102308869754	COSTCO DELIVERY 654 800-788-9968 CA	362.71
08-12	08-09	24943014223010192192306	THE HOME DEPOT #0632 SAN MATEO CA	5.01 CR
08-12	08-09	24089994222900010903517	AWARDS UNLIMITED 402-4740815 NE	29.05
08-12	08-09	24692164222104203741078	LOWES #01019 SAN BRUNO CA	22.37
08-12	08-09	24943014223010192192194	THE HOME DEPOT #0632 SAN MATEO CA	14.16
08-15	08-13	240710542276271486633100	CALIFORNIA SPECIAL DIS 916-4427887 CA	690.00
08-15	08-14	24692164227108543552108	SQ *PENINSULA FEED STORE GOSQ.COM CA	119.96
08-15	08-13	24943014227010194247414	THE HOME DEPOT #0632 SAN MATEO CA	52.42
08-19	08-17	24692164230100994231857	RENAISSANCE HOTELS PAL INDIAN WELLS CA 11320 ARRIVAL: 09-09-24	247.54
08-19	08-17	24692164230100994231881	RENAISSANCE HOTELS PAL INDIAN WELLS CA 11326 ARRIVAL: 09-09-24	247.54
08-19	08-17	24692164230100994233051	RENAISSANCE HOTELS PAL INDIAN WELLS CA 11534 ARRIVAL: 09-09-24	247.54
08-19	08-17	24692164230100994233440	RENAISSANCE HOTELS PAL INDIAN WELLS CA 11638 ARRIVAL: 09-09-24	247.54
08-19	08-16	24943014230010193373174	THE HOME DEPOT #0632 SAN MATEO CA	66.78

Aug  
2024



Company Name: SMCMVCD
Corporate Account Number: [REDACTED]
Statement Date: 08-22-2024



**NEW ACTIVITY**

<b>BRIAN WEBER</b>	<b>CREDITS</b>	<b>PURCHASES</b>	<b>CASH ADV</b>	<b>TOTAL ACTIVITY</b>
	\$0.00	\$5,281.22	\$0.00	\$5,281.22

Post Date	Tran Date	Reference Number	Transaction Description	Amount
08-05	08-01	24071054215627173264773	CALIFORNIA SPECIAL DIS 916-4427887 CA	86.24
08-05	08-01	24071054215627173264781	CALIFORNIA SPECIAL DIS 916-4427887 CA	15.00
08-09	08-09	24204294222000200861077	MSFT * E0100T5SMU 800-8427676 WA	1,296.00
08-09	08-09	24204294222001300980037	MSFT * E0100T5SO8 800-8427676 WA	1,446.88
08-09	08-08	24430984221052866816950	MSFT * E0100T5NGP MSBILL INFO WA	239.76
08-09	08-08	24430984221052866816976	MSFT * E0100T5R81 MSBILL INFO WA	1,950.00
08-19	08-17	24692164230100994233416	RENAISSANCE HOTELS PAL INDIAN WELLS CA 11629 ARRIVAL: 09-09-24	247.54

Department: 00000 Total:  
Division: 00000 Total:

\$13,761.50  
\$13,761.50



**SAN MATEO COUNTY MOSQUITO & VECTOR CONTROL DISTRICT**  
**Credit Card Transaction Report**  
**August 2024**

Account	Date	Name	Memo/Description	Account	Amount
<b>US Bank Purchase Card</b>					
1050 US Bank Visa Admin x5992					
1050 US Bank Visa Admin x5992	07/22/2024	California Special District Assoc	CSDA conf. registr for Ray Williams 9/1-9/12	Conferences / Workshops Board	\$ 775.00
1050 US Bank Visa Admin x5992	07/22/2024	Alaska Air	Air ticket for Trustee Ray Williams CSDA conf 9/1-9/12	Conferences / Workshops Board	\$ 234.20
1050 US Bank Visa Admin x5992	07/23/2024	Outdoor Supply Hardware	Stainless steel bolts and anchor shackle for airboat	Auto, Hotsy, Plug, Boat, Traile	\$ 16.26
1050 US Bank Visa Admin x5992	07/27/2024	FasTrak	Toll for express lane	Office Expense	\$ 12.75
1050 US Bank Visa Admin x5992	07/29/2024	Intuit	Checks and envelopes	Office Expense	\$ 571.88
1050 US Bank Visa Admin x5992	08/01/2024	Mosyle Business	Mosyle Business #B109033	Computer Software	\$ 37.50
1050 US Bank Visa Admin x5992	08/01/2024	Google Inc.	Google Ad campaigns to raise awareness	Media and Network	\$ 504.63
1050 US Bank Visa Admin x5992	08/01/2024	Misc- Outreach	Yelp-enhancements to raise awareness of District services	Media and Network	\$ 90.00
1050 US Bank Visa Admin x5992	08/01/2024	Peninsula Feed	Water container for chickens	Sentinel Chicken Flocks/Supply	\$ 68.11
1050 US Bank Visa Admin x5992	08/07/2024	Costco	Misc. office supplies	Office Expense	\$ 101.55
			Misc. janitoria/cleaning paper supplies	Janitorial/Household Expense	\$ 261.16
1050 US Bank Visa Admin x5992	08/09/2024	Home Depot	Reflective decals for truck numbers	Auto, Hotsy, Plug, Boat, Traile	\$ 14.16
1050 US Bank Visa Admin x5992	08/09/2024	Alpine Awards	Name plate for new trustee	Board Meeting Expenses	\$ 29.05
1050 US Bank Visa Admin x5992	08/09/2024	Lowes	Wire for lightbar cord extension	Auto, Hotsy, Plug, Boat, Traile	\$ 22.37
1050 US Bank Visa Admin x5992	08/09/2024	Home Depot	Refund-Reflective decals for tuck numbers	Auto, Hotsy, Plug, Boat, Traile	<b>-\$ 5.01</b>
1050 US Bank Visa Admin x5992	08/13/2024	California Special District Assoc	CSDA wrkshp for achieving the essential leadership skills certificate	Conferences / Workshops Staff	\$ 690.00
1050 US Bank Visa Admin x5992	08/13/2024	Home Depot	Treating yellowjacket nests	Pesticides	\$ 52.42
1050 US Bank Visa Admin x5992	08/14/2024	Peninsula Feed	Chicken feed	Sentinel Chicken Flocks/Supply	\$ 119.96
1050 US Bank Visa Admin x5992	08/16/2024	Home Depot	Parts to repair leaking/broken shop toilet	Facility - Repairs & Maint	\$ 66.78
1050 US Bank Visa Admin x5992	08/17/2024	Misc-Admin	Renaissance Hotel 1st night dep for Richard CSDA conf. 9/9-9/12	Conferences / Workshops Staff	\$ 247.54
1050 US Bank Visa Admin x5992	08/17/2024	Misc-Admin	Renaissance Hotel 1st night dep for Trustee Mason CSDA conf. 9/9-9/12	Conferences / Workshops Board	\$ 247.54
1050 US Bank Visa Admin x5992	08/17/2024	Misc-Admin	Renaissance Hotel 1st night dep for Trustee R. Riechel CSDA conf. 9/9-9/12	Conferences / Workshops Board	\$ 247.54
1050 US Bank Visa Admin x5992	08/17/2024	Misc-Admin	Renaissance Hotel 1st night dep for Matt CSDA conf. 9/9-9/12-took Ray's place	Conferences / Workshops Staff	\$ 247.54
<b>Total for 1050 US Bank Visa Admin x5992</b>					<b>\$ 4,652.93</b>
1052 US Bank Visa Angie x8413					
Beginning Balance					
1052 US Bank Visa Angie x8413	07/22/2024	Home Depot	Tools and paint for mosquito traps	Lab Supplies	\$ 68.97
1052 US Bank Visa Angie x8413	07/30/2024	Target	Field bioassay supplies	Lab Supplies	\$ 37.65
1052 US Bank Visa Angie x8413	08/07/2024	Misc-Lab	CVS Pharmacy-Lab supply	Lab Supplies	\$ 5.69

**SAN MATEO COUNTY MOSQUITO & VECTOR CONTROL DISTRICT**  
**Credit Card Transaction Report**  
**August 2024**

Account	Date	Name	Memo/Description	Account	Amount
1052 US Bank Visa Angie x8413	08/12/2024	Home Depot	Replacement bucket for chicken waterer	Sentinel Chicken Flocks/Supply	\$ 7.65
1052 US Bank Visa Angie x8413	08/13/2024	Misc-Lab	Maintenance kits for lab equipment	Lab Equip. Maintenance	\$ 1,320.26
1052 US Bank Visa Angie x8413	08/13/2024	Grainger	Replacement bucket for chicken waterer	Sentinel Chicken Flocks/Supply	\$ 23.41
1052 US Bank Visa Angie x8413	08/16/2024	Misc-Lab	Replacement parts for condensate recirculator	Lab Equip. Repair	\$ 322.00
1052 US Bank Visa Angie x8413	08/16/2024	Misc-Lab	PCR sequence analysis tools for the lab	Computer Software	\$ 575.00
<b>Total for 1052 US Bank Visa Angie x8413</b>					<b>\$ 2,360.63</b>
1053 US Bank Visa Casey x8447					
Beginning Balance					
1053 US Bank Visa Casey x8447	07/23/2024	Home Depot	200 twin pack cans of Spectracide Pro for YJ nests	Pesticides	\$ 1,308.92
1053 US Bank Visa Casey x8447	08/12/2024	Home Depot	Reflective decals for truck numbers	Auto, Hotsy, Plug, Boat, Traile	\$ 4.99
1053 US Bank Visa Casey x8447	08/14/2024	Home Depot	Reflective decals for truck numbers	Auto, Hotsy, Plug, Boat, Traile	\$ 6.67
1053 US Bank Visa Casey x8447	08/19/2024	Summit Racing Equipment	Replacement cooling system filler neck for Airboat	Auto, Hotsy, Plug, Boat, Traile	\$ 83.29
1053 US Bank Visa Casey x8447	08/19/2024	Misc- Ops	GTO Airboats - replacement cove mount bushings and bolts	Auto, Hotsy, Plug, Boat, Traile	\$ 57.85
1053 US Bank Visa Casey x8447	08/19/2024	Misc- Ops	FAA - DJI T20 registration renewal	Auto, Hotsy, Plug, Boat, Traile	\$ 5.00
<b>Total for 1053 US Bank Visa Casey x8447</b>					<b>\$ 1,466.72</b>
1045 US Bank Visa Brian x2315					
Beginning Balance					
1045 US Bank Visa Brian x2315	08/01/2024	California Special District Assoc	Handouts for new trustees	Office Expense	\$ 101.24
1045 US Bank Visa Brian x2315	08/08/2024	Microsoft	Power BI Pro Annual subscription 7/15/24-7/14/25 (2)	Website Hosting / Microsoft	\$ 239.76
1045 US Bank Visa Brian x2315	08/08/2024	Microsoft	MS 365 Bus Standard Annual subscription 7/15/24-7/14/25 (13)	Website Hosting / Microsoft	\$ 1,950.00
1045 US Bank Visa Brian x2315	08/09/2024	Microsoft	Exchange Online (Plan1) Annual subscription 7/15/24-7/14/25 (27)	Website Hosting / Microsoft	\$ 1,296.00
1045 US Bank Visa Brian x2315	08/09/2024	Microsoft	MS 365 Bus Basic Annual subscription 7/15/24-7/14/25 (20)	Website Hosting / Microsoft	\$ 1,446.68
1045 US Bank Visa Brian x2315	08/17/2024	Misc-Admin	Renaissance Hotel 1st night dep for Brian CSDA Conf 9/9-9/12	Conferences / Workshops Staff	\$ 247.54
<b>Total for 1045 US Bank Visa Brian x2315</b>					<b>\$ 5,281.22</b>
<b>Total US Bank Purchase Card</b>					<b>\$ 13,761.50</b>

Agenda Item 6A.1

**BOARD COMMITTEE REPORTS**

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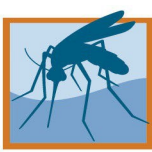
**SUBJECT: Finance Committee Meeting of the Board of Trustees**

The Finance Committee members attended a meeting on September 30, 2024. Attendees included Finance Committee Chair Ron Collins, Michael Yoshida, Robert Riechel, Mason Brutschy, Muhammad Baluom, and Kati Martin.

The staff attending included District Manager Brian Weber, Finance Director Richard Arrow, Information and Technology Director Matthew Nienhuis, and Operations Director Casey Stevenson.

- Finance Director Richard Arrow presented the preliminary Financial Reports for FY 24-24 as of August 31, 2024. After a brief discussion highlighting the financial condition and results of operations for those periods, it was unanimously approved to forward the August 2024 financial reports to the District's Board of Trustees for approval on the Board consent calendar.
- District Manager Brian Weber submitted a summary of the construction project status at 1415 North Carolan Ave. Up to date cost estimates and architectural plans were presented. District Manager Weber discussed the latest cost estimates from our project consultant, CPM. Increased cost estimates were identified and discussed, from \$8.2 million to \$8.8 million. However, actual costs are subject to change once the original project plans are finalized and placed out to requests for proposals.
- Finance Director Richard Arrow discussed the revised estimates impacting the District's Long-Term Financial Plan. Based on current information from the project management team and architect, the District can complete the project without utilizing financing or incurring additional debt.

The meeting adjourned at 6:05 P.M. on September 30, 2024.



**1415 N. Carolan Ave. Project Management Report**

**Reporting date**

9/1/2024 –9/27/2024

**Project objective(s)**

1. Eliminate the need for leased property
2. Meet District staff, parking, and equipment storage space short and long-term needs
3. Develop a financial strategy that pays for construction and associated costs
4. Prioritize building projects based on need and cost

**Work completed in September**

1. Met with Aetypic and CPM regarding the project
2. Met with the California Energy Design Assistance (CEDA) program  
(more information attached as 6A.2.2)

**Work planned to be completed in October**

1. Meet with CPM and Aetypic twice monthly
2. Revise cost and spending plan
3. Receive 100% complete plans for review
4. Submit CEDA application and continue working with their energy evaluation team.

**Outlook for the remainder of 2024**

1. Work with Aetypic and CPM to get construction drawings completed
2. Work with the Real Estate/Finance Committee and Aetypic to ensure accurate project costs.
3. Create and present a financial plan with implementation and funding options to the Committees and Board.

**Budget status and outlook**

Total budget approved for Phase 2:	<b>\$ 555,923</b>
Budget spent for Phase 2 (construction plans):	<b>\$ 94,085</b>
Total budget spent since property purchase:	<b>\$ 251,336 *</b>

• See attached detail Agenda Item 6A.2.1

**SAN MATEO COUNTY MOSQUITO  
Expense Transaction Detail Report  
July 1, 2021-September 25, 2024**

Date	Transaction type	Num	Name	Memo/Description	Account full name	Cleared	Amount
CAPITAL IMPROVEMENTS							
Improvements							
08/12/2021	Bill	18823561-1st half Dp	Bay Alarm Company	1415 N. Carolan-Alarm Installation-1st Half Deposit	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	1,889
08/27/2021	Bill	74937	All Fence Company Inc.	Repair & replace chain link fence @ 1415 N Carolan	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	1,685
09/08/2021	Bill	19889742-2nd half Dp	Bay Alarm Company	1415 N. Carolan-Alarm Installation-2nd Half Deposit	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	1,889
12/11/2021	Bill	C57-406	Bay Area Paving Co. Inc.	Replaced cracked driveway and sidewalk (1415 N. Carolan) PO#02706-1767	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	7,866
05/17/2022	Journal Entry	05172022A		Re-code 1415 N Carolan Ground Mulch Cover Refresh	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	3,090
05/17/2022	Journal Entry	05172022A		Re-code 1415 N Carolan Landscape Improvements	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	4,878
06/24/2022	Journal Entry	06242022A		Re-code to 6010-1415 N Carolan Intrusion Alarm Install-1st 1/2 Dep	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	325
06/24/2022	Journal Entry	06242022A		Re-code to 6010-1415 N Carolan Intrusion Alarm Install-2nd 1/2 Dep	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	325
11/03/2022	Bill	AET-2022-4007	Aetypic, Inc.	Geotechnical Services: 1415 N. Carolan Ave Improvement Project	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	11,352
12/08/2022	Bill	AET-2022-K003	Aetypic, Inc.	Professional Services thru 11/25/22: 1415 N. Carolan Improv Project	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	96,421
04/12/2023	Bill	AET-2023-C003	Aetypic, Inc.	Professional Services thru 03/31/2023: 1415 N. Carolan Improv Project	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	12,947
06/30/2023	Bill	AET-2023-F007	Aetypic, Inc.	Professional Services thru 06/30/2023: 1415 N. Carolan Improv Project	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	14,585
12/08/2023	Bill	23-15-01	Capital Program Management Inc.	Construction Mgmt Services thru 11/30/2023; Proj No. 23-15 (1415 N Carolan)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	389
01/08/2024	Bill	23-15-02	Capital Program Management Inc.	Construction Mgmt Services thru 12/31/2023; Proj No. 23-15 (1415 N Carolan)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	2,720
02/06/2024	Bill	AET-2024-A004	Aetypic, Inc.	Professional Services thru 01/26/2024 (1415 N. Carolan Improv Project)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	400
02/06/2024	Bill	AET-2023-J008	Aetypic, Inc.	Professional Services thru 10/27/2023 (1415 N. Carolan Improv Project)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	5,796
02/09/2024	Bill	23-15-03	Capital Program Management Inc.	Construction Mgmt Services thru 01/31/2024; Proj No. 23-15 (1415 N Carolan)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	4,662
03/08/2024	Bill	23-15-04	Capital Program Management Inc.	Construction Mgmt Services thru 02/29/2024; Proj No. 23-15 (1415 N Carolan)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	3,830
04/08/2024	Bill	23-15-05	Capital Program Management Inc.	Construction Mgmt Services thru 03/31/2024; Proj No. 23-15 (1415 N Carolan)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	3,830
05/10/2024	Bill	23-15-06	Capital Program Management Inc.	Construction Mgmt Services thru 04/30/2024; Proj No. 23-15 (1415 N Carolan)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	4,163
06/10/2024	Bill	23-15-07	Capital Program Management Inc.	Construction Mgmt Services thru 05/31/2024; Proj No. 23-15 (1415 N Carolan)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	2,054
06/30/2024	Bill	AET-2024-F009	Aetypic, Inc.	Professional Services thru 6/30/2024 (1415 N. Carolan Improv Project)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	29,285
06/30/2024	Bill	24-14-01	Capital Program Management Inc.	Construction Mgmt Services thru 06/30/2024; Proj No. 23-15 (1415 N Carolan)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	4,607
08/09/2024	Bill	24-14-02	Capital Program Management Inc.	Construction Mgmt Services thru 07/31/2024; Proj No. 23-15 (1415 N Carolan)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	8,250
09/04/2024	Bill	AET-2024-H006	Aetypic, Inc.	Professional Services thru 8/31/2024 (1415 N. Carolan Improv Project)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	18,967
09/09/2024	Bill	24-14-03	Capital Program Management Inc.	Construction Mgmt Services thru 08/31/2024; Proj No. 23-15 (1415 N Carolan)	6000 CAPITAL IMPROVEMENTS:6010 Building Improvements	\$	5,137
Total:						\$	251,336

Total for Building Improvements

2023 v2

# Program Guide

California Energy  
Design Assistance

We provide intelligent decarbonization analysis;  
you make informed energy decisions.....



# WHAT IS CEDA?

The California Energy Design Assistance (CEDA) program promotes the electrification and decarbonization of new building construction or major renovation. CEDA works in collaboration with project teams to reduce energy demand, consumption, and carbon emissions.

CEDA serves commercial, public, high-rise multifamily, industrial, and agricultural projects in Pacific Gas & Electric (PG&E), Southern California Edison (SCE), SoCalGas (SCG), and San Diego Gas & Electric (SDG&E) service areas.



- Advance the market to achieve California's aggressive decarbonization goals
- Promote electrification and all-electric buildings
- Reduce long term energy costs and emissions
- Drive adoption of high-performance measures
- Make buildings true grid resources
- Educate the market

## Overall Goals

Increase supply and demand for all-electric and high-performance measures

Build relationships with the A/E/C community

Drive Innovation



# WHY PARTICIPATE IN CEDA?

- Receive complimentary custom **decarbonization** analysis to identify and evaluate opportunities
- Gain analysis of **energy costs and paybacks**
- Receive **financial incentives** to help offset the costs of decarbonization measures for qualified projects
- Demonstrate commitment to high performance building practices and design





- New construction projects and/or major alterations
- Projects in design phase
- Owner pays/will pay the Public Purpose Program surcharge on the account where the Energy Efficiency (EE) measures are installed
- No double-dipping incentives with other utility sponsored ratepayer energy efficiency programs for the same measures
- Allow access to project site at project completion for verification of installed measures

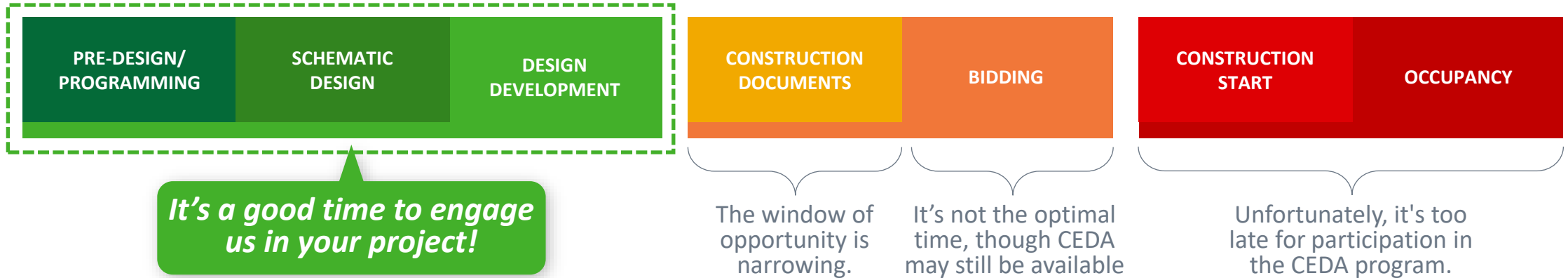
## Major alterations must meet the following criteria:



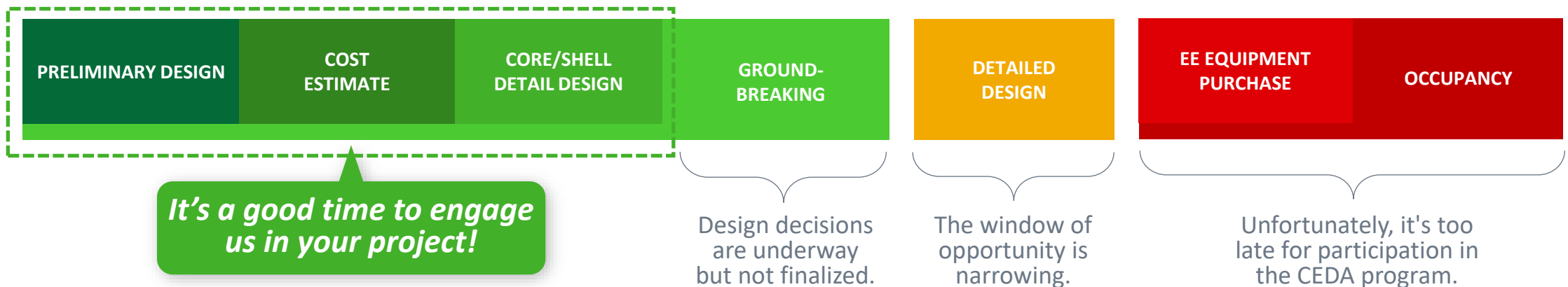
- Changes in space function (building or space occupancy type change) **OR**
- Substantial changes ( $\geq 30\%$ ) in design occupancy (square feet per person) **OR**
- Increase ( $\geq 10\%$ ) in conditioned floor area **OR**
- Any expansion or addition of substantial process or conditioning load to an existing facility

# ENROLLMENT TIMING

## TRADITIONAL DESIGN/BID/BUILD PROCESS



## FAST-TRACK OR DESIGN/BUILD PROCESS



1



## Enrollment

You provide schematic information about your building through our Energy Design Assistance application or directly to one of our outreach specialist

2



## Discovery

Willdan performs a real-time evaluation of decarbonization measures and bundle potential whole-building strategies for further analysis

3



## Results

You determine the measures that best align with your project goals, from which estimated savings, and incentives are calculated

4



## Verification

We confirm your project was constructed to plan and issue a final report confirming savings, incentives as applicable

5



## Savings

Enjoy continual energy savings, helping to actualize decarbonization goals and being a grid partner

Design teams are stretched thin on time and budget, but that doesn't mean decarbonization needs to be put on the back burner.

