

Marin/Sonoma  
Mosquito & Vector Control District  
595 Helman Lane  
Cotati, California 94931  
1-800-231-3236 (toll free) 707-285-2210 (fax)

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**BOARD OF TRUSTEES  
SPECIAL & REGULAR BOARD MEETING**

DATE: March 10, 2021  
TIME: 6:00 p.m. (Special Board Meeting will continue into Regular Board Meeting at 7:00 p.m.)  
LOCATION: **Teleconference – See Below**

Please note that due to the Shelter in Place Orders issued by Sonoma and Marin Counties Health Officers, and the State of California, options for observing the Board Meeting and for submitting communication regarding the meetings have changed. The Board of Trustees will meet remotely via teleconferencing, as authorized by the Governor's Executive Order N-29-20. All members of the public seeking to observe and/or to address the local legislative body may participate in the meeting telephonically or otherwise electronically in the manner described below.

**The Board Meeting Teleconference:**

Click the link on the District's website, <https://www.msosquito.org/board-meetings>, to watch live-streamed meetings. The unique link for each meeting is found on the first page of the applicable agenda (see Zoom Meeting Link below for this meeting).

**Public Communication:**

The public is welcome to address the Board of Trustees on items listed on the Consent Calendar or on other items not listed on the agenda but within the Board's jurisdiction during the general Public Comment period. There will also be an opportunity for the public to comment on other agenda items at the time they are discussed. Please raise your hand using the electronic "raise hand" button or provide typed comments via the Q & A button. Both features are available at the bottom of the Zoom screen.

The public may submit comments by:

- 1) Emailing comments to [dawnw@msosquito.org](mailto:dawnw@msosquito.org) or
- 2) Delivering written comments via mail to the District; or
- 3) Participating in the teleconference by calling (669) 900-9128 or joining the videoconference at the link provided below:

[Zoom Meeting Link](#)

The Webinar ID is 835 1414 1463

Materials related to an item on this agenda submitted to the Board after distribution of the agenda packet are available for public inspection by contacting the Board Clerk at [dawnw@msosquito.org](mailto:dawnw@msosquito.org) or calling the District's offices at (707) 285-2200. If, due to a disability, a reasonable accommodation is needed to participate in this meeting, please contact the ADA Coordinator 24 hours in advance of the meeting at (707) 285-2204.

**Agendas and supporting documents are also available for review** on the District's official noticing bulletin board (595 Helman Lane, Cotati, CA 94931) and at the District's website at: <https://www.msamosquito.org/board-meetings>

*In accordance with the Americans with Disabilities Act, if you require special assistance to participate in this meeting, please contact the Marin/Sonoma Mosquito & Vector Control District (MSMVCD) at 1-800-231-3236.*

*Translators, American Sign Language interpreters, and/or assistive listening devices for individuals with hearing disabilities will be available upon request. A minimum of 48 hours is needed to ensure the availability of translation service.*

*MSMVCD hereby certifies that this agenda has been posted in accordance with the requirements of the Government Code.*

*Items marked \* are enclosed attachments.*

*Items marked # will be handed out at the meeting.*

1. **CALL TO ORDER**

2. **PLEDGE OF ALLEGIANCE**

3. **ROLL CALL** (*13 members must be present for a quorum*)

Bruce Ackerman, Fairfax

Cathy Benediktsson, Tiburon

Gail Bloom, Larkspur

Tamara Davis, Sonoma Co. at Large

Art Deicke, Santa Rosa

Julia Ettlin, Windsor

Laurie Gallian, Sonoma (*First V.P.*)

Pamela Harlem, San Rafael (*President*)

Susan Hootkins, Petaluma

Ranjiv Khush, San Anselmo

Shaun McCaffery, Healdsburg

Matthew Naythons, Sausalito

Monique Predovich, Ross

Diana Rich, Sebastopol

Herb Rowland, Jr., Novato

Ed Schulze, Marin Co. at Large

Veronica Siwy, Rohnert Park

Richard Snyder, Belvedere (*Second V.P.*)