CEDA is now offering participation incentives on top of the incentives your project will get for implementing decarbonization measures.

It's a win-win!

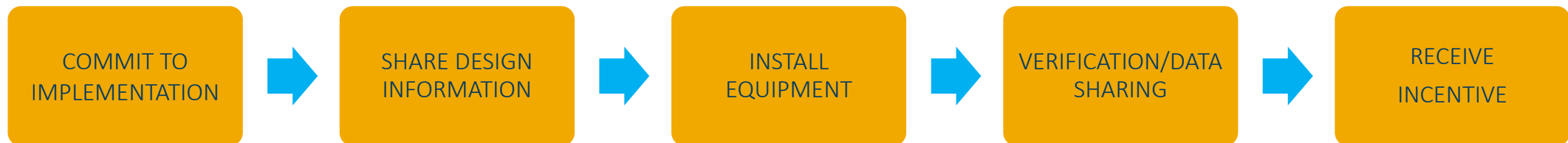


CEDA offers incentives to reward buildings of the future that implement high performance measures and electrification.

Incentives are also available for the installation of traditional above code minimum energy efficiency measures



## Inducements Process:



# HIGH-PERFORMANCE MEASURES

Examples of high-performance measure types to help your teams evaluate decarbonization opportunities and available incentives



## Space heating system

Heat pumps, controls, heat pump chillers and heat pumps for VAV reheat systems



## Service water heating

Central heat pump water heaters, distributed heat pump water heaters, water heater and distribution systems



## Plug Loads

Heat pump clothes dryers, induction cook tops, electric commercial kitchens



## Process Loads

Heat pump pool heaters, high temp heat pumps for industrial processes, microwave or other electric drying processes



## Refrigerant Systems

Low GWP refrigerants for heat pumps, VRF, chillers, water heaters, reduced refrigerant leakage



If there is a decarbonization consultant on your design team already, there is still an opportunity to participate in CEDA Lite and be eligible for measure incentives and a design team stipend.

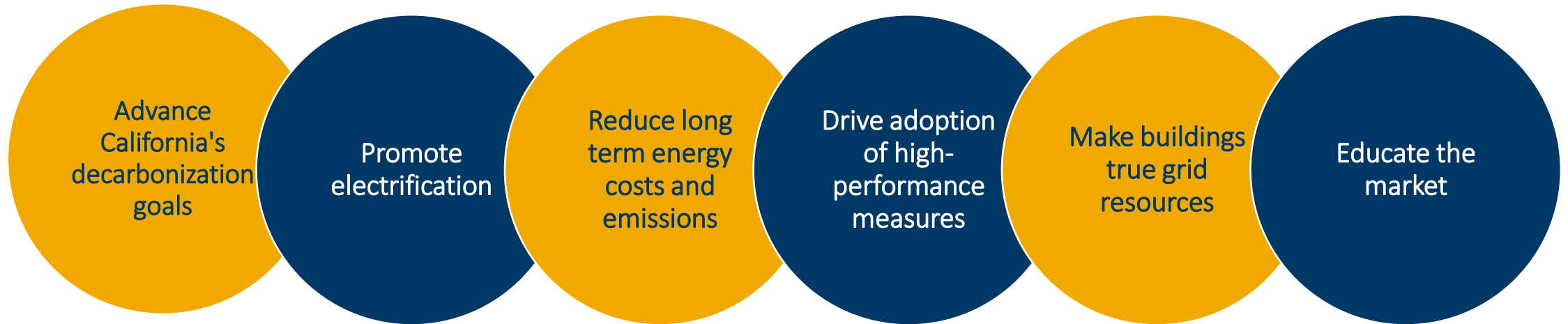
For CEDA Lite, project teams must

- Complete all program documentation requirements
- Adhere to program modeling protocol
- Calculate energy savings using Approved Baseline (this is not CEC Title 24 modeling)
- Receive approval for modeling approach and software tool

Design team stipend paid at savings claim submission acceptance and measure incentive paid at Verification



Together we can achieve our goals to:



Enroll your project today to determine,  
which decarbonization methods will benefit your project.



# Agenda Item 7.A. – Operations Staff Program Reports

## Field Operations in September 2024

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### *Aedes aegypti* Mosquitoes in the Bay Area

Although *Aedes aegypti* has not been detected in San Mateo County since 2015, the San Mateo County Mosquito and Vector Control District actively monitors across the county for the reappearance of this invasive species. The recent discoveries of *Aedes aegypti* in neighborhoods in Contra Costa County and Santa Clara County highlight the importance of the District's continued efforts to prevent its reestablishment. Our previous experience with this mosquito provides valuable insights into how we can combat the threat when this species is next found in our District.



*A female Aedes aegypti mosquito*

*Aedes aegypti* was first detected in San Mateo County in August 2013. The District's response, residents' cooperation, and the peninsula's mild climate allowed for successfully eradicating *Aedes aegypti* over the next few years. Eradicating *Aedes aegypti* from San Mateo County in 2015 was a significant achievement, made possible by the combined efforts of full-time vector control technicians, seasonal field teams, the Public Information Officer, and laboratory staff. This monumental task required intensive coordination and provided valuable learning opportunities. Over this period, the District hired ten seasonal employees to assist with inspections and outreach. Two of those staff eventually transitioned to full-time roles at the District, while three others joined vector control agencies elsewhere in the Bay Area.

*Aedes aegypti* is described as a "hitchhiker" because of its ability to be transported undetected via various forms of transportation, such as trucks, cars, and cargo shipments. Its eggs are 'sticky' and can stick to plants, planter pots, and many other containers that can hold water. This adaptability poses a major challenge for mosquito control efforts, as the mosquito can quickly spread beyond its initial detection points. Its ability to thrive with only minimal water to produce eggs further complicates control measures, allowing it to survive and reproduce in a wide range of climates throughout California, including the Bay Area.

Over the past decade, *Aedes aegypti* has established itself in many parts of California, pushing mosquito control districts to employ traditional methods like larviciding and public outreach, as well as develop innovative approaches. New technologies, such as releasing sterile male mosquitoes and genetically modified mosquitoes, are being explored to combat the spread. Early detection is one of the keys to having a chance at eradicating the *Aedes aegypti* mosquito. That's why, in addition to other routine surveillance efforts, designated staff set out 100 weekly traps targeting these mosquitoes before they become established. The District also collaborates closely with other local mosquito control agencies, enabling the sharing of resources, strategies, and response plans to ensure we are prepared to protect San Mateo County from these invasive mosquitoes.



# Agenda Item 7.A. – Operations Staff Program Reports

## District Staff in Action



*The catch basin program is coming to the end of the season. This year, we had seven seasonal catch basin drivers, and to date, they have prevented mosquito breeding in 140,000 catch basins. They have done a great job as our first line of defense against West Nile virus.*



# Agenda Item 7.A. – Operations Staff Program Reports

## District Staff in Action



*(Left) Vector Control Technician David Allen inspected a storm water vault in San Mateo for mosquitoes.*

*(Right) Operations Director Casey Stevenson provided mosquito fish to San Francisco Department of Public Health Senior Environmental Health Inspector Nader Shatara to help control mosquitoes at an abandoned construction site in San Francisco.*





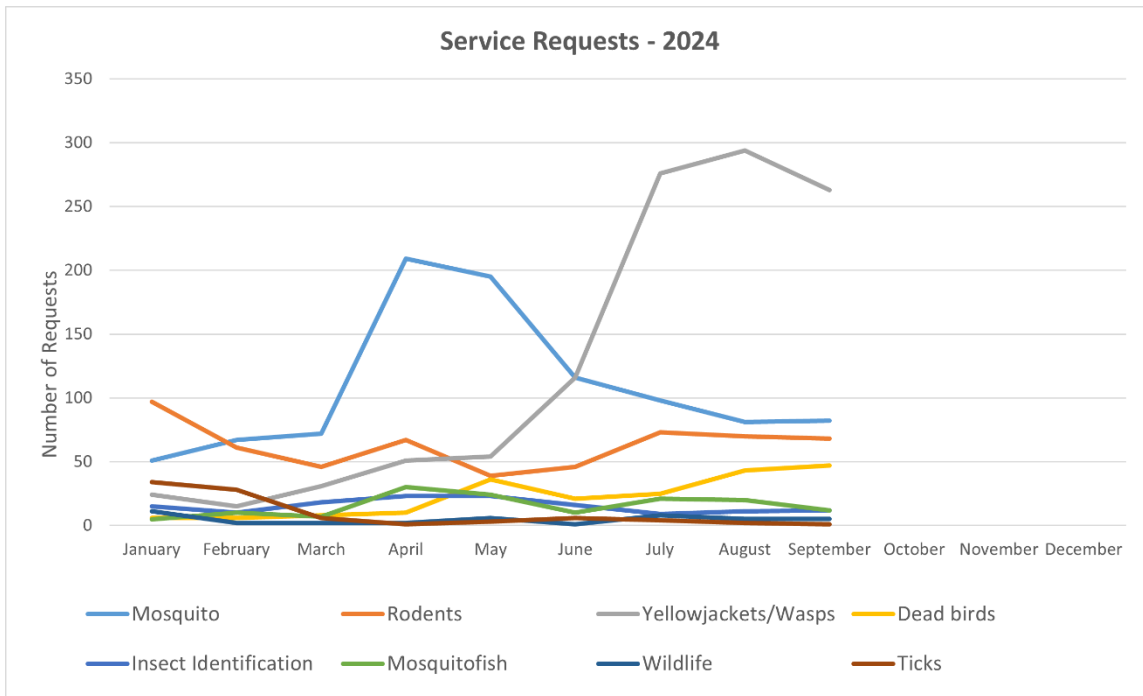
# Agenda Item 7.A. – Operations Staff Program Reports

## September 2024 Service Requests

<u>Type of Request</u>	September 2024	5-year September average
<b>Yellowjackets/wasps</b>	263	242
<b>Mosquitoes</b>	82	91
<b>Rodents</b>	68	65
<b>Dead birds</b>	47	19
<b>Mosquitofish</b>	12	10
<b>Insect identification</b>	12	13
<b>Wildlife</b>	5	8
<b>Ticks</b>	1	1
<b>Other</b>	10	11
<b>Total</b>	<b>500</b>	<b>460</b>

Service request numbers were above average in September (500 requests compared to a five-year average of 460). Yellowjacket calls were the most numerous, as is typical for the warmer months. September was the first month this season that yellowjacket requests were above average (263 compared to an average of 242), although calls have declined since an August peak. Dead bird reports were exceptionally high (47 compared to an average of 19). This reflects an active West Nile virus season in the Bay Area and statewide. Media reports likely remind residents to report dead birds.

Service requests in the category “other” included bees, fleas, and mites.



*Service requests by type in 2024. Yellowjacket/wasp issues were the most frequently reported, but have begun a seasonal decline.*



# Agenda Item 7.B. – Laboratory Staff Program Reports

## Lab Activities in September 2024

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### It's Termite time!

Autumn is the time of year when many local termites emerge from their nests to swarm. They can often be seen in the morning or evening, with the sun reflecting gently off their wings as they struggle to get airborne. While termites are famous for being destructive, they are also environmentally beneficial, and with a little prevention, they can be a part of the environment rather than a terrible foe.

Three types of termites are found in San Mateo County: subterranean, drywood, and dampwood. All three species of termites produce winged forms called *alates* or kings and queens. When alates emerge from the nest, they pair up as reproductive mates, drop their wings, and wander around looking for suitable habitat to establish a new colony. The vast majority of these colonies will fail within the first year or never get started at all. These pairs may blunder indoors, so seeing a few inside doesn't mean your home is infested. However, seeing small piles of termite frass (feces made from digested wood), or seeing termites emerge from a small hole in the wall is a sign of infestation.



Winged termites are called "alates." They are common in the spring and fall

### Termite Prevention

- Keep on schedule with exterior painting and varnishing. These materials coat the wooden surface and prevent termites from getting access.
- Seal all foundation cracks or exterior defects when you notice them – do not allow them to remain open as that will give termites access to the structure.
- Check frequently for water leaks. Water causes wood to rot, which attracts termites.
- Choose chemically treated wood or non-organic materials if the structure you are building (e.g., a fence or shed) touches the soil.
- Make sure all non-chemically treated wood is at least 12 inches above the soil. Do not allow soil to sit against wooden siding, framing, or foundation. If you cannot remove the soil, consider a barrier.
- Move woodpiles or junk piles containing wood away from the side of the home. Store firewood on racks 6-12 inches above the ground and 12 inches away from the side of the house.
- Make sure there is adequate ventilation both in the attic and under the house to keep everything dry.
- The District recommends examining your property at least once a year to look for signs of termite activity (frass, holes in the siding or framing, or small mud tubes connecting from the soil to the wooden structure).



# Agenda Item 7.B. – Laboratory Staff Program Reports

## Termite Control

While entomologists at the District are happy to help confirm the identification of a termite specimen, the District does not conduct termite control. Professional pest control companies can access modern, specialized, and effective methods. When choosing a structural pest control operator, residents should look for companies licensed to operate in the state of California, are up-front about costs, explain what they intend to do, and get your consent before they do it. If an infestation is caught early, small repairs and localized treatment may be all that is needed.

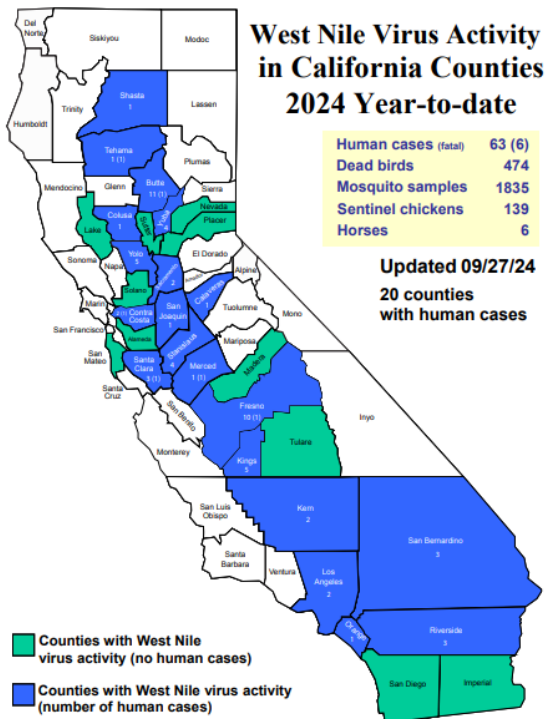
You can check whether a company has a license at the California Structural Pest Control Board website here: <https://www.pestboard.ca.gov/license.shtml>.

For more information on termites in California, visit the University of California's Integrated Pest Management program page on termites here: <https://ipm.ucanr.edu/PMG/PESTNOTES/pn7415.html>.



Termite fecal pellets, called "frass" are small sand-like pellets often found in piles.

## West Nile Virus 2024 Season



### San Mateo County

Through the end of September 2024, 455 dead birds were reported in San Mateo County. Of these, 138 were suitable for testing, and 31 tested positive (22%). No mosquito samples, sentinel chickens, or horses have tested positive in San Mateo County this year, and there have been no human cases.

### California

Thus far, in 2024, WNV has been detected in 31 counties in California. Statewide, 5,607 birds have been reported to the dead bird hotline, and of those 1,630 have been tested and 482 have tested positive for WNV (30%). West Nile virus has been detected in 1,835 mosquito samples 139 sentinel chickens and six horses. Additionally, there have been 63 human cases of West Nile virus in California this year, including six fatalities from Butte, Contra Costa, Fresno, Merced, Tehama, and Santa Clara counties.

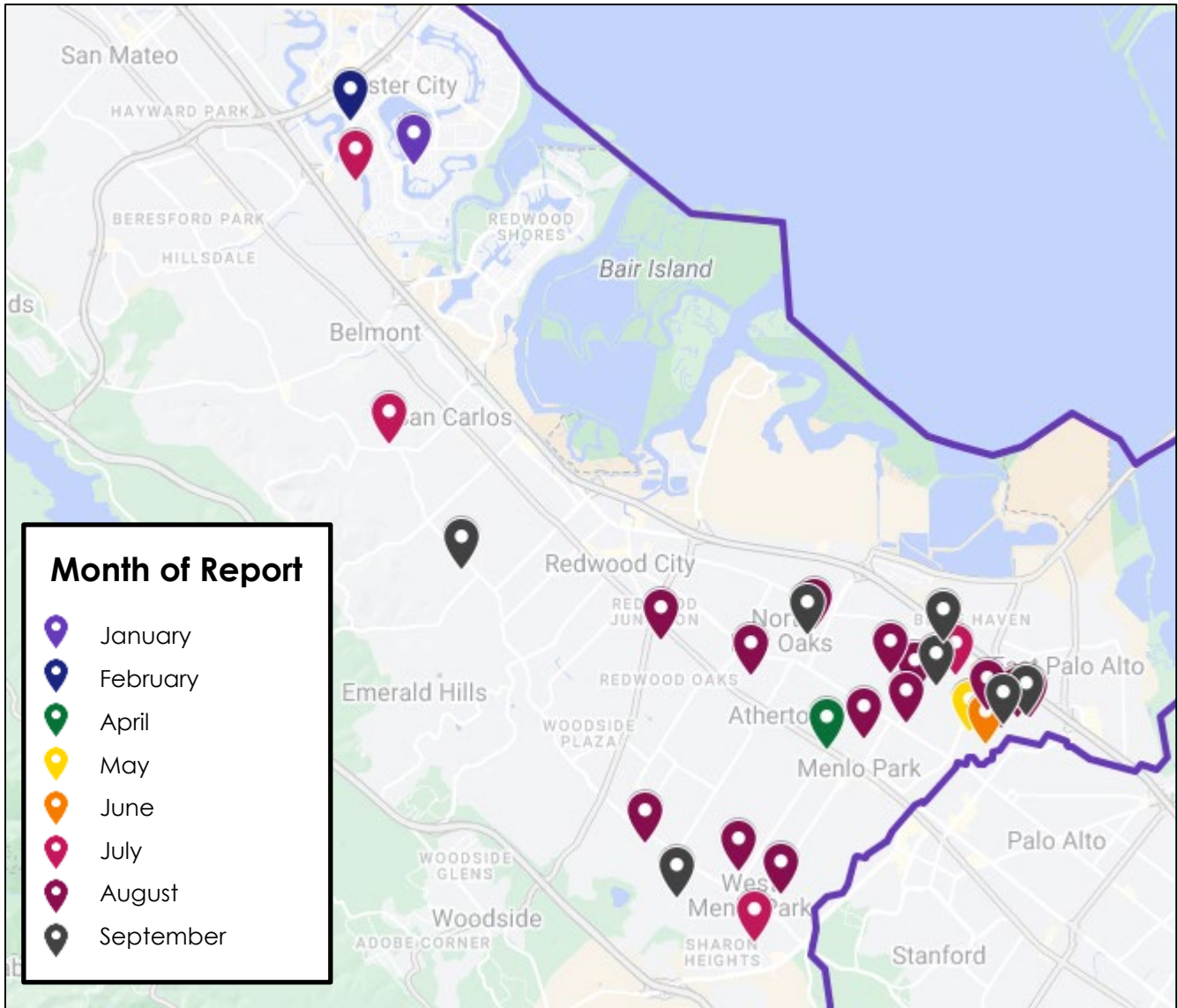
Statewide map from CDPH – VBDS: <https://westnile.ca.gov>





# Agenda Item 7.B. – Laboratory Staff Program Reports

## 2024 West Nile Virus Detections in Dead Birds in San Mateo County



Species of San Mateo County birds testing positive for WNV this year include: Crows (28), California Scrub Jay (1), Steller's Jay (1), Yellow-rumped Warbler (1).

### West Nile Virus Dead Bird Hotline

The California Department of Public Health's West Nile virus call center will discontinue service with live operators on October 11. However, residents who find a dead bird in good condition can continue to call **1-877-WNV-BIRD** (1-877-968-2473) and leave a message or file a report online at [westnile.ca.gov](https://www.westnile.ca.gov) until the hotline reopens in the spring. If suitable for testing, a District staff member will bring the bird back to the lab and test a sample for the presence of mosquito-borne disease.



# Agenda Item 7.B. – Laboratory Staff Program Reports

## CO<sub>2</sub> Traps – Average adult mosquitoes collected per trap per night

Seasonal adult mosquito counts have been below average. Despite a relatively high number of WNV detections in birds this season, no West Nile virus has been detected in mosquitoes.







In September, the adult mosquito species most frequently collected in traps was *Culex pipiens*, averaging 3.78 per trap. This mosquito is present year-round but peaks in abundance during late summer, as warmer temperatures speed up its life cycle. *Culex pipiens* numbers are less than half their usual level for September (3.78 per trap compared to a five-year August average of 8.93).

*Culex erythrothorax*, a mosquito that breeds among tules (cattails) in ponds and lakes, is far less prevalent this summer than typical, with 0.12 per trap in September compared to an average abundance of 13.59 per trap. This mosquito can emerge in massive numbers in the spring and summer but generally doesn't fly far from its water source. This is the second year in a row that *Cx. erythrothorax* numbers have been low, likely in part due to a shift to treatment by drone of the cattail marshes.

Now that autumn has begun, trap counts of adult mosquito numbers of all species are expected to decline.

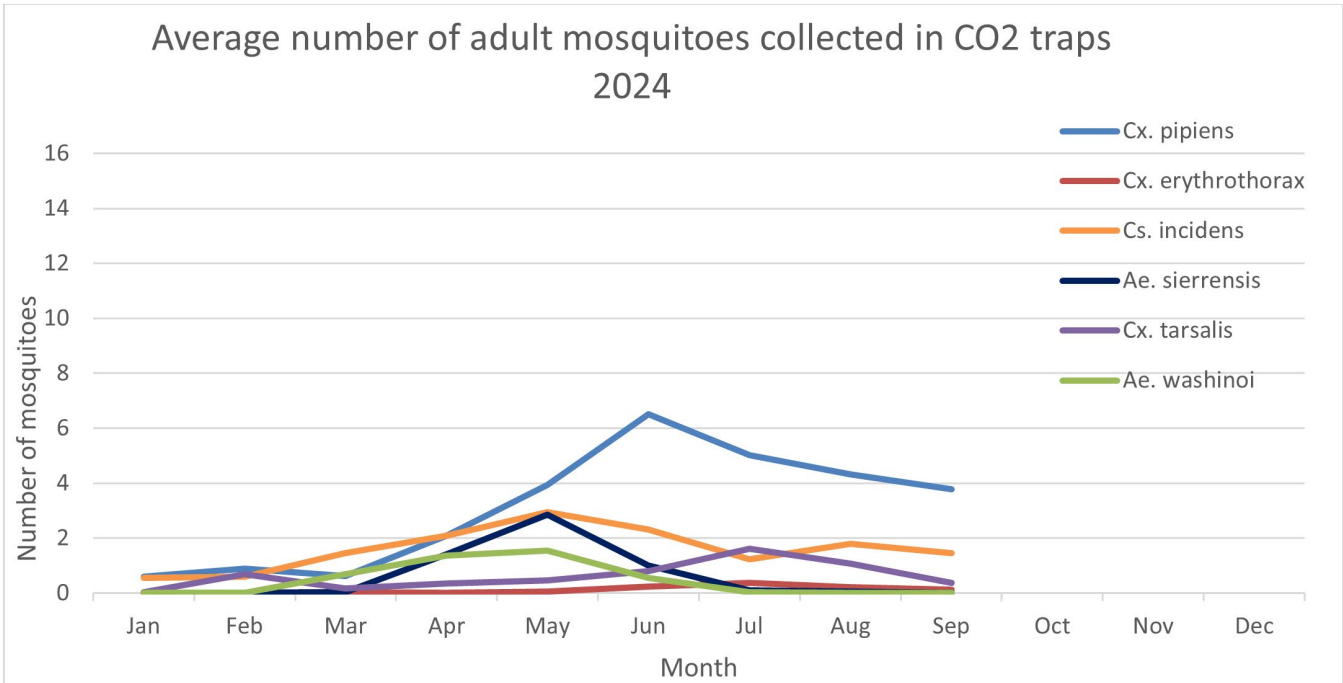


The District uses CO<sub>2</sub> traps to collect mosquitoes for WNV surveillance throughout San Mateo County.

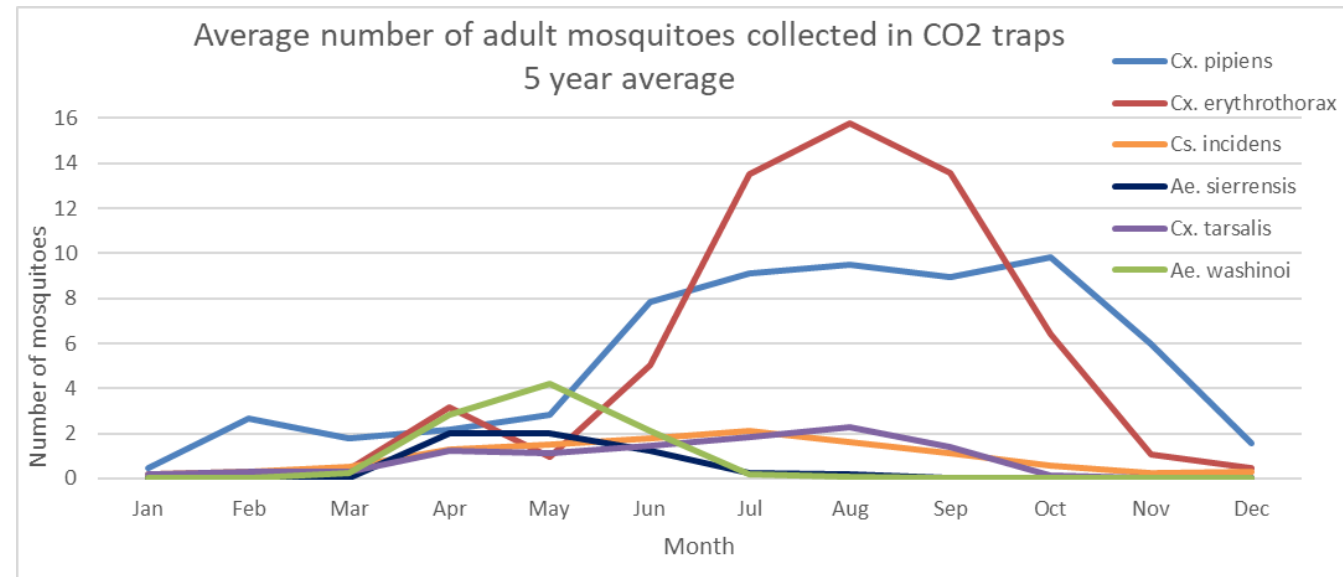
<u>Species</u>	<u>September 2024</u>	<u>5-year September average</u>
 <i>Culex pipiens</i>	3.78	8.93
 <i>Culex tarsalis</i>	0.37	1.39
 <i>Culiseta incidens</i>	1.46	1.12
 <i>Culex erythrothorax</i>	0.12	13.59
 <i>Aedes sierrensis</i>	0.01	0.01
 <i>Aedes washinoi</i>	0.00	0.02



# Agenda Item 7.B. – Laboratory Staff Program Reports



Average number of adult mosquitoes collected in CO<sub>2</sub> traps per trap per night during 2024. The graph shows the six most common species of mosquitoes trapped in San Mateo County.



Average number of adult mosquitoes collected in CO<sub>2</sub> traps per trap per night over the past five years. The graph shows the six most common species of mosquitoes trapped in San Mateo County.



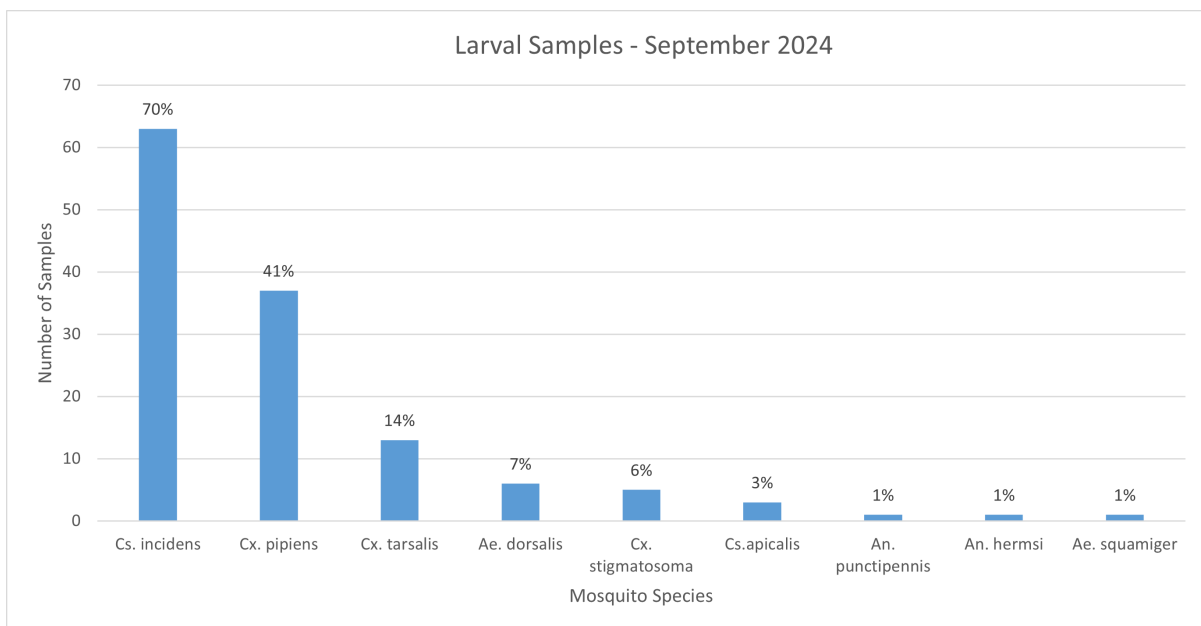
# Agenda Item 7.B. – Laboratory Staff Program Reports

## Larval Surveillance

Mosquito larval samples are collected from sources of standing water such as marshes, impounds, backyard fountains, fishponds, water under buildings, storm drains, containers, creeks, and tree holes. A District vector control technician uses a dipper to take a water sample and visually determines whether any mosquito larvae are present. The technician then transports the sample to the laboratory for the larvae to be counted and identified.

This September, 90 larval samples were collected in the field by vector control technicians and submitted to the lab. Nine different mosquito species were identified in larval samples. The species most often sampled was *Culiseta incidens*, present in 63 of the 90 samples (70%). This mosquito is active year-round in San Mateo County and is often collected from fishponds, containers holding water, and freshwater impounds. Another commonly collected species was *Culex pipiens* (41% of samples). *Culex pipiens* breeds in underground sources such as storm drains and backyard sources like containers, small fountains, and bird baths. It is a vector of West Nile virus.

These numbers reflect an effort by the operations department to collect samples from high density residential areas that may be most impacted by mosquito presence. This data is a core part of the mosquito surveillance process and is helpful for early detection of introduced species. Controlling mosquitoes while in the larval stage is the best way to reduce the need for aerial spraying and prevent the spread of arboviral diseases during summer.



Number and percent of larval samples containing each mosquito species from water samples collected in September 2024. Larval samples commonly contain multiple species.



# Agenda Item 7.C. Staff Program Reports

## Public Health Education & Outreach, September 2024

- Staff regularly communicate with city officials regarding West Nile virus-positive birds detected in their jurisdictions. The District sends messages and graphics for cities to share across their communication methods (social media, e-news, etc.) so that residents have the most accurate and up-to-date information.
- Rachel presented at the San Mateo City Council meeting to update the Council, staff, and public about West Nile virus, District services, and the current open position.
- Local 'Beetle Lady' visited our mosquito colony to take photos for an upcoming book that will include a section about how different insects breathe.
- Mosquitofish were distributed to Aragon, Redwood, and Terra Nova high schools for use in classroom learning.
- Staff tabled at: 1) Burlingame Senior Showcase to share information about District services with attendees, 2) an event at Beresford Park held by SMC Health Department for their employees, 3) the Burlingame Family Campout event in Washington Park, 4) an event Belmont held during the Caltrain electrification weekend, and 5) Hillsborough Neighborfest.
- Rachel presented at Woodrow Wilson Elementary School, Parents to Friends Preschool, and Junipero Serra Elementary School.
- Rachel presented a 'Tick Talk' about tick safety to parents and guardians at Bunker Hill Preschool.
- Brian and Rachel hosted about ten individuals from the County's Civics 101 course as a 'bonus' tour for participants. The presentation was well-received.



*Vector Control Technician Vanessa staffed an event at Beresford Park for County Health Department employees.*

### Website Analytics

- In September 2024, there were approximately 10,884 visits to the website, compared to 8,361 in September 2023. With the historically high number of West Nile virus-positive dead birds, there has likely been increased attention to the District.
- Top pages for September 2024 included pages on mosquito-like insects, rodent identification, yellowjacket nest treatment, the District homepage, biting mites, the service request page, opossums, a page about reporting biting mosquitoes, yellowjacket identification, and a page about crows and ravens.



# Agenda Item 7.D. – Information Technology Staff Program Reports

## Information Technology October 2024

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### *State and Local Cybersecurity Grant Program*

#### **Summary**

- ☑ SLCGP Grant application process

#### **SLCGP Grant, the early stages**

The District has completed the first step in acquiring funds from the State and Local Cybersecurity Grant Program or SLCGP. This grant can award up to \$250,000 in funding to fill gaps in an organization's security stack. The first stage of the process was registering our entity with the System for Award Management (SAM.gov), which proved quite complex and tedious. Still, thanks to the diligence of District Manager Brian Weber, the District was able to complete its registration. Registration with SAM.gov is a prerequisite to applying for the grant. The IT Department completed the rest of the application, which consisted of a cyber maturity assessment and a notice of intent. The District should receive more information about the application status and if funds are to be awarded. The district must register with CalOES to accept the awards if funds are awarded. While the status of our application is still unknown, we are hopeful that we will receive some funding to help alleviate some of the cost burden that making necessary upgrades to our infrastructure would impose on our District.

The District is very excited about the prospect of gaining support to improve our IT infrastructure further. If the District is not awarded any funding, we can still apply for a second round of funding, so we will have another opportunity should our efforts not be rewarded this time around.

For more information about the SLCGP or SAM, use the following links:

[State and Local Cybersecurity Grant Program | FEMA.gov](#)

[SAM.gov | About SAM.gov](#)

Agenda Item 8

**MANAGER'S REPORT**

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**Upcoming Meetings**

CSDA's Special District Leadership Academy (SDLA), required for all new Board members and those who have never attended, will hold its second of three 2024 Leadership conferences in San Rafael from November 3 to 6. This program was created by the Special District Leadership Foundation (SDLF).

Please contact Devina Walker at [dwalker@smcmvcd.org](mailto:dwalker@smcmvcd.org) or 650-344-8592 if you want to attend this meeting.

The SDLF is an independent, non-profit organization that promotes good governance and best practices among California's special districts through certification, accreditation, and other recognition programs. The CSDA and the Special District Risk Management Authority support the SDLF and its activities. Some of the certifications the District has obtained regularly, including 2024, are the following:

**CSDA Annual Conference Summary**

**AI and Its Impact on Special Districts** summarized the basic principles of AI, such as: What is AI, and how does it work? How might AI be used in our daily lives? What are the potential pitfalls of using AI and what to watch out for? How can AI impact your IT strategy?

Some downsides discussed about AI included systems learning from historical data, which may contain biases. AI can perpetuate and amplify these biases if not handled properly, leading to discriminatory outcomes in hiring, law enforcement, or lending. Also, AI's effectiveness is highly dependent on the quality and quantity of data. Poor data quality, outdated data, or insufficient diversity in training data can lead to poor model performance. Also, over time, staff may rely too heavily on AI for decision-making, which can lead to reduced human oversight. If AI systems fail or make errors, there might not be enough human expertise left to correct or challenge those decisions.

It was also discussed that AI will become part of your IT security strategy whether you actively apply the technology or your vendor has done it for you. Overall, AI improves IT and cybersecurity in various ways. AI can transform IT strategy by automating tasks, optimizing

infrastructure, enhancing cybersecurity, and improving efficiency. AI IT systems can diagnose problems and automatically initiate corrective actions, reducing the need for staff involvement in system troubleshooting, saving time, and reducing downtime.

Lastly, government agencies have successfully leveraged AI through Chatbot services. Chatbots are software applications that use AI to simulate human-like conversations. They interact with users through text or voice, providing information, answering questions, or troubleshooting issues without reliance on an employee. Therefore, automated chatbots are valuable when implemented as customer service representatives. Agencies found that chatbots add significant value to public engagement and user experience by providing instant, accessible, personalized interactions with 24/7 availability. This technology is primarily valuable only to large government agencies interacting with hundreds or thousands of users daily. However, as technology improves and evolves, there may be some need for smaller governments.

### **Transforming Government Procurement Through Strategic Vendor Partnerships**

This session discussed GovDeals.com, an online auction platform where government agencies sell surplus or unneeded assets. The presenter discussed the benefits of GovDeals, including selling directly to 1 million registered buyers generating higher net returns. Their online auction platform is a transparent way for governments to dispose of assets per the law. The amount of staff hours invested in selling the products is negligible because GovDeals manages the finances, and the buyer is responsible for picking up and hauling away.

Items listed on GovDeals range from vehicles and heavy equipment to office supplies and electronics. The platform connects the sellers (government) with the public and businesses, allowing users to bid on various goods. It provides

### **Competency Modeling**

Another notable presentation discussed how competency modeling is a hiring tool for job announcements and descriptions through hiring practices. Competency modeling enables organizations to identify the skills and strengths crucial to their culture and team success. It was demonstrated how competency modeling clarifies job descriptions, helps identify and develop leadership, and aligns organizational goals with the skills necessary to thrive in today's business landscape. The hiring model presented also applied practical strategies for creating a more inclusive workforce, fostering an environment where everyone's unique talents contribute to collective success.



Three primary learning objectives in competency modeling were:

- Guides organizations in discerning and prioritizing key skills and strengths essential for cultivating culture and achieving team success.
- Revolutionizes talent acquisition by enabling organizations to identify exemplary candidates efficiently, break down barriers, and foster a culture of equity and inclusion.
- Constructs a clear pathway for professional development, elevating engagement levels and nurturing high-performance teams.

The **2023 Annual Report by the California Department of Public Health (CDPH), Vector-Borne Disease Section (VBDS) is attached as Agenda Item 9.1.** It provides an overview of activities related to vector-borne disease prevention, surveillance, and control across the state. It also outlines critical public health threats, major disease outbreaks, and ongoing efforts to mitigate risks posed by various vectors, including mosquitoes, ticks, fleas, and rodents. The report emphasizes the significant impact of vector-borne diseases on public health and the continued collaboration between CDPH and local, state, and federal partners to manage these risks. Below is a summary of some of the contents.

- West Nile Virus remained the primary vector-borne disease threat in California. In 2023, WNV activity was widespread across 43 counties, with 433 human cases reported, the highest since 2017, resulting in 20 deaths. Over 77% of cases involved the severe neuroinvasive form.
- Additionally, 19 human cases of St. Louis encephalitis were reported, marking the highest number since its reemergence in 2015.

**Emerging Mosquito-borne Diseases:**

- Two locally transmitted cases of dengue were identified in Los Angeles County, the first in California's history. *Aedes aegypti*, the mosquito responsible for spreading dengue, Zika, and chikungunya viruses, have established populations in 24 counties, making the potential for local outbreaks in parts of the state possible.
- *Aedes albopictus*, another vector for these viruses, has been detected in five counties.

**Flea-borne Typhus and Plague:**

- In 2023, there were 180 reported cases of flea-borne typhus, mostly concentrated in Southern California, with 86% of patients requiring hospitalization.
- Plague surveillance detected activity in five counties. A domestic feline plague in Sierra County marked the first confirmed case in 12 years.

**Tick-borne Diseases:**

- Tick-borne diseases such as Lyme disease, anaplasmosis, and Rocky Mountain spotted fever (RMSF) were reported as ongoing. 123 Lyme disease cases were recorded, slightly higher than in 2022.
- RMSF was especially concerning, with three fatal cases highlighting the need for early detection and treatment.

**Vector Control and Certification:**

- CDPH-VBDS supports local agencies with vector control activities, providing laboratory testing, surveillance data, and technical guidance. It also oversees the Vector Control Technician Certification Program to ensure proper training in the application of vector control methods.

**Conclusion:**

The 2023 Annual Report highlights the significant challenges vector-borne diseases pose in California, particularly the increased activity of WNV and the potential threat of new mosquito-borne diseases. CDPH's ongoing efforts, in collaboration with various local agencies, are important in maintaining public health safety through surveillance, control measures, and public outreach.

**Trustee for the City of San Mateo**

The City of San Mateo created an Appointment Subcommittee to find a trustee for SMCMVCD's Board and to establish an eligibility list for future vacancies. They met on September 24, 2024, at 6:00 PM. San Mateo's Mayor and Deputy Mayor interviewed two candidates. The district hopes to hear the results of those interviews soon.

# Vector-Borne Disease Section Annual Report 2023



2023

ANNUAL REPORT

VECTOR-BORNE DISEASE SECTION

INFECTIOUS DISEASES BRANCH

DIVISION OF COMMUNICABLE DISEASE CONTROL

CENTER FOR INFECTIOUS DISEASES

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH



Gavin Newsom  
Governor  
State of California



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# Preface

I am pleased to present to you the 2023 Annual Report for the Vector-Borne Disease Section (VBDS) of the California Department of Public Health (CDPH). VBDS staff conducted prevention, surveillance, and control of existing and emerging vectors and vector-borne diseases throughout California in 2023.

In 2023, West Nile virus (WNV) activity was elevated and widespread, with activity reported from 43 (74%) of 58 counties. Of the 433 human cases reported from 34 counties, 77% were the severe neuroinvasive form of the disease and there were 20 fatalities. The number of human cases was more than double the preceding five-year average and the highest reported since 2017; numbers of WNV positive mosquitoes, dead birds, and horses also well exceeded preceding years. West Nile virus continues to pose the greatest vector-borne disease threat in California, with over 8,000 cases (367 fatal) reported since 2003. In addition to WNV activity, St. Louis encephalitis virus (SLEV) activity was detected in 18 counties and there were 19 human cases, the highest number reported since the reemergence of SLEV in 2015.

Two locally transmitted cases of dengue were identified in Los Angeles County in 2023. These marked the first locally acquired cases of dengue detected in California. Travel-associated human cases of dengue (250), chikungunya (23), and Zika (3) were also reported in 2023. *Aedes aegypti* (yellow fever mosquito), the primary vector of dengue, Zika, and chikungunya viruses, is now well established in 24 California counties, and *Aedes albopictus* (Asian tiger mosquito) a secondary vector of these viruses, is found in five counties. With *Aedes aegypti* established throughout most of southern California and the Central Valley, as far north as Shasta County, there is the ongoing threat of local virus transmission in some regions of the state.

In 2023, 180 human cases of flea-borne typhus, caused by *Rickettsia typhi*, were reported; 86% of the case-patients required hospitalization. Typhus is considered endemic in parts of southern California. Plague activity was detected in rodents or carnivores from five counties (El Dorado, Lassen, Mariposa, Mono, and Nevada) and in one cat (Sierra County) in 2023, prompting enhanced outreach. This was the first confirmed case of feline plague in California since 2011. Since 1980, hantavirus infection has been diagnosed in 91 California residents, with most cases exposed to Sin Nombre virus (SNV) in the interior mountain ranges of the state or eastern Sierra Nevada. There was one human case reported in 2023 with likely exposure in the Sierra Nevada region, and SNV antibody-positive deer mice were found in 8 of 12 counties sampled.

Human cases of six tick-borne diseases were reported in California in 2023. Reports of Lyme disease (123) increased slightly relative to 2022. Although Lyme disease is the most commonly reported tick-borne disease in California, there were also cases of anaplasmosis (21), tick-borne relapsing fever (5), Rocky Mountain spotted fever (RMSF) (9), and babesiosis (10). Of the nine RMSF cases, five were associated with travel or residence in Tecate, Mexico. Three of these cases were fatal, highlighting the importance of early recognition and rapid treatment for this increasingly important bi-national tick-borne disease. In 2023, VBDS and collaborating agencies collected and tested thousands of ticks throughout California, including over 15,000 *Ixodes pacificus* (western blacklegged tick) from 37 counties, to aid in identifying areas at highest risk of tick-borne disease transmission.

In 2023, VBDS continued to expand public education through social media, digital and print materials, and the development of new web-based toolkits and interactive maps. VBDS continued to provide extensive consultation and training to United States Forest Service and National Park Service employees to reduce the risk of vector-borne disease exposure to park staff and visitors.

Many of you are our collaborators and colleagues, and I hope that you find the information contained in this annual report to be of value as we collectively strive to optimize the health and well-being of all Californians.

Vicki L. Kramer, PhD, Chief  
Vector-Borne Disease Section

# Acknowledgements

**The California Department of Public Health, Vector-Borne Disease Section works with numerous local, state, and federal agencies, private and commercial organizations, and members of the medical community in its efforts to monitor, prevent, and control vector-borne diseases in California. Some of the Section's key collaborators in 2023 are listed here.**

## Rodent-borne Diseases

Alameda County Vector Control Services District (VCSD); Museum of Vertebrate Zoology at University of California Berkeley; California Department of Parks and Recreation; County of San Diego Vector Control Program (VCP); El Dorado County VCP; National Park Service (NPS); Orange County Mosquito and Vector Control District (MVCD); San Bernardino County VCP; United States Forest Service (USFS); University of California Davis School of Veterinary Medicine, Department of Veterinary Medicine and Epidemiology; West Valley MVCD.

## Flea-borne Diseases

Alameda County VCSD; California Department of Fish and Wildlife (CDFW); County of Los Angeles Agricultural Commissioner; El Dorado County VCP; Los Angeles County Vector Management Program; NPS; San Diego County VCP; San Mateo County MVCD; Sierra County Environmental Health Department; United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service, Wildlife Services; USFS.

## Tick-borne Diseases

Alameda County VCSD; Butte County MVCD; CDFW; Contra Costa MVCD; University of California Davis Arbovirus Research and Training (DART) Laboratory; Delta MVCD; Imperial County Public Health Department; Lake County VCD; Marin County Health and Human Services; Marin-Sonoma MVCD; Mosquito and Vector Management District of Santa Barbara County; Napa County Mosquito Abatement District; NPS; Nevada County Environmental Health; Orange County MVCD; Placer County MVCD; Sacramento-Yolo County MVCD; San Bernardino County VCP; San Diego VCP; San Mateo County MVCD; Santa Clara County VCD; Santa Cruz County MVCD; Shasta MVCD; Sutter-Yuba MVCD; USFS; Ventura County Environmental Health Division.

## Mosquito-borne Diseases

CDFW; DART Laboratory; Mosquito and Vector Control Association of California; participating local health departments, physicians, and veterinarians, and local mosquito and vector control agencies.

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### Annual Report Cover Art and Maps

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<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/VBDSAnnualReports.aspx>

## Chapters

Many staff from the Vector-Borne Disease Section contribute to each chapter of the Annual Report; the lead author(s) for each chapter is listed below.

### 1 Rodent-borne Diseases

Jackson, B and Kjemtrup, A. Chapter 1: Rodent-borne Diseases. In: Vector-Borne Disease Section Annual Report, 2023. California Department of Public Health, Sacramento, California, 2024. pp 1-3.

### 2 Flea-borne Diseases

Hacker, G; Novak, M and Kjemtrup, A. Chapter 2: Flea-borne Diseases. In: Vector-Borne Disease Section Annual Report, 2023. California Department of Public Health, Sacramento, California, 2024. pp 4-7.