David Witt, Mill Valley

Carol Pigoni, Cloverdale (*Secretary*)

**Open Seats:**

Corte Madera, Cotati, one Marin County at Large and one Sonoma County at Large

**4. PUBLIC TIME**

*Public Time is time provided by the board so the public may make comment on any item **not on the agenda**.*

*The public will be given an opportunity to speak on each agenda item at the time the item is presented. Once the public comment portion of any item on this agenda has been closed by the Board, no further comment from the public will be permitted unless authorized by the Board President and if so authorized, said additional public comment shall be limited to the provision of information not previously provided to the Board or as otherwise limited by order of the Board.*

*We respectfully request that you state your name and address and provide the Board President with a Speaker Card so that you can be properly included in the consideration of the item.*

*Please limit your comments to three (3) minutes per person or twenty (20) minutes per subject in total so that all who wish to speak can be heard.*

**5. CONSENT CALENDAR**

**A. APPROVAL OF AGENDA**

**B.\* MINUTES** – Minutes for Board Meeting held on January 20, 2021.

**C.\* FINANCIAL**

Warrants – January 2021

January Payroll: \$ 186,391.10

January Expenditures: \$ 900,633.79

Total: \$1,087,024.89

**D.\* FINANCIAL**

Warrants – February 2021

February Payroll: \$180,690.59

February Expenditures: \$342,355.02

Total: \$523,045.61

**ACTION NEEDED**

INFORMATION ENCLOSED

**E. ENDING ACCOUNT BALANCES:**

Operating Fund: \$10,922,573.36

**6.\* NEW BUSINESS**

**A. Report by Scientific Programs Manager, Dr. Kelly Liebman**

INFORMATION ENCLOSED

**B. Brief Reports by Trustees and Staff who attended the 2021 Mosquito Vector Control Association of California (MVCAC) Annual Conference.**

Pursuant to the Board Policy Manual, Section 2050.70, this time is allotted for Trustees and staff who attended the annual conference to provide a brief verbal or written report on an aspect of this premier training and education event.

**C. Report on the VCJPA 2021 Annual Workshop and Conference**  
Report by Tamara Davis

**D.\* Unmanned Aerial Systems (UAS): Proposed Policy UAS-1**  
Please attached staff report.

**ACTION NEEDED**

Staff recommends that the Board:

1. Review & discuss this report, the attached draft Policy UAS-1 and Resolution 2020/21-07.
2. Consider a motion to adopt the proposed Resolution 2020/21-07, which approves Policy UAS-1 and adds it to the District Operations Manual.

INFORMATION ENCLOSED (*Exhibit A*)

**7. COMMITTEE & STAFF REPORTS**

**A. Executive Committee**  
Report by Chair Pamela Harlem

**B. Legislative Committee**  
Report by Chair Tamara Davis

**8.\* MANAGER'S REPORTS**

INFORMATION ENCLOSED

**9. WRITTEN COMMUNICATIONS**

CORRESPONDENCE RECEIVED BY THE DISTRICT FROM RESIDENTS OR ANY OTHER PARTY SHALL BE READ ALOUD OR HANDED OUT TO THE BOARD

**10. OPEN TIME FOR BOARD OR STAFF COMMENTS**

**11. ADJOURNMENT**

# Marin/Sonoma Mosquito & Vector Control District

Board of Trustees  
595 Helman Lane  
Cotati, CA 94931

## Meeting Held via Videoconference

January 20, 2021

## SPECIAL BOARD MEETING MINUTES

1. **CALL TO ORDER**

President Pigoni called the meeting to order at 6:00 pm.