### 3 Tick-borne Diseases

Saunders, M and Kjemtrup, A. Chapter 3: Tick-borne Diseases. In: Vector-Borne Disease Section Annual Report, 2023. California Department of Public Health, Sacramento, California, 2024. pp 8-14.

### 4 Mosquito-borne Diseases

Romo, H; Danforth, ME and Metzger, M. Chapter 4: Mosquito-borne Diseases. In: Vector-Borne Disease Section Annual Report, 2023. California Department of Public Health, Sacramento, California, 2024. pp 15-22.

### 5 U.S. Forest Service Cost-Share Agreement

Burns, J. Chapter 5: U.S. Forest Service Cost-Share Agreement. In: Vector-Borne Disease Section Annual Report, 2023. California Department of Public Health, Sacramento, California, 2024. pp 23-26.

### 6 Vector Control Technician Certification Program

Niemela, M. Chapter 6: Vector Control Technician Certification Program. In: Vector-Borne Disease Section Annual Report, 2023. California Department of Public Health, Sacramento, California, 2024. pp 27-28.

### 7 Public Information, Scientific Publications

Nicolici, A and Kjemtrup, A. Chapter 7: Public Information, Scientific Publications. In: Vector-Borne Disease Section Annual Report, 2023. California Department of Public Health, Sacramento, California, 2024. pp 29-33.

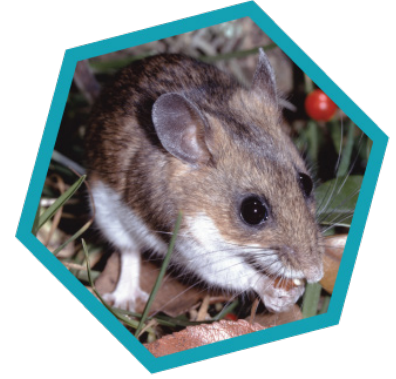
# Program Overview

The mission of the California Department of Public Health, Vector-Borne Disease Section (CDPH-VBDS) is to protect the health and well-being of Californians from arthropod- and vertebrate-transmitted diseases and injurious pests. [Authorizing statutes: Health and Safety Code Sections (HSC) 116100-116108, 116110-116112; 116120; 116130; and 116180]. CDPH-VBDS provides leadership, information, and consultation on vector-borne diseases and vectors to the public and agencies engaged in disease prevention and vector control. CDPH-VBDS staff, located in three regional offices and headquartered in Sacramento, provide the following services:

- Develop and implement statewide vector-borne disease prevention, surveillance, and control programs
- Design and conduct scientific investigations to further knowledge of vector-borne diseases in California
- Coordinate preparedness activities for detection and response to introduced vector-borne diseases and vectors, such as West Nile virus, Zika, chikungunya, dengue, and invasive *Aedes* mosquitoes
- Conduct or coordinate emergency vector control when disease outbreaks occur
- Provide laboratory testing for vector-borne disease agents in arthropods and vertebrates
- Advise local agencies on public health issues related to vector-borne diseases
- Advise local agencies on regulatory issues pertaining to mosquito and other vector control
- Provide information, training, and educational materials to governmental agencies, the medical community, and the public
- Oversee a Cooperative Agreement (HSC 116180) between CDPH and local vector control agencies for pesticide applications
- Oversee the Vector Control Technician Certification and Continuing Education programs (HSC 116110(d))
- Provide consultation on issues related to the management of ticks, bed bugs, head lice, flies, and other arthropods of public health importance
- Maintain the San Francisco Bay Area U.S. Army Corps of Engineers general permit, which allows local vector control agencies to conduct abatement activities
- Oversee Special Local Need permits for restricted-use public health pesticides

# 1

## Rodent-borne Diseases



**Hantavirus infection is the most important rodent-borne disease in California. Since the disease was first identified in 1993, the California Department of Public Health, Vector-Borne Disease Section has collaborated with county, state, and federal public health agencies to identify and investigate human cases of disease, to survey and study Sin Nombre virus infection in wild rodents, and to prepare and promote preventive information for the public.**

### Human disease surveillance

Human cases of hantavirus infection, which include both hantavirus pulmonary syndrome and non-pulmonary syndrome, are reported to the California Department of Public Health (CDPH) and are usually confirmed serologically and molecularly by the CDPH Viral and Rickettsial Disease Laboratory (CDPH-VRDL). When necessary, the CDPH Vector-Borne Disease Section (CDPH-VBDS) follows up human cases with environmental investigations, which may include trapping rodents and collaborating with CDPH-VRDL for testing for Sin Nombre virus (SNV), the causative agent of hantavirus infection, to evaluate unusual exposure circumstances or potential for additional exposures. In 2023, one case of hantavirus pulmonary syndrome was reported from a resident of Monterey County, California, who survived. Illness onset was in August. Exposure likely occurred while patient travelled in the Sierra Nevada. Genetic sequencing results of the patient's sample matched SNV

sequences from deer mice (*Peromyscus maniculatus*) from the Sierra Nevada. SNV antibodies were detected in 3 (30%) of 10 deer mice collected from the California Sierra Nevada travel location. Since 1980, hantavirus infection has been diagnosed in 91 California residents, with the majority exposed to SNV in the interior mountain ranges of the state or eastern Sierra Nevada (Figure 1.1).

### Rodent surveillance

In 2023, 977 rodents (Genera: *Microtus*, *Neotoma*, *Peromyscus*, and *Reithrodontomys*) were tested for antibodies to SNV (Table 1.1). Of 926 *Peromyscus* spp. sampled, 26 (2.8%) were positive for SNV antibodies. Seroprevalence in deer mice, the primary reservoir for SNV, was 6.3% (Tables 1.1, 1.2). At least one deer mouse was SNV antibody-positive in 8 (67%) of 12 counties sampled in 2023 (Table 1.2). SNV antibody has been detected in deer mice from 24 (56%) of 43 counties sampled in the last 10 years; prevalence ranged from 1.5% to 45.5% (mean 12.5%) over that period (Table 1.2).

Additionally, 9 (19.1%) of 47 western harvest mice (*Reithrodontomys megalotis*) demonstrated reactivity to SNV (Table 1.1). None of two voles (*Microtus* spp.) and two woodrats (*Neotoma* spp.) demonstrated reactivity to SNV (Table 1.1). Seropositivity in these rodents may represent spillover of SNV from deer mice or infection with other hantaviruses, which cross react to the Sin Nombre virus assay. In California, no hantaviruses other than SNV have been shown to be pathogenic to humans.

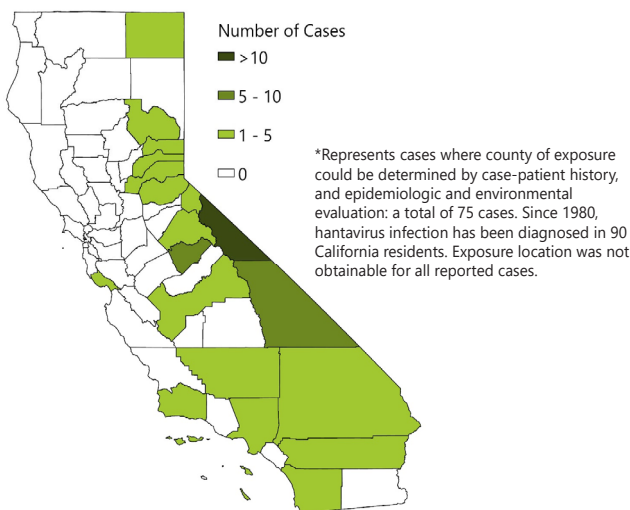


Figure 1.1. Likely county of exposure for reported hantavirus infections, California (1980 – 2023)\*

**Table 1.1 Serologic evidence of hantavirus (Sin Nombre) infection in California rodents, 2014 - 2023**

Species	Common name	2023			2014-2023		
		No. tested	No. reactive	Percent	No. tested	No. reactive	Percent
<i>Peromyscus boylii</i>	brush mouse	46	0		713	5	0.7
<i>Peromyscus californicus</i>	California mouse	280	2	0.7	1,467	14	1.0
<i>Peromyscus crinitus</i>	canyon mouse	1	0		32	2	6.3
<i>Peromyscus eremicus</i>	cactus mouse	151	0		1,996	13	0.7
<i>Peromyscus maniculatus</i>	deer mouse	381	24	6.3	4,261	531	12.5
<i>Peromyscus truei</i>	piñon mouse	66	0		453	4	0.9
<i>Peromyscus</i> spp.	unspeciated <i>Peromyscus</i>	1	0		2	0	
<i>Peromyscus</i> spp. subtotal		926	26	2.8	8,924	569	6.4
<i>Reithrodontomys megalotis</i>	western harvest mouse	47	9	19.1	609	76	12.5
<i>Neotoma</i> spp.	woodrats	2	0		220	0	
<i>Microtus</i> spp.	voles	2	0		59	8	13.6

National Park hantavirus prevention

In May 2013, Yosemite National Park (YOSE) of the National Park Service (NPS) and Heluna Health (HH, formerly Public Health Foundation Enterprises) began a cooperative agreement to decrease the risk of contracting vector-borne diseases through increased health education, vector surveillance, and public health research. CDPH-VBDS and HH worked with YOSE staff in 2023 on hantavirus prevention activities including rodent surveillance to estimate deer mouse abundance and SNV prevalence, facility evaluations, and improving employee training and public education. Deer mouse surveillance was conducted in developed areas of Yosemite Valley, Tuolumne Meadows, and Crane Flat. The deer mouse trap success rate (10.9%) at Yosemite Valley locations in 2023 was similar to the overall Valley trap success rate (11.1%) for surveillance conducted from 2012 to 2022. Three (8.3%) of 36 deer mice collected from Yosemite Valley locations tested positive for SNV antibodies in 2023, compared to 6.9% (24 of 349) of deer mice sampled from 2012 to 2022. The 25.2% trap success rate for deer mice in Tuolumne Meadows was slightly higher than the overall trap success rate of 23.1% for surveillance events in this area from 2012 to 2022. However, the SNV seroprevalence of 3.4% (1 of 29) was lower than the overall SNV seroprevalence (11.9%, 93 of 783) for deer mice sampled in Tuolumne Meadows from 2012 to 2022. Only three deer mice were captured at Crane Flat, one (33%) of which was seropositive for SNV antibodies. Similarly, 35.7% (5 of 14) of deer mice previously tested from this area, between 2015 and 2022, were seropositive. In addition to rodent surveillance and SNV testing,

over 100 structures were evaluated for rodent-borne disease risks. CDPH-VBDS and HH staff provided hantavirus prevention recommendations to YOSE and its associated partners based on the rodent surveillance results and facility evaluations.

Lassen Volcanic National Park (LAVO) renewed a cooperative agreement with HH and CDPH-VBDS in 2023 for services that included facility evaluations and deer mouse surveillance to estimate rodent abundance and SNV prevalence. Deer mouse surveillance was conducted in three developed areas of LAVO and two (33%) of six deer mice tested seropositive for SNV antibodies. The seropositive mice were collected at Lake Helen Picnic Area and Volcano Adventure Campground, while two deer mice captured at Lost Creek Campground tested negative. For comparison, 21.7% (55 of 254) of deer mice in LAVO tested positive for SNV antibodies from 2014 to 2022. In addition, four buildings in LAVO were evaluated for hantavirus or other vector-borne disease risks. HH staff provided hantavirus prevention recommendations to LAVO based on the surveillance results and facility evaluations.

**Table 1.2. Serologic evidence of hantavirus (Sin Nombre) infection in *Peromyscus maniculatus* in California, 2014-2023**

County	2023			2014-2023		
	No. tested	No. reactive	Percent	No. tested	No. reactive	Percent
Alameda	14	0	0.0	87	0	0.0
Alpine				9	2	22.2
Amador				8	0	0.0
Butte				6	0	0.0
Calaveras				4	1	25.0
Contra Costa				12	0	0.0
Del Norte				1	0	0.0
El Dorado	63	6	9.5	305	66	21.6
Fresno				8	0	0.0
Glenn				5	1	20.0
Humboldt				69	0	0.0
Inyo				11	5	45.5
Kern	26	1	3.8	66	1	1.5
Lassen				26	8	30.8
Los Angeles	8	0	0.0	33	0	0.0
Marin				43	0	0.0
Mariposa	39	4	10.3	362	28	7.7
Modoc				38	3	7.9
Mono				356	135	37.9
Monterey	9	0	0.0	10	0	0.0
Napa				5	1	20.0
Nevada	21	2	9.5	106	17	16.0
Orange				0	0	0.0
Placer				32	2	6.3
Plumas	7	2	28.6	115	25	21.7
Riverside				149	26	17.4
San Bernardino				118	0	0.0
San Diego	153	6	3.9	1,298	58	4.5
San Joaquin				4	0	0.0
San Mateo				173	33	19.1
Santa Barbara				12	0	0.0
Santa Clara				1	0	0.0
Santa Cruz				18	5	27.8
Shasta	4	2	50.0	114	19	16.7
Sierra				22	0	0.0
Siskiyou	1	0	0.0	81	22	27.2
Sonoma				46	0	0.0
Sutter				9	0	0.0
Tehama				99	20	20.2
Trinity				3	0	0.0
Tulare				32	2	6.3
Tuolumne	36	1	2.8	330	50	15.2
Ventura				35	1	2.9
<b>Total</b>	<b>381</b>	<b>24</b>	<b>6.3</b>	<b>4,261</b>	<b>531</b>	<b>12.5</b>

## 2

## Flea-borne Diseases

Flea-borne typhus and plague are the principal flea-borne diseases under surveillance in California. The California Department of Public Health collaborates with local, state, and federal agencies to conduct a statewide plague surveillance program. The California Department of Public Health, Vector-Borne Disease Section collects, collates, and analyzes information on suspect and confirmed plague activity among humans, domestic pets, and wild animals throughout California to evaluate the potential risk of plague to the public and, where necessary, implements preventive and control actions.



### Human disease surveillance

#### Flea-borne typhus

Human testing for *Rickettsia typhi*, the causative agent of flea-borne typhus, is principally performed at commercial laboratories. The California Department of Public Health (CDPH) Viral and Rickettsial Disease Laboratory performs serology or PCR for samples requiring additional confirmation. One hundred eighty cases of flea-borne typhus were reported to CDPH in 2023. Thirty-six (20%) of these were classified as confirmed cases according to CDPH working surveillance definition and 135 (75%) were probable. Median age was 43 years (range 0 to 86 years); 97 (54%) were male, and 83 (46%) were female. One hundred fifty-five (86%) of the case-patients required hospitalization. Case-patients were residents of Los Angeles (144, 80%), Orange (19, 11%), Riverside (7, 4%), San Bernardino (5, 2.5%), Contra Costa (1, 0.5%), El Dorado (1, 0.5%), Monterey (1, 0.5%), San Diego (1, 0.5%), and Santa Clara (1, 0.5%) counties. Typhus is considered endemic in Southern California.

#### Plague

Human cases of plague are reportable to CDPH by local health jurisdictions. Presumptive positive test results for reported cases are typically confirmed by either the CDPH Microbial Diseases Laboratory (CDPH-MDL) or the U.S. Centers for Disease Control and Prevention. Environmental investigation in response to a human case of plague typically includes an evaluation and risk assessment of all potential exposure sites.

There were no human cases of plague reported to CDPH in 2023.

### Animal disease surveillance (plague)

Rodent and flea surveillance is conducted to test for antibodies to *Yersinia pestis* in rodents and the presence of *Y. pestis* in fleas, which provides evidence of *Y. pestis* transmission in local rodent populations. Reported rodent carcasses are submitted to CDPH and tested for *Y. pestis* when plague infection is suspected. Recreational area closures for flea control may be initiated depending on surveillance findings and estimated plague transmission risks. Domestic pet plague cases and *Y. pestis* antibody presence in carnivores are used as indicators of regional plague activity and positive results are typically followed by local rodent and flea surveillance.

#### Domestic pets

One case of plague in a domestic feline was reported in December 2023 from Sierra County. This was the first confirmed case of feline plague in California since 2011. An evaluation of the potential exposure location and follow-up rodent surveillance is planned for 2024.

**This is the first known case of feline plague in California in 12 years. Felines are typically exposed by hunting rodents and can result in increased human exposure risk.**

Wild animals

The CDPH Vector-Borne Disease Section (CDPH-VBDS) plague surveillance program tested blood samples from 616 wild rodents and 261 carnivores and feral pigs sampled from 28 California counties in 2023 (Figure 2.1, Table 2.1). Serum antibodies to *Y. pestis* were observed in nine (1.5%) rodents from four counties (Figure 2.1, Table 2.1). The 616 rodents tested for plague antibodies included: 186 deer mice (*Peromyscus maniculatus*), 180 chipmunks (*Tamias* spp.), 148 California ground squirrels (*Otospermophilus beecheyi*), 34 golden-mantled ground squirrels (*Callospermophilus lateralis*), 26 other *Peromyscus* spp., 23 woodrats (*Neotoma* spp.), 9 Douglas squirrels (*Tamiasciurus douglasii*), 8 Belding’s ground squirrels (*Urocitellus beldingi*), 1 California vole (*Microtus californicus*), and 1 Great Basin pocket mouse (*Perognathus parvus*).

Table 2.1. CDPH-VBDS *Yersinia pestis* test results for wild rodents and carnivores sampled in 2023

County Location	Rodent blood tested by serology	Rodent carcasses tested by culture	Carnivore blood tested by serology	Positive Specimens	
				Species	Month
<b>Alameda</b>	25		41		
<b>Butte</b>	0		15		
<b>Calaveras</b>	0		2		
<b>Contra Costa</b>	0		21		
<b>El Dorado</b>	53	1	27		
LTBMU: Tallac Historical Site				<i>Tamias amoenus</i>	June
Ed Z'berg Sugar Pine Point State Park: General Creek CG				<i>Otospermophilus beecheyi</i>	October
<b>Kern</b>	40		27		
<b>Kings</b>	0		1		
<b>Lassen</b>	58		13		
Lassen NF: Eagle Lake CG				<i>Tamias amoenus</i>	July
Lassen NP: Butte Lake CG				<i>Tamias speciosus</i>	August
<b>Los Angeles</b>	15		8		
<b>Madera</b>	0		4		
<b>Mariposa</b>	11		24		
Yosemite NP				<i>Pekania pennanti</i>	January
Yosemite NP				<i>Pekania pennanti</i>	January
Yosemite NP				<i>Ursus americanus</i>	July
Yosemite NP				<i>Pekania pennanti</i>	November
Yosemite NP				<i>Pekania pennanti</i>	November
Yosemite NP				<i>Pekania pennanti</i>	November
Yosemite NP				<i>Pekania pennanti</i>	December
<b>Modoc</b>	0		34		
<b>Mono</b>	56		0		
Inyo NF: Oh Ridge CG				<i>Tamias umbrinus</i>	July
Inyo NF: Twin Lakes				<i>Tamias speciosus</i>	July
Inyo NF: Twin Lakes				<i>Tamias speciosus</i>	July
Inyo NF: Twin Lakes				<i>Tamias speciosus</i>	July
<b>Napa</b>	0		11		
<b>Nevada</b>	61		0		
Donner Memorial SP				<i>Tamiasciurus douglasii</i>	September
<b>Placer</b>	0		1		
<b>Plumas</b>	42		0		
<b>Sacramento</b>	0		5		
<b>San Bernardino</b>	12		0		
<b>San Diego</b>	112		0		
<b>San Joaquin</b>	0		2		
<b>San Luis Obispo</b>	0		4		
<b>San Mateo</b>	40		0		
<b>Shasta</b>	34		0		
<b>Trinity</b>	0		1		
<b>Tulare</b>	3		0		
<b>Tuolumne</b>	44		20		
<b>Ventura</b>	10		0		
<b>Total</b>	<b>616</b>	<b>1</b>	<b>261</b>		

CG: Campground; LTBMU: Lake Tahoe Basin Management Unit; NF: National Forest; NP: National Park; SP: State Park

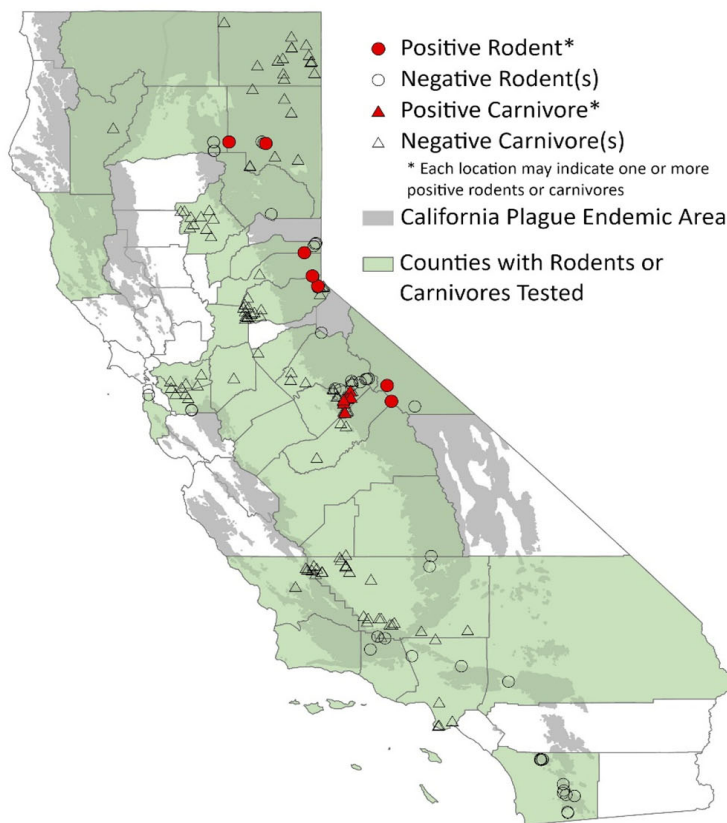


Figure 2.1. Approximate locations of carnivores or rodents collected in 2023 that were tested by serology or culture for *Yersinia pestis*.

Antibodies to *Y. pestis* were detected in 3 lodgepole chipmunks (*Tamias speciosus*) from Mono County, 1 lodgepole chipmunk from Lassen County, 2 yellow-pine chipmunks (*Tamias amoenus*) from El Dorado and Lassen counties, 1 Uinta chipmunk (*Tamias umbrinus*) from Mono County, 1 California ground squirrel from El Dorado County, and 1 Douglas squirrel (*Tamiasciurus douglasii*) from Nevada County (Table 2.1). One rodent carcass from El Dorado County tested negative for *Y. pestis* by the CDPH-MDL reference bacteriology unit (Table 2.1). The 261 wild carnivore (and feral pig) samples included: 112 coyotes (*Canis latrans*), 83 feral pigs (*Sus scrofa*), 17 fishers (*Pekania pennanti*), 15 black bears (*Ursus americanus*), 13 raccoons (*Procyon lotor*), 9 gray foxes (*Urocyon cinereoargenteus*), 7 striped skunks (*Mephitis mephitis*), 3 bobcats (*Lynx rufus*), 1 mountain lion (*Puma concolor*), and 1 red fox (*Vulpes vulpes*). Serum antibodies to *Y. pestis* were detected in seven wild carnivores from Mariposa County for an overall seroprevalence of 2.7%. Positive samples included six fishers and one black bear (Table 2.1). Additional carnivore samples from 2023 likely will be tested and reported in 2024.

In 2023, the San Diego County Department of Environmental Health-Vector Control Program conducted independent, county-wide surveillance and testing for plague in rodents. None of 173 rodents tested was positive for antibodies to *Y. pestis* via a hemagglutination assay. Of those 173 rodents, 112 were sent to CDPH for secondary testing and none were positive (Table 2.1).



Table 2.2. CDPH-VBDS *Yersinia pestis* test results for wild rodents and carnivores sampled from 2021 to 2022 and tested in 2023

County	Rodent blood tested by serology	Rodent carcasses tested by culture	Carnivore blood tested by serology	Positive specimens		
				Species	Collection Month	Collection Year
Butte	1		1			
El Dorado	0		2			
Kern	0		19			
Los Angeles	0		1			
Madera	0		6			
Mariposa	0		12			
El Portal				<i>Pekania pennanti</i>	December	2022
Mendocino	0		2			
Modoc	0		5			
Mono	0	1	0			
Napa	0		1			
Placer	0		1			
San Luis Obispo	0		11			
Santa Barbara	0		5			
Siskiyou	0		2*			
Stanislaus	0		2*			
Tulare	0		1			
Yuba	0		1			
<b>Total</b>	<b>1</b>	<b>1</b>	<b>72</b>			

\* Both samples from Siskiyou and one sample from Stanislaus were collected in 2021. All other samples were collected in 2022.

In addition to the samples collected and tested in 2023, CDPH-VBDS conducted serologic testing on one rodent and 72 carnivore samples that were collected in 2021 (three carnivore samples) or 2022 (one rodent and 69 carnivore samples) but were not submitted for testing until 2023 (Table 2.2). One fisher sampled from Mariposa County in 2022 tested positive for antibodies to *Y. pestis*. These results from 2021 to 2022 are reported here to provide a complete accounting of plague samples tested but not previously reported.

Rodent flea testing

A total of 716 fleas collected in 2023 from sylvatic rodents from ten counties were identified to 12 different species (Tables 2.3, 2.4). They were combined into 283 pools and tested for the presence of *Y. pestis*. No flea pools tested PCR-positive for *Y. pestis* (Table 2.4).

Table 2.3. CDPH-VBDS *Yersinia pestis* test results in rodent fleas by county, 2023

County	Flea Pools (Total # Fleas) Tested by PCR	Number Positive Pools
El Dorado	31 (99)	0
Kern	7 (16)	0
Lassen	41 (102)	0
Mariposa	5 (6)	0
Mono	30 (48)	0
Nevada	59 (138)	0
Plumas	45 (116)	0
Shasta	34 (80)	0
Tuolumne	16 (19)	0
Ventura	15 (92)	0
<b>Total</b>	<b>283 (716)</b>	<b>0</b>

PCR: Polymerase Chain Reaction

Table 2.4. CDPH-VBDS *Yersinia pestis* test results in rodent fleas by flea species, 2023

Flea Species	Flea Pools (Total # Fleas) Tested by PCR	Number Positive Pools
<i>Atheca wagneri</i>	40 (85)	0
<i>Ceratophyllus ciliatus</i>	84 (193)	0
<i>Eumolpianus eumolpi</i>	23 (47)	0
<i>Eumolpianus eutamiadis</i>	21 (26)	0
<i>Hoplopsyllus anomalous</i>	3 (4)	0
<i>Opisodasys keeni</i>	3 (3)	0
<i>Orchopeas agilis</i>	3 (22)	0
<i>Orchopeas nepos</i>	5 (5)	0
<i>Orchopeas sexdentatus</i>	1 (1)	0
<i>Oropsylla idahoensis</i>	26 (53)	0
<i>Oropsylla montana</i>	59 (257)	0
<i>Peromyscopsylla hesperomys adelpha</i>	15 (20)	0
<b>Total</b>	<b>283 (716)</b>	<b>0</b>

PCR: Polymerase Chain Reaction

# 3

## Tick-borne Diseases

Ten tick-borne diseases have been documented in California. A goal of the California Department of Public Health, Vector-Borne Disease Section is to reduce human morbidity from tick-borne diseases in California through ongoing surveillance of the disease-causing agents and ticks, investigation of human cases, management of tick populations when appropriate, collation of state-wide tick data from participating agencies, and timely dissemination of findings and prevention messages to the public, medical and public health communities, and vector control agencies.



### Human disease surveillance

#### Anaplasmosis

In 2023, 21 cases of anaplasmosis caused by *Anaplasma phagocytophilum* were reported to the California Department of Public Health (CDPH): seventeen (81%) met national surveillance criteria for a confirmed case and four (19%) met the criteria for a probable case. Median age was 61 years (range, 30 to 82 years), 11 (52%) were male and ten (48%) were female. Of those self-reporting race and ethnicity, 17 (81%) were White, and 4 (19%) were Unknown. None identified as Hispanic or Latino. Case-patients were residents of Humboldt, Kern, Los Angeles (8), Marin (3), Sacramento, San Diego, San Mateo (2), Santa Barbara, Santa Clara, Sonoma, and Ventura counties. Four (19%) patients reported exposure within California, including Humboldt, Marin (2), and Sonoma counties, 16 (76%) reported exposure in the northeast or upper Midwest of the United States, and for one (5%) exposure could not be determined (Figure 3.1).

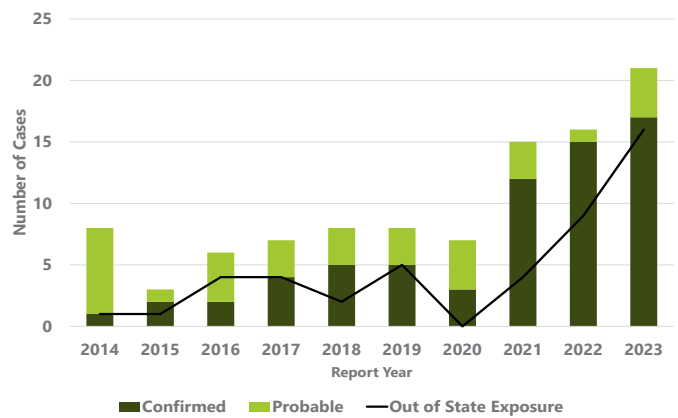


Figure 3.1. Confirmed and probable anaplasmosis cases, including cases reporting travel within incubation period, by report year 2014 - 2023

**Since 2013, the median number of reported anaplasmosis cases in California has risen from one case per year to eight cases per year.**

#### Babesiosis

In 2023, ten cases of babesiosis were reported to CDPH; nine (90%) met national surveillance criteria for confirmed for infection with *Babesia microti*; one (10%) was a probable case of *B. duncani*. Six (60%) were male; four (40%) were female. The median age was 67 years (range, 18 to 83 years). Self-reported race and ethnicity were White (7), Asian, or Unknown (2); none reported Hispanic or Latino ethnicity. One case was fatal. Case-patients were residents of Alameda, Contra Costa (2), Los Angeles (3), Marin, Orange, San Diego, and Sonoma counties. Exposures included blood transfusion, travel to eastern United States or Europe where *B. microti* is endemic (8), or unknown (*B. duncani*).

#### Ehrlichiosis

Three cases of ehrlichiosis were reported to CDPH in 2023; one (33%) met national surveillance criteria for confirmed case for infection with *Ehrlichia chaffeensis*; two (66%) were probable cases of *E. chaffeensis*. Two

cases had travel history to midwestern states where the Lone Star tick (*Amblyomma americanum*), the tick vector for *E. chaffeensis* is endemic; travel history was unknown for one.

Lyme disease

A total of 123 cases of Lyme disease caused by *Borrelia burgdorferi* were reported in 2023; 78 (63%) of these met the surveillance case definition criteria for a confirmed case, 37 (30%) were probable, and 8 (7%) were suspect cases with erythema migrans (EM) rash with exposure in California (Figure 3.2).

Of the 78 confirmed cases, patients were residents of 25 counties, with Santa Cruz County reporting the greatest number of cases (11) (Table 3.1). The median age of confirmed Lyme disease patients was 41.5 years (range, 0 to 85 years); 41 (53%) were female, 36 (46%) were male, and one (1%) was non-binary. Of the confirmed patients for whom race and ethnicity were reported, 45 (58%) self-identified as White, 2 (3%), Asian, 1 (1%), Multiple races, and 3 (4%) as Other. Seven (9%) self-identified as Hispanic or Latino. Erythema migrans was identified in 30 (38%) confirmed case-patients, with onset of EM noted mostly in summer months of June through August (17 or 57%). Between 2014 and 2023, the highest incidence of Lyme disease was in the north to central coastal counties and some northern counties with western-facing Sierra slopes (Figure 3.2). Of the 37 (32%) confirmed and probable patients reporting travel history outside of California one month prior to onset, the most common areas of exposure were the northeast or upper Midwest of the United States (33 or 89%) followed by Europe (3 or 8%), and one (3%) was described as other.

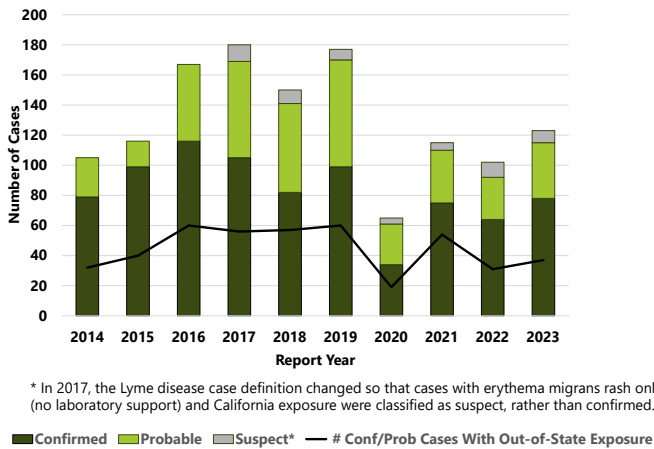


Figure 3.2. Confirmed, probable and suspect Lyme disease cases, including cases reporting travel within incubation period, by report year 2014 - 2023

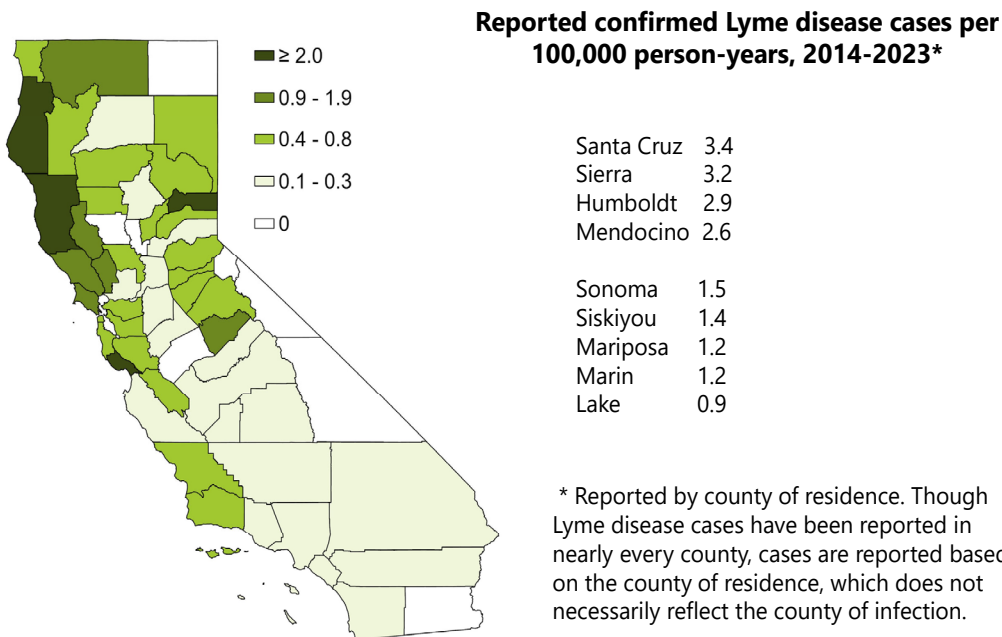


Figure 3.3. Incidence of reported confirmed Lyme disease, by county, California, 2014-2023

Table 3.1. Reported confirmed Lyme disease cases by county of residence, California, 2013-2022

County	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	TOTAL	Incidence per 100,000 person-years
Alameda	1	11	10	11	3	7	8	3	5	4	63	0.38
Alpine	0	0	0	0	0	0	0	0	0	0	0	0.00
Amador	0	1	1	0	0	0	0	0	0	0	2	0.50
Butte	1	0	2	0	0	1	0	0	1	1	6	0.29
Calaveras	0	1	0	1	0	1	0	0	0	0	3	0.67
Colusa	0	0	0	0	0	0	0	0	0	0	0	0.00
Contra Costa	2	4	5	13	10	2	2	5	2	1	46	0.40
Del Norte	0	0	0	0	0	0	0	0	1	0	1	0.38
El Dorado	1	3	1	2	0	0	0	0	3	2	12	0.64
Fresno	0	1	1	0	1	1	0	1	1	0	6	0.06
Glenn	1	0	0	0	0	1	0	0	0	0	2	0.70
Humboldt	5	6	4	3	4	6	2	0	4	5	39	2.93
Imperial	0	0	0	0	0	0	0	0	0	0	0	0.00
Inyo	0	0	0	0	0	0	0	0	0	0	0	0.00
Kern	0	1	1	0	0	1	0	0	0	1	4	0.04
Kings	0	0	1	0	0	0	0	0	0	0	1	0.07
Lake	0	0	2	0	0	3	1	0	0	0	6	0.90
Lassen	0	0	1	0	0	0	0	0	0	0	1	0.35
Los Angeles	14	6	2	4	2	2	0	4	2	8	44	0.04
Madera	0	0	0	0	0	0	1	0	1	0	2	0.13
Marin	5	2	5	0	1	7	1	5	3	0	29	1.15
Mariposa	1	1	0	0	0	0	0	0	0	0	2	1.18
Mendocino	1	0	1	1	0	9	1	5	4	3	25	2.79
Merced	0	0	0	0	0	0	0	0	0	0	0	0.00
Modoc	0	0	0	0	0	0	0	0	0	0	0	0.00
Mono	0	0	0	0	0	0	0	0	0	0	0	0.00
Monterey	0	0	1	0	0	1	0	2	1	0	5	0.11
Napa	1	3	2	0	1	0	1	1	2	0	11	0.81
Nevada	0	2	2	0	1	2	0	0	0	1	8	0.80
Orange	0	0	1	0	0	0	0	0	0	0	1	0.00
Placer	0	0	2	3	0	0	0	0	1	1	7	0.17
Plumas	1	0	0	0	0	0	0	0	0	0	1	0.53
Riverside	1	1	3	1	1	2	2	2	0	3	16	0.07
Sacramento	0	0	1	1	3	4	0	3	2	5	19	0.12
San Benito	0	1	0	0	0	0	0	0	0	1	2	0.30
San Bernardino	0	1	0	0	0	2	0	3	0	0	6	0.03
San Diego	7	8	8	2	6	2	0	2	6	3	44	0.13
San Francisco	1	0	0	10	13	11	2	11	3	4	55	0.65
San Joaquin	1	0	1	0	1	3	0	0	0	1	7	0.09
San Luis Obispo	3	3	1	0	1	2	2	2	2	0	16	0.57
San Mateo	6	5	5	4	0	2	1	0	0	0	23	0.31
Santa Barbara	0	4	7	4	3	2	1	2	1	2	26	0.59
Santa Clara	7	9	11	8	5	2	3	4	5	9	63	0.33
Santa Cruz	7	7	9	15	10	11	3	11	5	11	89	3.39
Shasta	0	0	0	0	0	0	1	1	0	1	3	0.17
Sierra	0	0	0	0	1	0	0	0	0	0	1	3.15
Siskiyou	0	1	1	1	1	0	0	0	1	1	6	1.38
Solano	0	0	3	2	2	0	1	1	0	1	10	0.22
Sonoma	11	12	13	8	8	5	0	2	5	7	71	1.48
Stanislaus	0	1	1	3	2	0	0	0	0	0	7	0.13
Sutter	0	0	0	0	0	0	0	0	0	0	0	0.00
Tehama	0	0	3	1	0	0	0	0	0	0	4	0.62
Trinity	1	0	0	0	0	0	0	0	0	0	1	0.63
Tulare	0	1	1	0	0	4	0	0	0	1	7	0.15
Tuolumne	0	1	0	0	0	1	0	0	0	0	2	0.37
Ventura	0	0	2	4	2	2	0	3	1	1	15	0.18
Yolo	0	1	1	3	0	0	0	1	1	0	7	0.32
Yuba	0	1	0	0	0	0	1	1	1	0	4	0.48
<b>TOTAL</b>	<b>79</b>	<b>99</b>	<b>116</b>	<b>105</b>	<b>82</b>	<b>99</b>	<b>34</b>	<b>75</b>	<b>64</b>	<b>78</b>	<b>831</b>	<b>0.21</b>

### Spotted fever group rickettsiosis

Nine cases of Rocky Mountain spotted fever (RMSF) caused by *Rickettsia rickettsii*, were reported to CDPH in 2023. Six (67%) met the surveillance criteria for a confirmed case and three (33%) were probable. Five (56%) were male, 4 (44%) were female; median age was 17 years (range, 1.5 to 78 years). Three (33%) of the cases were fatal. Of the eight patients self-reporting race and ethnicity, five (64%) were White, one (13%) self-reported as other; six (75%) were Hispanic or Latino. Patients were residents of San Diego (4), Imperial, San Bernardino, and Santa Barbara counties; two patients were residents of Mexico. Exposure locations included Mexicali, Mexico (1), Tecate, Mexico (5), and the southwestern United States (3).

Seven cases of spotted fever group *Rickettsia* (not including RMSF) caused by other *Rickettsia* spp. were reported to CDPH in 2023. Three of the cases were acquired in California. One was a confirmed case of a newly recognized rickettsial pathogen, currently called *Rickettsia* sp. CA6269 acquired in July in the San Francisco Bay Area. One probable case of Pacific Coast tick fever caused by *Rickettsia* strain 364D (proposed *Rickettsia rickettsii* subsp. *californica*) was reported in July from a Sonoma County resident. One case was a probable case related to a western blacklegged tick (*Ixodes pacificus*) bite acquired in Santa Clara County in March. The tick was PCR positive for a *Rickettsia* spp endosymbiont; the patient developed muscle aches and an elevated titer to *R. rickettsii*. Four cases were travel-related probable cases of *R. africae* acquired from tick bites in South Africa.

### Tick-borne relapsing fever

Five cases of tick-borne relapsing fever (TBRF), caused by *Borrelia hermsii*, were reported to CDPH in 2023; all met CDPH working surveillance case definition criteria for confirmed cases. Median age was 47 years (range, 1.5 to 61 years), three (60%) were male, and two (40%) were female. Patients were residents of Alameda, Mono (2), Napa, and San Mateo counties. Counties where patients were likely exposed in the three weeks prior to illness onset were Alpine, Mono (2), and Nevada (2) counties.

### Tularemia

No tick-exposure related tularemia cases were reported in 2023.

## **Tick surveillance**

### *Anaplasma phagocytophilum*

In 2023, a total of 6,902 adult, 1,695 nymphal, and 96 larval western blacklegged ticks (*Ixodes pacificus*) were collected and tested for the presence of *Anaplasma phagocytophilum*, the causative agent of anaplasmosis. Of these ticks, the CDPH Vector-Borne Disease Section (CDPH-VBDS) individually tested 3,506 adult and 521 nymphal western blacklegged ticks from 33 counties (Table 3.2). Thirty (0.9%) adult and 8 (1.5%) nymphal western blacklegged ticks tested positive by real-time polymerase chain reaction (RT-PCR) at the CDPH-VBDS laboratory (Table 3.2). Additionally, 96 larval western blacklegged ticks from Contra Costa, Marin, Sonoma, and Yuba counties were tested in 12 pools by CDPH-VBDS; all tested negative. Alameda County Department of Environmental Health and San Mateo Mosquito and Vector Control District (MVCD) share *A. phagocytophilum* tick testing data with CDPH-VBDS. In 2023, collectively their agencies collected and tested 3,396 adult western blacklegged ticks in 695 pools and 1,174 nymphal ticks in 591 pools from sites in their counties. Twenty-eight (0.8%) adult tick pools and 8 (0.7%) nymphal pools tested positive for *A. phagocytophilum* (Table 3.2). Statewide minimum infection prevalence (defined as the number of positive pools divided by the number of ticks tested multiplied by 100) is 0.9% in both adult and nymphal western blacklegged ticks (Table 3.2).

### *Francisella tularensis*

In 2023, CDPH-VBDS tested a total of 160 adult American dog ticks (*Dermacentor variabilis*) and 9 adult Pacific Coast ticks (*D. occidentalis*) from Contra Costa, Marin, Mendocino, Monterey, Napa, Orange, Sacramento, San Francisco, San Joaquin, San Luis Obispo, and Santa Cruz counties for *Francisella tularensis*, the causative agent of tularemia. One adult *D. variabilis* from Marin County tested positive for *F. tularensis* by RT-PCR, for a statewide infection prevalence of 0.6%. Reported to CDPH-VBDS, the San Diego Environmental Health Vector

Table 3.2. Infection prevalence and minimum infection prevalence of *Anaplasma phagocytophilum* in *Ixodes pacificus* ticks, California, 2023

Non-pooled testing		No. Ticks Tested			Positive <i>A. phagocytophilum</i>		
County	Adults	Nymphs	Larvae	Adults (IP <sup>a</sup> )	Nymphs (IP <sup>a</sup> )	Collected by	Laboratory
Alameda	36					CDPH, VBDS	CDPH, VBDS
Colusa	86					CDPH, VBDS	CDPH, VBDS
Contra Costa	75	14	1			CDPH, VBDS	CDPH, VBDS
El Dorado	174	32				CDPH, VBDS	CDPH, VBDS
Humboldt	32			5 (15.6)		CDPH, VBDS	CDPH, VBDS
Kern	3					CDPH, VBDS	CDPH, VBDS
Lassen	10					CDPH, VBDS	CDPH, VBDS
Los Angeles	28			1 (3.6)		CDPH, VBDS	CDPH, VBDS
Marin	682	340	18	4 (0.6)	7 (2.1)	CDPH, VBDS; Marin-Sonoma MVCD	CDPH, VBDS
Mariposa	19	3				CDPH, VBDS	CDPH, VBDS
Mendocino	31	19		1 (3.2)		CDPH, VBDS	CDPH, VBDS
Merced	45	2				CDPH, VBDS	CDPH, VBDS
Napa	81					CDPH, VBDS	CDPH, VBDS
Orange	39					CDPH, VBDS	CDPH, VBDS
Placer	218	9		4 (1.8)		CDPH, VBDS	CDPH, VBDS
Riverside	66					CDPH, VBDS	CDPH, VBDS
San Benito	5					CDPH, VBDS	CDPH, VBDS
San Bernardino	36					CDPH, VBDS	CDPH, VBDS
San Diego	65					CDPH, VBDS	CDPH, VBDS
San Joaquin	1					CDPH, VBDS; San Joaquin MVCD	CDPH, VBDS
San Luis Obispo	519			2 (0.4)		CDPH, VBDS	CDPH, VBDS
Santa Barbara	80					CDPH, VBDS	CDPH, VBDS
Santa Cruz	404	1				CDPH, VBDS; Santa Cruz County MVCD	CDPH, VBDS
Siskiyou	5					CDPH, VBDS	CDPH, VBDS
Sonoma	413	97	19	13 (3.1)	1 (1.0)	CDPH, VBDS	CDPH, VBDS
Tehama	50					CDPH, VBDS	CDPH, VBDS
Trinity	5					CDPH, VBDS	CDPH, VBDS
Tulare	57					CDPH, VBDS; Delta MVCD	CDPH, VBDS
Tuolumne	1					CDPH, VBDS	CDPH, VBDS
Ventura	2					CDPH, VBDS	CDPH, VBDS
Yuba	238	4	58			CDPH, VBDS	CDPH, VBDS
<b>Non-pooled totals</b>	<b>3,506</b>	<b>521</b>	<b>96</b>	<b>30 (0.9)</b>	<b>8 (1.5)</b>		
Pooled testing		No. Ticks Tested			Positive <i>A. phagocytophilum</i> pools		
County	Adults (pools)	Nymphs (pools)		Adults (MIP <sup>b</sup> )	Nymphs (MIP <sup>b</sup> )	Collected by	Laboratory
Alameda	1,234 (250)	487 (244)		13 (1.1)	2 (0.4)	Alameda County DEH	Alameda County DEH
San Mateo	2,162 (445)	687 (347)		15 (0.7)	6 (0.9)	San Mateo MVCD	San Mateo MVCD
<b>Pooled totals</b>	<b>3,396 (695)</b>	<b>1,174 (591)</b>		<b>28 (0.8)</b>	<b>8 (0.7)</b>		
<b>All tick totals</b>	<b>6,902 (4,201)</b>	<b>1,695 (1,112)</b>		<b>62 (0.9)</b>	<b>16 (0.9)</b>		

**Abbreviations:**

IP, Infection prevalence; MIP, Minimum infection prevalence; CDPH-VBDS, California Department of Public Health, Vector-Borne Disease Section; MVCD, Mosquito and Vector Control District; DEH, Department of Environmental Health.