2. **PLEDGE OF ALLEGIANCE**

3. **ROLL CALL**

**Members present:**

Ackerman, Bruce *Left at 6:46*

Benediktsson, Cathy

Bloom, Gail

Davis, Tamara

Deicke, Art

Ettlin, Julia

Gallian, Laurie

Hootkins, Susan *Left at 6:43*

Khush, Ranjiv

McCaffery, Shaun

Naythons, Matthew *Arrived at 7:25*

Predovich, Monique

Rich, Diana

Rowland Jr., Herb

Schulze, Ed

Siwy, Veronica

Snyder, Richard

Witt, David

Pigoni, Carol

**Members absent:**

Harlem, Pamela

**Open seats:** Corte Madera, Cotati, one Marin County at Large and one Sonoma County at Large

**Others present:**

Philip Smith, District Manager

Erik Hawk, Assistant Manager

Jennifer Crayne, Finance Manager

Dawn Williams, Confidential Administrative Assistant

Amanda Charne, General Counsel

A quorum was present, and due notice had been published.

4. **APPOINTMENT OF NEW TRUSTEE**

City of Rohnert Park Trustee Veronica Siwy briefly described her background and indicated that her interest in becoming a Trustee was due to her passion for Public and Environmental Health.

5. **PUBLIC TIME**

No Public Comment.

6. **CONSENT CALENDAR**

A. **CHANGES TO AGENDA/APPROVAL OF AGENDA**

B. **MINUTES** – Minutes for Board Meeting held on December 9, 2020.

C. **FINANCIAL**

Warrants – December 2020

December Payroll: \$180,686.59

December Expenditures: \$399,913.86

Total: \$580,600.45

D. **2<sup>ND</sup> QUARTER FINANCIAL STATEMENT**

E. **ENDING ACCOUNT BALANCES:**

Operating Fund: \$10,622,799.53

*It was M/S Trustee Davis/Trustee Schulze to accept the Consent Calendar with the correction to the Minutes of adding Trustee Benediktsson to the roll call votes:*

*Motion passed with a roll call vote:*

*Ayes: Trustee Ackerman, Trustee Benediktsson, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Ettlin, Trustee Gallian, Trustee Hootkins, Trustee Khush, Trustee McCaffery, Trustee Predovich, Trustee Rich, Trustee Rowland, Trustee Schulze, Trustee Siwy, Trustee Snyder, Trustee Witt and Trustee Pigoni*

*No: (none)*

*Abstain: (none)*

*Absent: Trustee Harlem and Trustee Naythons*

7. **NEW BUSINESS**

A. **2021 Trustee Election Nominations and Election of Officers**

The Nominating Committee recommended the following Board Officer positions for 2021.

President – Pamela Harlem

1<sup>st</sup> Vice President – Laurie Gallian

2<sup>nd</sup> Vice President – Richard Snyder

Secretary – Carol Pigoni

*It was M/S Trustee Davis/Trustee Schulze to appoint the Board Officers for 2021.*

*Motion passed with a roll call vote:*

*Ayes: Trustee Ackerman, Trustee Benediktsson, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Ettlin, Trustee Gallian, Trustee Hootkins, Trustee Khush, Trustee McCaffery, Trustee Predovich, Trustee Rich, Trustee Rowland, Trustee Schulze, Trustee Siwy, Trustee Snyder, Trustee Witt and Trustee Pigoni*

*No: (none)*

*Abstain: (none)*

*Absent: Trustee Harlem and Trustee Naythons*

**B. Passing of the Gavel**

District Manager Smith presented outgoing President Pigoni with a plaque. He thanked her for her strong leadership and commitment that enabled the District to complete many projects over the preceding year, despite the difficult circumstances of the COVID-19 pandemic.

Due to President Pamela Harlem's absence, First Vice President Laurie Gallian stepped in as Chair for this meeting, and also acknowledged outgoing President Pigoni for her leadership and accomplishments over the last year.