<sup>a</sup> Infection prevalence is the number of individually tested ticks positive divided by the number of ticks tested multiplied by 100.

<sup>b</sup> Minimum infection prevalence is the number of positive pools divided by the number of ticks tested multiplied by 100.

Control Program tested 2,623 adult Pacific Coast ticks and 516 adult American dog ticks for *F. tularensis* by RT-PCR. All ticks tested negative.

Spotted fever group rickettsiosis

In 2023, CDPH tested ticks for spotted fever group *Rickettsia* spp. (SFGR) including *R. rickettsii* subsp. *californica*, the causative agent of Pacific Coast tick fever, and *R. rickettsii*, the causative agent of RMSF. Ticks included 2,896 adult and 11 nymphal Pacific Coast ticks from Alameda, Amador, Calaveras, Colusa, Contra Costa, El Dorado, Humboldt, Kern, Lake, Lassen, Los Angeles, Madera, Marin, Mariposa, Mendocino, Merced, Monterey, Napa, Nevada, Orange, Placer, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, Santa Cruz, Solano, Sonoma, Sutter, Tehama, Trinity, Tulare, Tuolumne,

Ventura, Yolo, and Yuba counties. Additionally, 37 nymphal and 9 larval rabbit ticks (*Haemaphysalis leporispalustris*) and 83 adult American dog ticks from Alameda, Contra Costa, Marin, Napa, Santa Clara, and Sonoma counties were tested following a novel SFGR human infection in the San Francisco Bay Area. DNA from all ticks was extracted by CDPH-VBDS and tested by RT-PCR by CDPH Viral and Rickettsial Disease Laboratory. All ticks tested negative for *R. rickettsii*. Thirty-six (1.2%) adult Pacific Coast ticks tested positive for *Rickettsia* 364D strain, with positive ticks detected from Lake (1 of 30 or 3.3%), Los Angeles (13 of 502 or 2.6%), Orange (5 of 153 or 3.3%), San Bernardino (3 of 303 or 1.0%), San Diego (5 of 185 or 2.7%), San Luis Obispo (1 of 146 or 0.7%), Santa Barbara (3 of 111 or 2.7%), and Santa Cruz (1 of 108 or 0.9%) counties. Orange County MVCD reported testing 175 adult Pacific coast ticks in 44 pools and

five adult American dog ticks for SFGR at their laboratory. All ticks tested negative.

### ***Borrelia spirochetes***

#### *Borrelia burgdorferi sensu lato*

In 2023, local, state, and federal agencies, in collaboration with CDPH-VBDS, collected 13,888 adult, 1,902 nymphal, and 96 larval western blacklegged ticks from 37 counties to test for *Borrelia burgdorferi*, the causative agent of Lyme disease (Tables 3.3, 3.4). Collection and testing data for western blacklegged ticks are collated by CDPH-VBDS. From the counties where ticks were tested individually by RT-PCR, 61 (1.7%) of 3,520 adult and 59 (8.1%) of 728 nymphal ticks tested positive for *B. burgdorferi sensu lato* (Table 3.3). Ticks tested by local vector control agencies in pools were tested by RT-PCR or immunofluorescent antibody test. In the counties where ticks were tested in pools, 151 (1.5% MIP) adult tick pools out of 10,368 collected and 53 (4.5% MIP) nymphal pools out of 1,174 tested positive for *B. burgdorferi sensu lato* (Table 3.4). All larval ticks tested negative.

#### *Borrelia miyamotoi*

In 2023, of the western blacklegged ticks collected, 12,931 adult, 1,902 nymphal, and 96 larval ticks were tested for *Borrelia miyamotoi*, the causative agent of hard tick relapsing fever. Of the 3,520 individually tested adults and 716 individually tested nymphs, 29 (0.8%) and 9 (1.3%), respectively, tested positive for *B. miyamotoi* (Table 3.3). Of the 9,411 adult ticks tested in 2,240 pools and 1,174 nymphs tested in 591 pools, 62 (0.7% MIP) and 18 (1.5% MIP), respectively, tested positive (Table 3.4).

#### *Borrelia spp. coinfection*

In 2023, eleven adult *I. pacificus* from Humboldt (2), Placer (2), San Luis Obispo (1), Sonoma (5), and Yuba (1) counties tested positive for both *B. burgdorferi* sl and *A. phagocytophilum*, for a statewide adult co-infection prevalence of 0.3% (11 positive out of 3,506 adults tested). Three *I. pacificus* nymphs from Marin County tested positive for both *B. burgdorferi* sl and *A. phagocytophilum*, for a statewide nymphal infection prevalence of 0.6% (three positive out of 521 nymphs tested). One adult tick from El Dorado County tested positive for both *B. burgdorferi* sl and *B. miyamotoi*, for a statewide adult infection prevalence of 0.03% (1 positive out of 3,520 adults tested).

### **Mammal surveillance**

#### *Francisella tularensis*

CDPH-VBDS collaborates with the CDPH Microbial Disease Laboratory to test mammals for *Francisella tularensis*, the agent of tularemia, by serology, DFA, PCR, and culture. Mammals may be tested for tularemia in response to reported human cases or for environmental risk assessment including specific carcass testing requests. In 2023, two small mammal carcasses tested negative for *F. tularensis* from El Dorado (1) and Mono (1) counties.

Table 3.3. Infection prevalence of *Borrelia burgdorferi* sensu lato and *Borrelia miyamotoi* spirochetes in *Ixodes pacificus* ticks, California, 2023

County	No. Ticks Tested			Positive <i>B. burgdorferi</i>		Positive <i>B. miyamotoi</i>		Collected by	Laboratory
	Adults	Nymphs	Larvae <sup>a</sup>	Adults (IP) <sup>b</sup>	Nymphs (IP) <sup>b</sup>	Adults (IP) <sup>b</sup>	Nymphs <sup>a</sup> (IP) <sup>b</sup>		
Alameda	36			1 (2.8)				CDPH, VBDS	CDPH, VBDS
Colusa	86							CDPH, VBDS	CDPH, VBDS
Contra Costa	75	14	1			1 (1.3)		CDPH, VBDS	CDPH, VBDS
El Dorado	174	32		6 (3.4)	4 (12.5)	7 (4.0)		CDPH, VBDS	CDPH, VBDS
Humboldt	32			3 (9.4)				CDPH, VBDS	CDPH, VBDS
Kern	3							CDPH, VBDS	CDPH, VBDS
Lassen	10							CDPH, VBDS	CDPH, VBDS
Los Angeles	28							CDPH, VBDS	CDPH, VBDS
Marin	688	427	18	13 (1.9)	48 (11.2)	7 (1.0)	7 (1.6)	CDPH, VBDS; Marin-Sonoma MVCD	CDPH, VBDS; Marin-Sonoma MVCD
Mariposa	19	3			1 (33.3)			CDPH, VBDS	CDPH, VBDS
Mendocino	31	19		2 (6.5)	1 (5.3)	1 (3.2)		CDPH, VBDS	CDPH, VBDS
Merced	45	2						CDPH, VBDS	CDPH, VBDS
Napa	81							CDPH, VBDS	CDPH, VBDS
Orange	39			3 (7.7)				CDPH, VBDS	CDPH, VBDS
Placer	219	9		9 (4.1)		4 (1.8)		CDPH, VBDS	CDPH, VBDS
Riverside	66							CDPH, VBDS	CDPH, VBDS
Sacramento		12						Sacramento-Yolo MVCD	Sacramento-Yolo MVCD
San Benito	5							CDPH, VBDS	CDPH, VBDS
San Bernardino	36							CDPH, VBDS	CDPH, VBDS
San Diego	65							CDPH, VBDS	CDPH, VBDS
San Joaquin	1							San Joaquin MVCD	CDPH, VBDS
San Luis Obispo	519			2 (0.4)				CDPH, VBDS	CDPH, VBDS
Santa Barbara	80							CDPH, VBDS	CDPH, VBDS
Santa Clara		12						Santa Clara VCD	Santa Clara VCD
Santa Cruz	403	1		2 (0.5)		3 (0.7)		CDPH, VBDS; Santa Cruz County MVCD	CDPH, VBDS
Siskiyou	5			1 (20.0)				CDPH, VBDS	CDPH, VBDS
Sonoma	421	193	19	12 (2.9)	5 (2.6)	2 (0.5)	2 (1.0)	CDPH, VBDS; Marin-Sonoma MVCD	CDPH, VBDS; Marin-Sonoma MVCD
Tehama	50							CDPH, VBDS	CDPH, VBDS
Trinity	5							CDPH, VBDS	CDPH, VBDS
Tulare	57			2 (3.5)				CDPH, VBDS	CDPH, VBDS
Tuolumne	1							CDPH, VBDS	CDPH, VBDS
Ventura	2							CDPH, VBDS	CDPH, VBDS
Yuba	238	4	58	5 (2.1)		4 (1.7)		CDPH, VBDS	CDPH, VBDS
<b>Total</b>	<b>3,520</b>	<b>728</b>	<b>96</b>	<b>61 (1.7)</b>	<b>59 (8.1)</b>	<b>29 (0.8)</b>	<b>9 (1.3)</b>		

**Abbreviations:**

CDPH-VBDS, California Department of Public Health, Vector-Borne Disease Section; MVCD, Mosquito and Vector Control District; VCD, Vector Control District  
 All *Ixodes pacificus* ticks tested at CDPH-VBDS are tested by multiplex real-time polymerase chain reaction (RT-PCR) for *Borrelia burgdorferi* sensu lato and *Borrelia miyamotoi*.

<sup>a</sup>No larvae tested positive for *B. burgdorferi* sensu lato or *B. miyamotoi*, so IP was not calculated.

<sup>b</sup>IP: Measure of prevalence. IP (infection prevalence) is equal to the number of positive ticks divided by the number of ticks tested multiplied by 100.

Table 3.4. Minimum infection prevalence of *Borrelia burgdorferi* sensu lato and *Borrelia miyamotoi* in *Ixodes pacificus* ticks, California, 2023

County	No. Ticks Tested		Positive Pools, <i>B. burgdorferi</i>		Positive Pools, <i>B. miyamotoi</i> <sup>c</sup>		Collected by	Laboratory
	Adults (pools)	Nymphs (pools)	Adults (MIP) <sup>b</sup>	Nymphs (MIP) <sup>b</sup>	Adults (MIP) <sup>b</sup>	Nymphs (MIP) <sup>b</sup>		
Alameda	1,234 (250)	487 (244)	25 (2.0)	34 (7.0)	8 (0.7)	4 (0.8)	Alameda County DEH	Alameda County DEH
Butte	335 (74)		9 (2.7)		2 (0.6)		Butte County MVCD	Placer MVCD
Los Angeles <sup>a</sup>	142 (27)						Los Angeles County West VCD	Los Angeles County West VCD
Marin	318 (72)		10 (3.1)		2 (0.6)		Marin-Sonoma MVCD	Marin-Sonoma MVCD
Orange	10 (7)						Orange County MVCD	Orange County MVCD
Placer	2,157 (507)		42 (1.9)		19 (0.9)		Placer MVCD	Placer MVCD
Sacramento	899 (274)		20 (2.2)				Sacramento-Yolo MVCD	Sacramento-Yolo MVCD
San Diego	850 (139)						County of San Diego VCP	County of San Diego VCP
San Mateo	2,162 (445)	687 (347)	23 (1.1)	19 (2.8)	12 (0.6)	14 (2.0)	San Mateo MVCD	San Mateo MVCD
Santa Clara	1,461 (546)		16 (1.1)		15 (1.0)		Santa Clara VCD	Santa Clara VCD
Shasta	534 (126)		3 (0.6)		1 (0.2)		Shasta MVCD	Placer MVCD
Sonoma	208 (47)		3 (1.4)		3 (1.4)		Marin-Sonoma MVCD	Marin-Sonoma MVCD
Yolo	58 (24)						Sacramento-Yolo MVCD	Sacramento-Yolo MVCD
<b>Total</b>	<b>10,368 (2,538)</b>	<b>1,174 (591)</b>	<b>151 (1.5)</b>	<b>53 (4.5)</b>	<b>62 (0.7)</b>	<b>18 (1.5)</b>		

**Abbreviations:**

DEH, Department of Environmental Health; MVCD, Mosquito and Vector Control District; VCD, Vector Control District; VCP, Vector Control Program.

<sup>a</sup>Tested by immunofluorescent antibody (IFA) test.

<sup>b</sup>MIP: Measure of prevalence. MIP (minimum infection prevalence) is equal to the number of positive pools divided by the number of ticks tested multiplied by 100.

<sup>c</sup>9,411 (2,240) adult ticks and 1,174 (591) nymphs tested for *Borrelia miyamotoi*, Sacramento-Yolo MVCD does not test for *B. miyamotoi*.



# 4

## Mosquito-borne Diseases

Mosquito-borne diseases under surveillance in California include the endemic arboviral diseases caused by West Nile virus, St. Louis encephalitis virus, and western equine encephalitis virus, as well as travel-associated diseases caused by *Plasmodium* spp. (malaria), dengue, chikungunya, and Zika viruses. The California Department of Public Health, Vector-Borne Disease Section monitors and consults with local agencies regarding invasive mosquito species including *Aedes aegypti* (yellow fever mosquito) and *Aedes albopictus* (Asian tiger mosquito). Endemic arbovirus surveillance is performed under the California Arbovirus Surveillance program, a cooperative effort of multiple state and local entities.



### Human disease surveillance

#### West Nile virus

Serological diagnosis of human infection with West Nile virus (WNV) and other arboviruses was performed at the California Department of Public Health (CDPH) Viral and Rickettsial Disease Laboratory (VRDL), local public health laboratories, and commercial laboratories. Local and commercial laboratories tested for WNV using an IgM enzyme immunoassay (EIA) and/or an IgM immunofluorescence assay (IFA). Specimens from the first WNV case of the year from each county, as well as specimens from all cases from counties with enzootic St. Louis encephalitis virus (SLEV) activity, were forwarded to the CDPH-VRDL for further testing with plaque reduction neutralization tests (PRNT). Additional WNV infections were identified through nucleic acid test screening performed by blood and organ donation centers.

In 2023, a total of 433 symptomatic and 40 asymptomatic infections with WNV were identified, which was a 114% increase compared to the number of total infections (221) reported in 2022 (Table 4.1). Of the 433 symptomatic cases, 334 (77%) were classified as West Nile neuroinvasive disease (e.g., encephalitis, meningitis, acute flaccid paralysis, or other neurologic dysfunction) and 99 (23%) were classified as West Nile non-neuroinvasive disease. There were 20 fatal cases for a case-fatality of 4.6%. Patients were residents of 34 counties and incidence was highest in Yolo County (17.66 cases per 100,000 persons, Table 4.1, Figure 4.1). Two hundred seventy-three (63%) patients were male. The median age

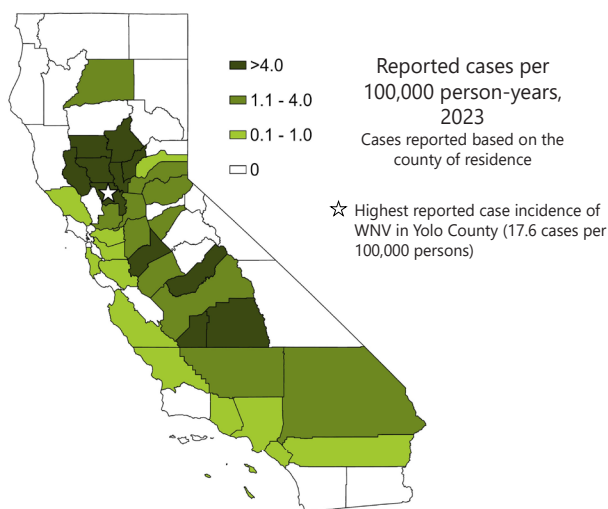


Figure 4.1. Incidence of reported human cases of West Nile virus, by county, California, 2023

for neuroinvasive cases was 61 years (range, 13 to 94 years), and among non-neuroinvasive cases, the median age was 54 years (range, 26 to 80 years). The median age of the 20 WNV-associated fatalities was 70 years (range, 27 to 94 years). Dates of symptom onset for all reported cases ranged from June 30 to December 10.

#### St. Louis encephalitis virus

Nineteen symptomatic cases of SLEV infection were identified in 2023 (Table 4.5). Twelve (63%) cases presented with neuroinvasive disease, seven (37%) with non-neuroinvasive diseases and two (11%) fatalities were reported. Patients were residents of ten counties (Table 4.5) and fifteen (79%) were male. The median age was 62 years (range, 21 to 82 years) and dates of symptom onset ranged from May 20 to October 29.

Table 4.1. Reported West Nile virus human cases by county of residence, California, 2014-2023

County	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023 incidence per 100,000 person-years	10-year incidence per 100,000 person-years
Alameda	1	0	0	1	0	1	0	0	1	1	0.07	0.03
Alpine	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Amador	0	0	1	0	1	1	0	0	0	0	0.00	0.75
Butte	24	53	21	4	12	5	4	13	3	18	8.76	7.64
Calaveras	0	0	0	0	0	0	0	0	0	1	2.23	0.22
Colusa	3	1	2	0	0	1	0	0	1	1	4.59	4.13
Contra Costa	5	1	4	4	4	1	4	2	1	10	0.87	0.31
Del Norte	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El Dorado	0	0	1	0	0	0	1	1	0	3	1.59	0.32
Fresno	43	8	14	13	14	51	10	14	30	23	2.27	2.18
Glenn	10	19	6	0	2	0	1	2	1	4	13.97	15.71
Humboldt	0	0	0	0	1	0	0	0	0	0	0.00	0.07
Imperial	1	1	0	3	0	3	1	0	0	0	0.00	0.50
Inyo	0	0	0	4	0	0	0	0	0	0	0.00	2.12
Kern	11	11	17	30	13	28	8	8	22	16	1.76	1.81
Kings	4	0	8	5	0	3	2	8	7	9	5.96	3.05
Lake	1	2	1	0	1	0	2	0	0	6	8.98	1.95
Lassen	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Los Angeles	253	286	151	277	43	31	90	16	61	62	0.67	1.30
Madera	3	4	6	2	4	3	6	3	3	9	5.69	2.72
Marin	0	1	0	0	0	0	0	0	0	0	0.00	0.04
Mariposa	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mendocino	1	2	0	0	0	0	0	0	0	0	0.00	0.34
Merced	1	1	0	10	2	10	12	6	7	8	2.80	2.00
Modoc	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Mono	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Monterey	0	0	1	0	1	0	0	0	0	2	0.46	0.07
Napa	0	0	0	0	1	0	0	0	0	0	0.00	0.09
Nevada	0	2	0	0	1	0	0	0	0	1	0.99	0.40
Orange	263	92	32	33	9	5	17	3	9	6	0.19	1.49
Placer	7	0	7	0	9	1	2	2	2	6	1.46	0.88
Plumas	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Riverside	14	127	11	32	15	12	10	3	0	20	0.82	1.00
Sacramento	10	4	25	6	15	4	7	6	5	53	3.37	0.88
San Benito	0	0	0	0	0	0	0	0	0	0	0.00	0.00
San Bernardino	21	54	8	57	9	7	3	1	4	28	1.28	0.88
San Diego	11	42	20	2	2	3	1	3	3	0	0.00	0.27
San Francisco	0	0	0	1	0	0	0	1	0	0	0.00	0.02
San Joaquin	9	2	13	14	14	7	2	7	4	15	1.91	1.11
San Luis Obispo	0	0	0	0	0	2	0	2	0	2	0.72	0.22
San Mateo	0	0	0	0	0	0	0	1	1	3	0.41	0.07
Santa Barbara	0	0	0	0	0	0	0	2	0	0	0.00	0.05
Santa Clara	10	8	1	0	1	1	0	3	1	3	0.16	0.15
Santa Cruz	0	0	0	0	0	0	0	1	0	0	0.00	0.04
Shasta	2	3	1	1	1	0	2	3	1	6	3.34	1.11
Sierra	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Siskiyou	0	1	0	0	0	0	0	0	0	0	0.00	0.23
Solano	5	1	4	1	0	1	1	2	2	6	1.35	0.52
Sonoma	0	0	0	0	0	0	0	0	0	1	0.21	0.02
Stanislaus	33	13	26	28	15	16	35	5	15	33	6.04	4.01
Sutter	8	2	12	3	1	1	1	0	1	7	7.07	3.64
Tehama	4	5	5	2	2	0	2	0	3	0	0.00	3.58
Trinity	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Tulare	21	13	10	12	8	24	7	8	15	25	5.26	3.01
Tuolumne	0	0	0	0	1	0	0	0	0	0	0.00	0.18
Ventura	1	6	7	1	2	2	0	0	0	1	0.12	0.24
Yolo	15	8	16	6	11	1	4	3	3	39	17.66	4.80
Yuba	6	10	11	1	2	0	0	0	1	5	6.05	4.35
<b>Total WNV disease</b>	<b>801</b>	<b>783</b>	<b>442</b>	<b>553</b>	<b>217</b>	<b>225</b>	<b>235</b>	<b>129</b>	<b>207</b>	<b>433</b>	<b>1.11</b>	<b>1.03</b>
Asymptomatic Infections <sup>a</sup>	91	77	41	47	26	18	28	19	14	40		
<b>Total WNV infections</b>	<b>892</b>	<b>860</b>	<b>483</b>	<b>600</b>	<b>243</b>	<b>243</b>	<b>263</b>	<b>148</b>	<b>221</b>	<b>473</b>		

<sup>a</sup> WNV infections detected through blood bank screening; no associated illness reported

**Local dengue virus transmission was confirmed for the first time in California in late 2023. Two human cases were reported from Los Angeles County: one from Pasadena and one from Long Beach. The virus is spread between people by invasive *Aedes* mosquitoes.**

Dengue

In 2023, 250 cases of dengue were reported to CDPH; patients were residents of 30 California counties (Table 4.2). The median age was 44 years (range, 1 to 81 years) and 112 (45%) were male. Two locally acquired cases were reported from symptomatic residents of Pasadena and Long Beach, Los Angeles County. For the travel-associated cases, travel history included Latin America and the Caribbean (174), South Asia (56), and East Asia and the Pacific (17). The place of exposure was unknown for one patient.

Malaria

In 2023, 157 cases of malaria were reported to CDPH. Patients were residents of 25 California counties and 107 (68%) were male. The median age was 41 years (range, 4 to 81 years). Of the 131 cases for which the *Plasmodium* species was determined, 75 were *P. falciparum*, 45 *P. vivax*, 6 *P. malariae*, and 5 *P. ovale*. All patients but one reported compatible travel history to malaria-endemic areas including Sub-Saharan Africa (101), Latin America (37), South Asia (11), Central Asia, (6), and the Middle East (1). Travel history was unavailable for one patient.

Chikungunya

Twenty-three cases of chikungunya were reported to CDPH in 2023 (Table 4.2). Patients were residents of 13 California counties, 13 (57%) were male, and the median age was 47 years (range, 29 to 68 years). No locally acquired cases were reported. Twenty-two patients reported travel to chikungunya endemic or outbreak areas including South Asia (13), East Asia & Pacific (6), Sub-Saharan Africa (2), and Latin America & the Caribbean (1). Travel history was unavailable for one patient.

Zika

In 2023, three infections of Zika virus were reported to CDPH. Patients were residents of Riverside and Sacramento (2) counties; all had travel history compatible with exposure to Zika-endemic regions.

**Table 4.2. Reported confirmed and probable *Aedes*-transmitted diseases in humans by county, California, 2023**

County	Chikungunya	Dengue	Zika	TOTAL
Alameda	2	22	0	24
Alpine	0	0	0	0
Amador	0	0	0	0
Butte	0	1	0	1
Calaveras	0	0	0	0
Colusa	0	0	0	0
Contra Costa	1	4	0	5
Del Norte	0	0	0	0
El Dorado	0	0	0	0
Fresno	1	4	0	5
Glenn	0	0	0	0
Humboldt	0	0	0	0
Imperial	0	1	0	1
Inyo	0	0	0	0
Kern	0	4	0	4
Kings	0	0	0	0
Lake	0	0	0	0
Lassen	0	0	0	0
Los Angeles	4	80	0	84
Madera	0	0	0	0
Marin	0	3	0	3
Mariposa	0	0	0	0
Mendocino	0	1	0	1
Merced	0	1	0	1
Modoc	0	0	0	0
Mono	0	0	0	0
Monterey	0	1	0	1
Napa	0	0	0	0
Nevada	0	0	0	0
Orange	1	18	0	19
Placer	0	0	0	0
Plumas	0	0	0	0
Riverside	2	4	1	7
Sacramento	4	3	2	9
San Benito	0	1	0	1
San Bernardino	0	5	0	5
San Diego	0	25	0	25
San Francisco	0	12	0	12
San Joaquin	0	4	0	4
San Luis Obispo	0	1	0	1
San Mateo	1	8	0	9
Santa Barbara	1	3	0	4
Santa Clara	3	29	0	32
Santa Cruz	1	1	0	2
Shasta	0	0	0	0
Sierra	0	0	0	0
Siskiyou	0	0	0	0
Solano	0	0	0	0
Sonoma	1	4	0	5
Stanislaus	1	5	0	6
Sutter	0	0	0	0
Tehama	0	1	0	1
Trinity	0	0	0	0
Tulare	0	2	0	2
Tuolumne	0	0	0	0
Ventura	0	1	0	1
Yolo	0	1	0	1
Yuba	0	0	0	0
<b>TOTAL</b>	<b>23</b>	<b>250</b>	<b>3</b>	<b>276</b>

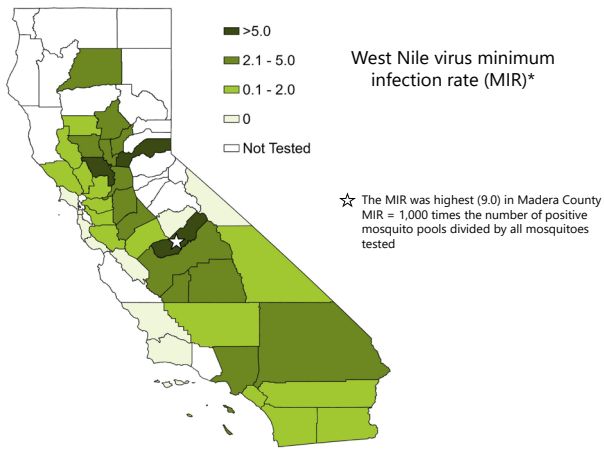


Figure 4.2. West Nile virus minimum infection rate of mosquitoes, by county, California, 2023

### Mosquito surveillance

In 2023, a total of 1,807,993 mosquitoes (63,208 pools) collected in 41 counties were tested at the University of California, Davis Arbovirus Research and Training (DART) laboratory or at one of 13 local agencies by a real-time (TaqMan) reverse transcriptase-polymerase chain reaction (RT-qPCR) for SLEV, western equine encephalitis virus (WEEV), and/or WNV viral RNA (Table 4.3). WNV was detected in 4,522 mosquito pools from 31 counties, and SLEV was detected in 728 mosquito pools from 15 counties (Tables 4.3, 4.5, 4.8). Statewide, the minimum infection rate (MIR)— defined as the number of infected mosquito pools divided by the total number of mosquitoes tested multiplied by 1,000— of WNV in all mosquitoes tested was 2.5; the MIR was highest (9.0) in Madera County (Table 4.3, Figure 4.2). Since 2003, the MIR of WNV in California has ranged from a low of 0.08 (2003) to a high of 3.9 (2014). Statewide, the SLEV MIR in all mosquitoes tested was 0.4; the MIR was highest (6.7) in Kings County.

**St. Louis encephalitis virus (SLEV) activity was high during 2023, with 19 human cases and the largest number of SLEV positive mosquito pools reported since the reemergence of SLEV in 2015.**

Table 4.3. West Nile virus positive mosquito pools and minimum infection rate, by county, California, 2023

County	No. mosquitoes tested <sup>a</sup>	No. mosquito pools tested	WNV positive pools <sup>a</sup>	WNV Minimum Infection Rate <sup>b</sup>
Alameda	23,152	896	18	0.8
Alpine	0	0	0	0.0
Amador	0	0	0	0.0
Butte	21,706	488	69	3.2
Calaveras	0	0	0	0.0
Colusa	500	10	2	4.0
Contra Costa	21,648	732	26	1.2
Del Norte	0	0	0	0.0
El Dorado	0	0	0	0.0
Fresno	73,883	2,139	232	3.1
Glenn	794	16	1	1.3
Humboldt	0	0	0	0.0
Imperial	2,824	215	3	1.1
Inyo	3,949	81	2	0.5
Kern	64,348	1,635	107	1.7
Kings	22,814	484	70	3.1
Lake	13,769	447	26	1.9
Lassen	0	0	0	0.0
Los Angeles	187,535	4,587	580	3.1
Madera	22,974	643	207	9.0
Marin	2,548	160	0	0.0
Mariposa	213	8	0	0.0
Mendocino	0	0	0	0.0
Merced	27,761	1,007	43	1.5
Modoc	0	0	0	0.0
Mono	300	6	0	0.0
Monterey	0	0	0	0.0
Napa	10,062	309	7	0.7
Nevada	0	0	0	0.0
Orange	162,340	5,398	218	1.3
Placer	30,086	1,823	177	5.9
Plumas	0	0	0	0.0
Riverside	293,680	8,325	182	0.6
Sacramento	69,423	5,144	342	4.9
San Benito	74	24	0	0.0
San Bernardino	57,553	2,934	158	2.7
San Diego	20,415	2,311	1	0.0
San Francisco	95	8	0	0.0
San Joaquin	128,385	3,066	607	4.7
San Luis Obispo	543	15	0	0.0
San Mateo	7,175	497	0	0.0
Santa Barbara	3,287	143	0	0.0
Santa Clara	24,153	3414	18	0.7
Santa Cruz	1,312	91	0	0.0
Shasta	73,996	2,214	151	2.0
Sierra	0	0	0	0.0
Siskiyou	0	0	0	0.0
Solano	15,660	399	24	1.5
Sonoma	11,456	528	6	0.5
Stanislaus	89,626	2,235	293	3.3
Sutter	14,464	374	66	4.6
Tehama	0	0	0	0.0
Trinity	0	0	0	0.0
Tulare	237,143	7,339	566	2.4
Tuolumne	0	0	0	0.0
Ventura	953	24	0	0.0
Yolo	57,947	2,842	294	5.1
Yuba	7,447	197	26	3.5
<b>Total</b>	<b>1,807,993</b>	<b>63,208</b>	<b>4,522</b>	<b>2.5</b>

<sup>a</sup> Tested by University of California Davis Arbovirus Research and Training Laboratory or local mosquito/vector control agency.

<sup>b</sup> Minimum Infection Rate = (No. pools positive/No. mosquitoes tested) X 1,000

**Table 4.4. West Nile virus positive mosquito pools and minimum infection rate, by mosquito species, California, 2023**

Mosquito Species	No. Pools Tested	No. Mosquitoes	WNV positive pools	Minimum Infection Rate <sup>a</sup>
<b>Culex species</b>				
<i>Cx. erythrothorax</i>	2,273	85,444	9	0.1
<i>Cx. pipiens</i>	11,046	199,605	705	3.5
<i>Cx. quinquefasciatus</i>	22,478	690,367	1,797	2.6
<i>Cx. restuans</i>	17	40	0	0.0
<i>Cx. stigmatosoma</i>	796	9,644	51	5.3
<i>Cx. tarsalis</i>	25,552	809,820	1,956	2.4
<i>Cx. thriambus</i>	38	50	0	0.0
<i>Culex species</i>	14	262	1	3.8
<b>All Culex</b>	<b>62,214</b>	<b>1,795,232</b>	<b>4,519</b>	<b>2.5</b>
<b>Anopheles species</b>				
<i>An. franciscanus</i>	1	1	0	0.0
<i>An. freeborni</i>	6	109	0	0.0
<i>An. hermsi</i>	1	10	0	0.0
<b>All Anopheles</b>	<b>8</b>	<b>120</b>	<b>0</b>	<b>0.0</b>
<b>Aedes species</b>				
<i>Ae. aegypti</i>	595	6,246	2	0.3
<i>Ae. melanimon</i>	28	987	0	0.0
<i>Ae. nigromaculis</i>	2	22	0	0.0
<i>Ae. vexans</i>	1	2	0	0.0
<b>All Aedes</b>	<b>626</b>	<b>7,257</b>	<b>2</b>	<b>0.3</b>
<b>Other species</b>				
<i>Culiseta incidens</i>	252	3,801	1	0.3
<i>Culiseta inornata</i>	102	1,379	0	0.0
<i>Psorophora columbiae</i>	1	3	0	0.0
Unknown	5	201	0	0.0
<b>All other</b>	<b>360</b>	<b>5,384</b>	<b>1</b>	<b>0.2</b>

<sup>a</sup> Minimum Infection Rate = (No. pools positive/No. mosquitoes tested) X 1,000

Mosquitoes infected with SLEV were reported for the first time in Inyo, Napa, and Shasta counties. WNV was identified from one *Aedes* species, one *Culiseta* species, and six *Culex* species (*Ae. aegypti*, *Cs. incidens*, *Cx. erythrothorax*, *Cx. pipiens*, *Cx. quinquefasciatus*, *Cx. restuans*, *Cx. stigmatosoma*, and *Cx. tarsalis*) (Table 4.4), and SLEV was identified from two *Aedes* species and five *Culex* species (*Ae. aegypti*, *Ae. melanimon*, *Cx. erythrothorax*, *Cx. pipiens*, *Cx. quinquefasciatus*, *Cx. stigmatosoma*, and *Cx. tarsalis*). In 2023, the first detection of WNV in mosquitoes was from a *Cs. incidens* pool collected in Los Angeles County on January 19, and the last detection was from a *Cx. quinquefasciatus* pool collected in Orange County on December 19. The first detection of SLEV in mosquitoes was from a *Cx. quinquefasciatus* pool collected in Kern County on May 26, and the last detection was from a *Cx. tarsalis* pool collected in Riverside County on October 31.

### Animal surveillance

#### Chicken serosurveillance

In 2023, 24 local mosquito and vector control agencies in 20 counties maintained 77 sentinel chicken flocks (Table 4.6). Blood samples were collected from chickens every other week and

**Table 4.5. Infections with St. Louis encephalitis virus in humans, mosquito pools, and sentinel chickens, by county, California, 2023**

County	Humans	Mosquito pools <sup>a</sup>	Sentinel chickens
Fresno	3	160	NT
Imperial	0	3	NT
Inyo	0	1	NT
Kern	2	75	NT
Kings	2	44	NT
Los Angeles	1	0	0
Madera	0	47	NT
Marin	1	0	NT
Merced	0	12	0
Napa	0	1	NT
Placer	0	1	NT
Riverside	1	118	NT
Sacramento	1	0	0
San Joaquin	0	9	NT
Shasta	0	3	1
Stanislaus	5	23	NT
Tulare	1	228	0
Yolo	2	3	0
<b>State Totals</b>	<b>19</b>	<b>728</b>	<b>1</b>

NT= no samples tested

<sup>a</sup>Positive mosquito pools included *Culex quinquefasciatus* (387), *Cx. tarsalis* (276), *Cx. pipiens* (33), *Cx. stigmatosoma* (28), *Cx. erythrothorax* (1), *Aedes melanimon* (2), and *Ae. aegypti* (1)

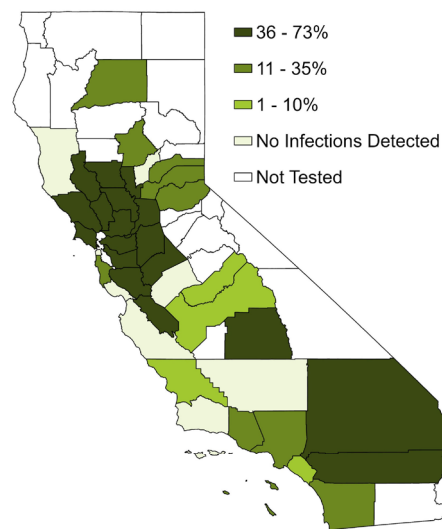


Figure 4.3. Prevalence of West Nile virus infection in dead birds, California, 2023

tested for antibodies to WNV, SLEV, and WEEV by an EIA at the CDPH Vector-Borne Disease Section (CDPH-VBDS) and one local agency. Positive samples were confirmed at CDPH-VBDS by IFA or western blot. Of 3,790 chicken blood samples tested, 186 seroconversions to WNV were detected among 54 flocks in 17 counties (Tables 4.6, 4.8). Statewide, 40% of sentinel chickens seroconverted to WNV. Since 2003, the percentage of WNV seroconversions in chickens has ranged from a low of 3.2% (2003) to a high of 40% (2023). In 2023, the first and last WNV seroconversions were detected in Merced County on July 14 and in San Benito County on October 25, respectively. One SLEV seroconversion was also detected in one chicken from Shasta County on September 11 (Table 4.5).

**Dead bird surveillance for West Nile virus**

In 2023, the California WNV and Dead Bird Call Center and website received 6,793 dead bird reports from the public in 51 counties (Table 4.7). Oral swabs or other samples (e.g., brain, kidney, ocular) from dead bird carcasses were tested either at the DART laboratory or at one of 13 local agencies by RT-qPCR. Of the 2,049 carcasses deemed suitable for testing, WNV was detected in 857 (42%) carcasses from 31 counties (Tables 4.7, 4.8, Figure 4.3). Since 2003, the prevalence of WNV-positive dead birds has ranged from a low of 5% (2003) to a high of 60% (2014). In 2023, the first WNV-positive dead bird was an American crow reported from Santa Clara County on April 14, and the last WNV-positive dead bird was a Red-tailed hawk reported from San Diego County on December 31.

**Horses**

Serum or brain tissue specimens from horses displaying neurological symptoms were tested for WNV at the California Animal Health and Food Safety Laboratory. In 2023, WNV infection was detected in 31 horses from 20 counties (Table 4.8). Eight of the horses died or were euthanized because of their infection.

**Invasive mosquito surveillance**

Three species of invasive *Aedes* mosquitoes became established in California between 2011 and 2014: the Asian tiger mosquito, *Ae. albopictus* (2011), the yellow fever mosquito, *Ae. aegypti* (2013), and the Australian backyard mosquito, *Ae. notoscriptus* (2014). All three

**Table 4.6. Results of testing sentinel chickens for West Nile virus, by county, California, 2023**

County	No. flocks	No. chickens <sup>a</sup>	No. WNV positive flocks	WNV positive chickens
Alameda	3	20	3	4
Alpine	0	0	0	0
Amador	0	0	0	0
Butte	7	45	7	33
Calaveras	1	10	1	3
Colusa	1	10	1	2
Contra Costa	4	22	3	11
Del Norte	0	0	0	0
El Dorado	0	0	0	0
Fresno	0	0	0	0
Glenn	0	0	0	0
Humboldt	0	0	0	0
Imperial	0	0	0	0
Inyo	0	0	0	0
Kern	0	0	0	0
Kings	0	0	0	0
Lake	2	12	0	0
Lassen	0	0	0	0
Los Angeles	21	81	13	30
Madera	0	0	0	0
Marin	0	0	0	0
Mariposa	0	0	0	0
Mendocino	0	0	0	0
Merced	8	48	6	22
Modoc	0	0	0	0
Mono	0	0	0	0
Monterey	0	0	0	0
Napa	0	0	0	0
Nevada	2	12	1	2
Orange	0	0	0	0
Placer	0	0	0	0
Plumas	0	0	0	0
Riverside	0	0	0	0
Sacramento	3	17	2	7
San Benito	1	8	1	6
San Bernardino	0	0	0	0
San Diego	0	0	0	0
San Francisco	0	0	0	0
San Joaquin	0	0	0	0
San Luis Obispo	0	0	0	0
San Mateo	2	13	0	0
Santa Barbara	0	0	0	0
Santa Clara	0	0	0	0
Santa Cruz	0	0	0	0
Shasta	3	20	1	5
Sierra	0	0	0	0
Siskiyou	0	0	0	0
Solano	3	20	3	11
Sonoma	0	0	0	0
Stanislaus	0	0	0	0
Sutter	5	32	5	19
Tehama	3	27	2	4
Trinity	0	0	0	0
Tulare	1	10	1	10
Tuolumne	0	0	0	0
Ventura	3	30	0	0
Yolo	2	17	2	10
Yuba	2	12	2	7
<b>Total</b>	<b>77</b>	<b>466</b>	<b>54</b>	<b>186</b>

<sup>a</sup> Reflects planned standard number of chickens per flock. Actual number may vary due to mortality or replacement of seroconverted chickens.

**Table 4.7. Dead birds reported, tested, and positive for West Nile virus, by county, California, 2023**

County	Reported	Tested <sup>a</sup>	Positive	Percent
Alameda	505	158	80	51
Alpine	0	0	0	0
Amador	2	0	0	0
Butte	72	18	2	11
Calaveras	5	0	0	0
Colusa	10	4	2	50
Contra Costa	556	131	95	73
Del Norte	0	0	0	0
El Dorado	59	17	4	24
Fresno	138	10	1	10
Glenn	3	0	0	0
Humboldt	10	0	0	0
Imperial	2	0	0	0
Inyo	1	0	0	0
Kern	16	2	0	0
Kings	14	0	0	0
Lake	25	16	8	50
Lassen	0	0	0	0
Los Angeles	812	128	44	34
Madera	29	12	1	8
Marin	50	4	2	50
Mariposa	3	0	0	0
Mendocino	18	2	0	0
Merced	41	2	0	0
Modoc	0	0	0	0
Mono	4	0	0	0
Monterey	16	1	0	0
Napa	29	10	4	40
Nevada	17	6	1	17
Orange	169	43	2	5
Placer	276	146	43	29
Plumas	0	0	0	0
Riverside	265	113	69	61
Sacramento	941	456	196	43
San Benito	8	2	1	50
San Bernardino	119	25	11	44
San Diego	213	96	14	15
San Francisco	68	15	0	0
San Joaquin	152	43	20	47
San Luis Obispo	34	12	1	8
San Mateo	348	84	15	18
Santa Barbara	16	10	0	0
Santa Clara	642	199	117	59
Santa Cruz	44	12	0	0
Shasta	25	6	2	33
Sierra	0	0	0	0
Siskiyou	1	0	0	0
Solano	123	42	18	43
Sonoma	177	25	16	64
Stanislaus	165	15	6	40
Sutter	51	11	6	55
Tehama	7	0	0	0
Trinity	0	0	0	0
Tulare	52	13	5	38
Tuolumne	3	0	0	0
Ventura	91	25	4	16
Yolo	340	132	67	51
Yuba	26	3	0	0
<b>Totals</b>	<b>6,793</b>	<b>2,049</b>	<b>857</b>	<b>42</b>

<sup>a</sup> Tested by the University of California Davis Arboviral Research and Training laboratory or local mosquito/vector control agency

**Table 4.8. Infections with West Nile virus in humans, horses, dead birds, mosquito pools, and sentinel chickens, by county, California, 2023**

County	Humans <sup>a</sup>	Horses	Dead birds	Mosquito pools	Sentinel chickens
Alameda	2	0	80	18	4
Alpine	0	0	NT	NT	NT
Amador	1	0	NT	NT	NT
Butte	19	1	2	69	33
Calaveras	1	0	NT	NT	3
Colusa	1	0	2	2	2
Contra Costa	12	0	95	26	11
Del Norte	0	0	NT	NT	NT
El Dorado	3	0	4	NT	NT
Fresno	25	2	1	232	NT
Glenn	4	0	NT	1	NT
Humboldt	0	0	NT	NT	NT
Imperial	0	0	NT	3	NT
Inyo	0	0	NT	2	NT
Kern	19	2	0	107	NT
Kings	11	1	NT	70	NT
Lake	6	0	8	26	0
Lassen	0	0	NT	NT	NT
Los Angeles	68	0	44	580	30
Madera	9	1	1	207	NT
Marin	0	0	2	0	NT
Mariposa	0	0	NT	0	NT
Mendocino	0	0	0	NT	NT
Merced	9	2	0	43	22
Modoc	0	0	NT	NT	NT
Mono	0	0	NT	0	NT
Monterey	2	0	0	NT	NT
Napa	0	1	4	7	NT
Nevada	1	0	1	NT	2
Orange	7	1	2	218	NT
Placer	6	1	43	177	NT
Plumas	0	0	NT	NT	NT
Riverside	21	3	69	182	NT
Sacramento	60	2	196	342	7
San Benito	0	0	1	0	6
San Bernardino	30	2	11	158	NT
San Diego	0	0	14	1	NT
San Francisco	0	0	0	0	NT
San Joaquin	16	3	20	607	NT
San Luis Obispo	2	2	1	0	NT
San Mateo	4	1	15	0	0
Santa Barbara	0	0	0	0	NT
Santa Clara	3	1	117	18	NT
Santa Cruz	0	0	0	0	NT
Shasta	6	0	2	151	5
Sierra	0	0	NT	NT	NT
Siskiyou	0	1	NT	NT	NT
Solano	7	0	18	24	11
Sonoma	1	0	16	6	NT
Stanislaus	34	2	6	293	NT
Sutter	7	0	6	66	19
Tehama	0	0	NT	NT	4
Trinity	0	0	NT	NT	NT
Tulare	25	1	5	566	10
Tuolumne	0	0	NT	NT	NT
Ventura	1	0	4	0	0
Yolo	45	0	67	294	10
Yuba	5	1	0	26	7
<b>State Totals</b>	<b>473</b>	<b>31</b>	<b>857</b>	<b>4,522</b>	<b>186</b>

<sup>a</sup>Includes asymptomatic infections detected through blood bank screening

NT= no samples tested

species have similar biology and behavior, live in close association with human-made environments, and are container breeders. *Aedes aegypti* is the primary worldwide vector of chikungunya, dengue, yellow fever, and Zika viruses, and *Ae. albopictus* can also serve as a vector of these arboviruses. In Australia, *Ae. notoscriptus* is an important urban vector of dog heartworm and has been found infected with Ross River and Barmah Forest viruses. None of these viruses are endemic to California.

Since 2011, local vector control agencies have detected one or more species of invasive *Aedes* mosquitoes in 402 cities or census-designated places (CDP) in 29 counties; however, populations of *Ae. aegypti* and *Ae. albopictus* are only considered established within urbanized areas of 24 and 5 counties, respectively. (Figure 4.4). *Aedes notoscriptus* are established in parts of Los Angeles, Orange, and San Diego counties, and since 2014, have been detected in over 45 cities. In 2023, *Ae. aegypti* mosquitoes were discovered for the first time in nine new cities, six CDP, and three counties: Glenn, Solano, and Yuba. *Aedes albopictus* mosquitoes were discovered in one new CDP.

Local vector control agencies with invasive *Aedes* have continuously worked to improve the efficacy and efficiency of *Aedes*-specific surveillance and

control, and improve and expand public education and outreach programs aimed at personal protection from mosquito bites and elimination of backyard mosquito larval habitats. Some agencies have pursued agreements with public utilities agencies to eliminate *Aedes* mosquito production from utilities vaults, while others are developing sterile male release programs to enhance control. Agencies have streamlined their response to travel-associated human cases of *Aedes*-borne arboviruses, such as dengue, following U.S. Centers for Disease Control and Prevention (CDC) recommended guidelines to minimize the potential for local transmission in areas with established populations of *Ae. aegypti* or *Ae. albopictus*. As a result, the response to the first two locally-acquired human cases of dengue infection in Los Angeles County in late 2023 was rapid and efficient, conducted in collaboration with local health departments, and in consultation with CDPH and CDC. None of the *Aedes aegypti* mosquitoes collected prior to and following mosquito control measures tested positive for dengue virus. For all of 2023, a total of 38,779 *Ae. aegypti* mosquitoes were tested for chikungunya, dengue, and Zika viruses; all were negative. In addition, 6,246 *Ae. aegypti* were tested for WNV, SLEV, and WEEV; 2 were WNV positive (Table 4.4).

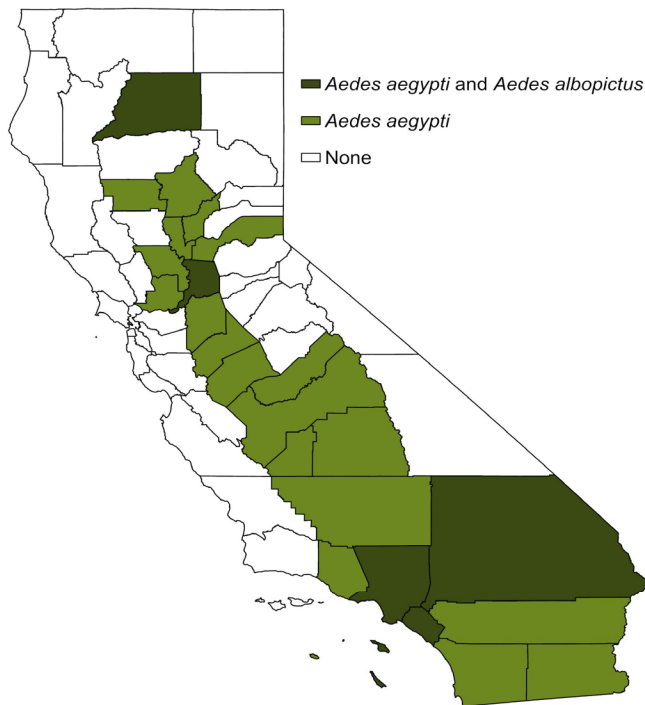


Figure 4.4. Invasive *Aedes* mosquito detections, by county, California, 2023



## 5

## U.S. Forest Service Cost-Share Agreement

**In 1992, the California Department of Public Health, Vector-Borne Disease Section, entered into a Challenge Cost-Share Agreement with the Pacific Southwest Region (Region 5) of the United States Department of Agriculture Forest Service. The agreement maintained cooperative surveillance and control of vector-borne diseases within the National Forests. The agreement was completed in 2023.**



Major objectives and activities related to the United States Department of Agriculture Forest Service (USFS) Region 5 (R5) cost-share agreement included:

- Surveillance of and response to vector-borne diseases (VBD) including visual campground assessment, small mammal trapping and testing, and tick collection and testing
- Flea treatment of campgrounds if plague risk deemed elevated
- Forest Service facility and campground evaluations and recommendations for VBD risk reduction
- Education of personnel, concessionaires, and the public in the 18 National Forests in California through safety presentations, videos, and social media
- Provision of public health educational materials to concessionaires, USFS offices, and public information displays
- Response to other insect and vector-related queries from USFS personnel

This report briefly reviews activities carried out under the agreement by the California Department of Public Health, Vector-Borne Disease Section (CDPH-VBDS) and local collaborators in 2023. For each National Forest, activities and test results for selected vector-borne diseases are summarized in Tables 5.1 through 5.3, and highlights are described below.

### 2023 U.S. Forest Service Highlights

- Seventeen of 18 R5 Forests had samples tested for vector-borne disease pathogens by CDPH (Table 5.3).
- Bacterial and serological evidence of plague activity continued to be documented annually on the Lake Tahoe Basin Management Unit without interruption since 2012, including a human case in 2020. Only one (3%) of 38 of rodents from the Management Unit tested positive in 2023, a significant decrease compared to the 27% seroprevalence in 2022 (Tables 5.2, 5.3).
- Rodent-borne disease surveillance at Alto Campground yielded the first Sin Nombre virus positive deer mouse in 19 years in the Los Padres National Forest (Tables 5.2, 5.3).
- Tick-borne disease agent testing expanded to include rickettsial pathogen testing of *Dermacentor* ticks. (Table 5.3).
- Tick surveillance and testing from the River Trail at Johnsondale Bridge in the Sequoia National Forest found adult *Ixodes pacificus* and adult *Dermacentor occidentalis* ticks infected with human pathogens (*Borrelia burgdorferi* and *Rickettsia* sp. 364D, respectively) the causative agents of Lyme disease and Pacific Coast tick fever (Tables 5.2, 5.3).
- After 31 years, the Challenge Cost-Share Agreement between USFS R5 and CDPH-VBDS ended in July due to federal budgetary constraints.

**Table 5.1: Summary of United States Forest Service Activities (Region 5)  
Performed by the California Department of Public Health Under the USFS-CDPH Cost-Share Agreement, 2023**

National Forest	Disease Risks/Services Addressed	Facility Evaluation	Presentation Audiences	Forest Locations Visited/Contacted <sup>a</sup>
Angeles/ San Gabriel Mountain National Monument	Hantavirus; Plague			Supervisor's Office; Gateway Ranger District; Oak Flat Ranger Station; Little Rock Reservoir
Cleveland	Plague; Tick-borne diseases			Supervisor's Office, Descanso, Palomar, and Trabuco Ranger Ranger District offices; Blue Jay, Bobcat Meadow OHV, Boulder Oaks, Burnt Rancheria, Cibbets Flat, Corral Canyon OHV, El Cariso, Fry Creek, Horse Heaven, Palomar, and Wooded Hill campgrounds; Maple Springs and Tenaja trails.
Eldorado	Hantavirus			Supervisor's Office, Amador and Pacific Ranger Districts; Lumberyard Fire Station; Leek Springs Lookout.
Inyo	Plague; Tick-borne diseases			Supervisor's Office; Mammoth Lakes, Mono Lake, Mt. Whitney and White Mountain Ranger District Offices; East Fork, French, June Lake, Oh Ridge, Old Shady Rest, Palisades Group, Pine Grove, Reversed Creek, Rock Creek, Sherwin Creek, Silver Lake, Twin Lakes, Upper and Lower Gray's Meadow campgrounds; Aerie Crag Day Use Area .
Klamath	Tick-borne diseases			Supervisor's Office; Oak Knoll Ranger District; Sarah Totten Campground.
Lake Tahoe Basin Management Unit	Hantavirus; Plague		Fallen Leaf Campground concessionaires	LTBMU Supervisors Office; Tallac Historical Site; Taylor Creek Visitor Center; Fallen Leaf and Meeks Bay campgrounds.
Lassen	Hantavirus; Plague; Tick-borne diseases			Supervisor's Office; Almanor, Eagle Lake, Hat Creek District Offices; Christie, Eagle Lake, and Merrill campgrounds; Deer Creek Trail.
Los Padres	Hantavirus; Plague	Follow-up Questionnaires for Chuchupate RS, Apache and Ozena Fire Stations		Supervisor's Office; Monterey, Mt. Pinos, and Santa Barbara Ranger District Offices; Camp Alto, road to Dome Springs and Pine Springs, McGill, Reyes Creek campgrounds; Gene Marshall Trailhead.
Mendocino	Tick-borne diseases			Supervisor's Office; Upper Lake Ranger District; Fuller Grove, Middle Creek, Mill Creek, Navy Camp, Oak Flat, Pine Point, Southfork and Sunset Point campgrounds; Squaw Creek Trail; Potato Hill Paragliding Landing Zone; M10 roadside USFS lands.
Modoc	Plague			Supervisor's Office; Devil's Garden/Warner Mountain Ranger District.
Plumas	Plague			Supervisor's Office.
San Bernardino	Plague; Tick-borne diseases		Southern California Mountains Foundation staff and volunteers	Supervisor's Office; Front Country, Mountaintop; San Jacinto District Ranger Offices; Mill Creek and Barton Flats Visitor Centers; Big Bear Discovery Center; Barton Flats, Buttercup Group, Coon Cabin Group, Dogwood, Green Spot Equestrian Group, Green Valley, Hanna Flat, Heart Bar, Pine Knot, San Gorgonio, Serrano, South Fork, and Wildhorse Equestrian campgrounds; Bonita Falls and South Fork Canyon (Lytle Creek); Pacific Crest Trail in Swarthout Canyon; Big Falls, Momyer, and Vivian Creek trailheads; Big Falls, Forest Falls Jenks Lake, Juniper Point, Meadows Edge, and Thurman Flats picnic areas; Greyback Amphitheater.
Sequoia	Hantavirus; Plague; Tick-borne diseases			Supervisor's Office; Kern River and Western Divide Ranger District Offices; Boulder Gulch, Camp 3, Gold Ledge, Fairview, Headquarters, Hospital Flat, Hungry Gulch, Landers Camp, Limestone, Live Oak, Paradise Cove, Quaking Aspen, Redwood, and Tillie Creek campgrounds; Brush Creek, Calkins Flat, Chamise Flat, French Gulch, and South Fork recreation areas; Isabella Peak, Rincon, River Trail (at Johnsondale Bridge), and Whiskey Flat trails; South Fork Wildlife Area.
Shasta-Trinity				Supervisor's Office; Trinity River Management Unit; Weaverville Ranger Station.
Sierra	Plague; Tick-borne diseases			Supervisor's Office; Bass Lake Ranger District; Willow Creek Trail
Six Rivers	Hantavirus; Plague; Tick-borne diseases	Willow Creek Ranger Station; Oak Bottom Work Station		Supervisor's Office; Lower Trinity and Orleans Ranger Districts; Oak Bottom Work Station; Aikens Creek and Oak Bottom campgrounds; Geary, Hawking Bar, and Tunnel Flat river access; Saylor Guard Station
Stanislaus	Hantavirus; Plague; Tick-borne diseases			Supervisor's Office; Calaveras, Groveland, Mi-Wok, and Summit Ranger District Offices; Baker Historical Station; Arnot Creek, Baker, Brightman Flat, Camp Liahona Alp, Cascade Creek, Clark Fork, Clark Fork Horse Camp, Dardanelles, Deadman, Disaster Creek, Eureka Valley, Kennedy Meadows, Pigeon Flat, Sanc Flat, and Spicer Reservoir campgrounds; Columns of the Giants, Cottonwood Creek, and Douglas picnic areas; Camp Peaceful Pines; Cascade Creek OHV Registration Sign.
Tahoe	Plague; Tick-borne diseases		American River, Sierraville, Truckee, and Yuba River Ranger Districts	Supervisor's Office; American River, Sierraville, Truckee, and Yuba River Ranger District Offices; Bullard's Bar Reservoir Trail,

<sup>a</sup> Locations visited or contacted not already listed under Facility Evaluations.

**Table 5.2: Vector-Borne Disease Related Services and Findings, USFS-CDPH Cost-Share Agreement, 2023**

National Forest	Unique Services/ Unusual Findings
<b>Angeles / San Gabriel Mountain National Monument</b>	Upon request, plague and hantavirus surveillance and sample testing were conducted at two locations on the Forest and National Monument. Leadership were notified of test results.
<b>Cleveland</b>	One (12%) of eight adult <i>Dermacentor occidentalis</i> ticks collected from Maple Springs Truck Trail was positive for <i>Rickettsia</i> 364D, causative agent for Pacific Coast tick fever
<b>Eldorado</b>	One (14%) of seven and two (20%) of ten deer mice collected from Lumberyard Fire Station and Leek Springs Lookout, respectively, tested positive for antibodies to Sin Nombre virus (SNV) causative agent for hantavirus cardiopulmonary syndrome (HPS). Test results and recommendations were communicated to Ranger District and Forest leadership.
<b>Inyo</b>	Twenty and 13 rodents collected from Oh Ridge and Twin Lakes campgrounds, respectively, were tested for <i>Yersinia pestis</i> , causative agent for plague. One (5%) of 20 from Twin Lakes, and 3 (23%) of 13 from Oh Ridge were positive for antibodies to <i>Y. pestis</i> . Campgrounds remained open with Plague Warning signage and VBDS plague disease prevention brochures made available to campers.
<b>Klamath</b>	One (20%) of five <i>Ixodes pacificus</i> ticks from Sarah Totten Campground, tested positive for a potential human pathogen, <i>Borrelia burgdorferi</i> sensu lato, by PCR.
<b>Lake Tahoe Basin Management Unit</b>	One (8%) of 12 rodents from Tallac Historical Site tested positive for antibodies to <i>Y. pestis</i> .
<b>Lassen</b>	One (14%) of seven rodents tested positive for antibodies to <i>Y. pestis</i> .
<b>Los Padres</b>	One (14%) of seven deer mice ( <i>Peromyscus maniculatus</i> ) sampled at Alto Campground, tested positive for antibodies to SNV: the first positive mouse from the Forest since 2005.
<b>Mendocino</b>	Two <i>Dermacentor occidentalis</i> tick tested positive for <i>Rickettsia</i> 364D.
<b>Modoc</b>	None of the 14 carnivore samples from lands adjacent to the Forest was positive for antibodies to <i>Y. pestis</i> .
<b>Plumas</b>	None of three carnivore samples from lands adjacent to the Forest, was positive for antibodies to <i>Y. pestis</i> .
<b>San Bernardino</b>	Adult <i>D. occidentalis</i> ticks from the Pacific Crest Trail in Swarthout Canyon tested positive for rickettsial organisms, and one <i>D. occidentalis</i> tick from Middle Fork Creek tested positive for <i>R. rickettsii</i> subsp. <i>californica</i> .
<b>Sequoia</b>	Adult ticks collected along the River Trail at Johnsondale Bridge were positive for <i>Borrelia burgdorferi</i> sensu lato in <i>Ixodes pacificus</i> ticks and <i>Rickettsia</i> 364D in <i>D. occidentalis</i> ticks.
<b>Sierra</b>	Two (22%) of nine carnivores from lands adjacent to the Forest tested positive for antibodies to <i>Y. pestis</i> .
<b>Six Rivers</b>	Biologists conducted facility evaluations and hantavirus surveillance at Oak Bottom Work Station and Orleans Ranger District headquarters. None of the four deer mice sampled from the Forest tested positive for antibodies to SNV.
<b>Stanislaus</b>	Biologists conducted hantavirus surveillance at Spicer Reservoir Campground. None of the seven <i>Peromyscus</i> mice were positive for antibodies to SNV, and none of the diurnal rodents were positive for antibodies to <i>Y. pestis</i> .
<b>Tahoe</b>	Three human pathogens ( <i>B. burgdorferi</i> sensu stricto, <i>B. miyamotoi</i> , and <i>A. phagocytophylum</i> ) continue to be recovered from <i>I. pacificus</i> ticks at Bullard's Bar Reservoir. Two ticks had more than one human pathogen (co-infection).
<b>R5 (District Level)</b>	Provided a pre-season letter for distribution throughout R5. Notified the R5 Safety Officer with reports of significant findings from sampling test results or human cases with probable exposure from USFS lands.

Table 5.3. Testing results for selected vector-borne disease agents in U.S. National Forests, California, 2023

National Forest	Sin Nombre virus (hantavirus pulmonary syndrome)		Yersinia pestis (plague)						Borrelia spp.		Anaplasma phagocytophilum		Rickettsia spp.	
	Peromyscus mice		rodents		flea pools <sup>a</sup>		carnivore <sup>b</sup>		Ixodes spp. or Ornithodoros ticks		Ixodes pacificus ticks		Dermacentor ticks	
	Positive	Tested	Positive	Tested	Positive	Tested	Positive	Tested	Positive	Tested	Positive	Tested	Positive	Tested
Angeles	0	18	0	15										
Cleveland <sup>c</sup>	5	37	0	125					2	80	0	80	1	17
Eldorado	3	17												
Inyo			4	56	0	30								
Klamath									1	5	0	5		
Lake Tahoe BMU	0	5	1	38	0	25	0	1						
Lassen	0	13	1	22	0	18			0	50	0	50	0	4
Los Padres	1	13	0	29	0	22	0	8						
Mendocino									0	10	0	10	2	5
Modoc							0	14						
Plumas							0	3						
San Bernardino									0	36	0	36	7	193
Sequoia	0	16	0	24	0	7			2	60	0	60	4	41
Sierra							2	9					1	1
Six Rivers	0	4							0	5	0	5	1	6
Stanislaus	0	7	0	9										
Tahoe			1	25	0	18			8 <sup>d</sup>	211	4	211		
<b>Total, all forests</b>	<b>9</b>	<b>130</b>	<b>7</b>	<b>343</b>	<b>0</b>	<b>120</b>	<b>2</b>	<b>35</b>	<b>13</b>	<b>457</b>	<b>4</b>	<b>457</b>	<b>16</b>	<b>267</b>

<sup>a</sup> Flea pools may contain 1-10 fleas; a single rodent may have more than one flea pool associated with it.

<sup>b</sup> Carnivore specimens taken directly from or adjacent to USFS lands. Because of the broad home range of some carnivores, results obtained can be inferred to a large area, including both USFS and adjacent lands.

<sup>c</sup> Hantavirus and plague samples collected by San Diego County Vector Control Program. Some plague samples tested by the Vector-Borne Disease Section laboratory

<sup>d</sup> Includes *B. miyamotoi*, a relapsing fever-type spirochete and emerging disease.

## 6

## Vector Control Technician Certification Program

**The California Health and Safety Code, § 106925, requires every government agency employee who handles, applies, or supervises the use of any pesticide for public health purposes to be certified by the California Department of Public Health. The Vector-Borne Disease Section administers the Public Health Vector Control Technician certification examination twice each year (May and November) to certify the competence of government agency personnel to control vectors for the health and safety of the public.**



To become certified in a control category, applicants must pass the Core section and at least one Specialty section of the examination. Each applicant to the examination pays a fee for each section requested on the application. The Core section consists of questions about the safe and effective use of pesticides. Specialty sections of the examination include the Biology and Control of Mosquitoes in California, Arthropods of Public Health Significance in California, and Vertebrates of Public Health Importance in California (Table 6.1). Successful examinees are issued a gold certification card that is valid for up to two years in the qualified categories specified on the card. To maintain full certification status in subsequent two-year cycles, Certified Technician employees must pay annual renewal fees and fulfill minimum continuing education requirements. The California Department of Public Health (CDPH) Vector-Borne Disease Section approved 134 continuing education events in 2023. Successful examinees that elect not to participate in continuing education are issued parchment certificates in the categories in which they qualified. These Certified Technicians (Limited) employees may use pesticides only under the direct supervision of a Certified Technician.

Through 2023, 1,190 Vector Control Technicians employed at 101 local public health agencies and CDPH held 2,904 certificates (Table 6.2). The agencies include special districts, departments of county government, departments of city government, and CDPH. Of these agencies, 72 are signatory to a cooperative agreement with CDPH.

In 2023, 916 individuals employed at 72 agencies held full certification status. In addition, 274 employees from 49 agencies held limited status. Many agencies employ technicians with both full and limited status.

Vector Control Technicians can view their certification records and the approved Vector Control continuing education courses at: <http://ce.calsurv.org>. All training manuals, as well as practice questions and the Continuing Education Guide, are posted on the website dedicated to the Vector Control Technician Program: <https://bit.ly/VCTCertification>

**Table 6.1. Results of certification examinations administered in 2023**

<b>Exam section</b>	<b>No. Exams Given</b>	<b>No. Passed (%)</b>
Core	165	94 (57)
Mosquito Control	163	76 (47)
Terrestrial Invertebrate Control	119	67 (56)
Vertebrate Vector Control	111	64 (58)
<b>Totals</b>	<b>558</b>	<b>301 (54)</b>

**Table 6.2 Vector Control Technician certificates in effect as of December 2023**

<b>Certification Category</b>	<b>No. Certificates</b>		
	<b>Full Status</b>	<b>Limited Status</b>	<b>Total</b>
Mosquito Control	905	196	1,101
Terrestrial Invertebrate Vector Control	732	151	883
Vertebrate Vector Control	730	190	920
<b>Totals</b>	<b>2,367</b>	<b>537</b>	<b>2,904</b>

# 7

## Public Information, Scientific Publications

A goal of the California Department of Public Health, Vector-Borne Disease Section is to provide clear and effective information on disease prevention and injurious pests to a wide audience. This goal is pursued through approaches including presentations, development and distribution of printed and digital materials, and maintenance of websites with up-to-date information. Research projects in which staff from the California Department of Public Health, Vector-Borne Disease Section were principal or collaborating investigators are published in peer-reviewed scientific literature.



### New public information materials in 2023

- Tick-Borne Disease Prevention (webpage)
- A How-To Guide for Nit Combing (handout)

### Expanded resources in 2023

- What You Need to Know About Bed Bugs (flyer)
- Hantavirus Infection (webpage)
- Mosquito Control FAQs (fact sheet)
- Common Ticks in California (ID card)
- Dengue Fact Sheet



### Information for health departments and healthcare providers, added in 2023

- Spotted Fever Group Rickettsioses Information for Healthcare Professionals (webpage)
- Tick-Borne Disease Information for Health Professionals (webpage)
- Guidance for Managing Select Communicable Diseases: West Nile Virus Infections (Communicable Disease Manual chapter)
- Guidance on the Treatment and Control of Head Lice and Pubic Lice in Congregate Living Settings (guidance document)
- Recommendations for the Prevention and Control of Scabies for School Districts and Child Care Facilities (guidance document)

## Publications\*

Beeson AM, **Kjemtrup AM**, Oltean H, Schnitzler H, Venkat H, Ruberto I, Marzec N, Cozart D, Tengelsen L, Ladd-Wilson S, Rettler H, Mayes B, Broussard K, Garcia A, Drake LL, Dietrich EA, Petersen J, Hinckley AF, Kugeler KJ, Marx GE. Soft tick relapsing fever - United States, 2012-2021. *MMWR Morb Mortal Wkly Rep*. 2023 Jul 21;72(29):777-781. doi: 10.15585/mmwr.mm7229a1. PMID: 37471261

Conroy, B, Waller, LA, Buller, ID, **Hacker GM, Tucker JR, Novak MG**. A shared latent process model to correct for preferential sampling in disease surveillance systems. *J. Ag Bio env Stat*. 2023 Apr; 28: 483–501. <https://doi.org/10.1007/s13253-023-00535-4>

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Yomogida K, **Kjemtrup AM**, Martínez-López B, Ibrahim M, Contreras Z, Ngo V, Halai UA, Balter S, Feaster M, Zahn M, Shearer E, Sorvillo R, Balanji N, Torres C, Prado B, Porse C, **Kramer VL**. Surveillance of flea-borne typhus in California, 2011-2019. *Am J Trop Med Hyg*. 2023 Dec 18;110(1):142-149. doi: 10.4269/ajtmh.23-0272. PMID: 38109767

\*Bolded names are members of VBDS staff at time research was conducted









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**VECTOR-BORNE  
DISEASE SECTION**  
CALIFORNIA DEPARTMENT OF PUBLIC HEALTH

## Trustee Robert Riechel's Report On Attendance at CSDA's 2024 Conference

The conference was held in Indian Wells, CA (just outside of Palm Springs) from September 9<sup>th</sup> through September 12<sup>th</sup>, 2024

I attended the following portions of the conference:

1. Opening Keynote presentation on "The WHAT IF Experience" Example of What If – The Wright Brothers developing the airplane or Henry Ford developing the auto. Trustees need to consider "WHAT IF" as they consider various possible board actions.
2. Advanced Training in the California Public Records Act—Our District could receive a Public Records request. Districts must have a policy, and I believe we do. The request needs to be very specific, and our response needs to meet certain deadlines.
3. Fill That Spot the Right Way—Board Elections and Vacancies—When is a board position vacant? The question of when there is a vacancy can be confusing.
4. Who Does What and Why: Establishing Good Governance. A trustee does NOT have the right to act for the District unless given specific authorization by the vote of the full board or possibly the District Manager. A trustee acting outside of his/her position as a trustee could be liable for monetary and or legal judgments. The District Counsel provides legal advice but does NOT make policy. Special Districts only have powers granted by the state legislature
5. SDRMA Keynote presentation "Leadership From the Inside Out" It was during this presentation that the SMCMVCD received recognition for Transparency Certificate of Excellence and District of Distinction
6. When Decorum and Civility Do Not Work: Then What? Leadership and Ethics go hand in hand. Inaction on a problem implies that the District condones that action.
7. Legislative Update – Some bills CSDA worked to get passed or blocked, and a couple of CSDAs are seeking our requests from the Governor to VETO.  
LOOK UP AB 992  
LOOK UP AB 1661  
LOOK UP AB 1234  
LOOK UP SB 1100  
LOOK UP Brown Act