**C. Committee Assignments**

*It was M/S Trustee Davis/Trustee Witt to approve the list of Trustee committee assignments.*

*Motion passed with a roll call vote:*

*Ayes: Trustee Ackerman, Trustee Benediktsson, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Ettlin, Trustee Gallian, Trustee Hootkins, Trustee Khush, Trustee McCaffery, Trustee Pigoni, Trustee Predovich, Trustee Rich, Trustee Rowland, Trustee Schulze, Trustee Siwy, Trustee Snyder and Trustee Witt*

*No: (none)*

*Abstain: (none)*

*Absent: Trustee Harlem and Trustee Naythons*

**D. Approve Signature Card for District Bank Account**

*It was M/S Trustee Pigoni/Trustee Snyder to approve the list of persons authorized to sign checks drawn on the District's Bank Accounts.*

*Approved Signers: President, 1<sup>st</sup> Vice President, Secretary, Trustee Davis, Trustee McCaffery, District Manager Smith and Assistant Manager Hawk.*

*Motion passed with a roll call vote:*

*Ayes: Trustee Ackerman, Trustee Benediktsson, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Ettlin, Trustee Gallian, Trustee Hootkins, Trustee Khush, Trustee McCaffery, Trustee Pigoni, Trustee Predovich, Trustee Rich, Trustee Rowland, Trustee Schulze, Trustee Siwy, Trustee Snyder and Trustee Witt*

*No: (none)*

*Abstain: (none)*

*Absent: Trustee Harlem and Trustee Naythons*

## **E. Selection of a New Financial Management Information System**

*Following a presentation by Dana Shigley of Municipal Resource Group and discussions between the Board and District staff, it was M/S Trustee Schulze/Trustee Snyder to direct staff to:*

- 1. Proceed with the project to install the financial management information system offered by Black Mountain Software.*
- 2. Provide budgetary allocation for the project as part of the amended budget for FY 2020-21 (this will be accomplished in agenda item F. below).*
- 3. Direct staff to report back regularly on progress toward implementation of the new financial management information system.*

*Motion passed with a roll call vote:*

***Ayes:**, Trustee Benediktsson, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Ettlín, Trustee Gallian, Trustee Khush, Trustee McCaffery, Trustee Pìgoni, Trustee Predovich, Trustee Rich, Trustee Rowland, Trustee Schulze, Trustee Siwy, Trustee Snyder and Trustee Witt*

***No:** (none)*

***Abstain:** Trustee Naythons*

***Absent:** Trustee Ackerman, Trustee Harlem and Trustee Hootkins*

## **F. Proposed new temporary position: “Management Aide – Temporary Hire.” Request to add a new job description.**

*It was M/S Trustee Davis/Trustee Pìgoni to approve the addition of the “Management Aide – Temporary Hire” position, job description & salary range.*

*Motion passed with a roll call vote:*

***Ayes:**, Trustee Benediktsson, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Ettlín, Trustee Gallian, Trustee Khush, Trustee McCaffery, Trustee Naythons, Trustee Pìgoni, Trustee Predovich, Trustee Rich, Trustee Rowland, Trustee Schulze, Trustee Siwy, Trustee Snyder and Trustee Witt*

***No:** (none)*

***Abstain:** (none)*

***Absent:** Trustee Ackerman, Trustee Harlem and Trustee Hootkins*

## **G. Proposed Mid-Year Amendment of FY 2020-21 Annual Budget**

*It was M/S Trustee Davis/Trustee Schulze to approve the proposed amendment of the FY 2020-21 budget.*

*Motion passed with a roll call vote:*

***Ayes:**, Trustee Benediktsson, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Ettlín, Trustee Gallian, Trustee Khush, Trustee McCaffery, Trustee Naythons, Trustee Pìgoni, Trustee Predovich, Trustee Rich, Trustee Rowland, Trustee Schulze, Trustee Siwy, Trustee Snyder and Trustee Witt*

***No:** (none)*

***Abstain:** (none)*

***Absent:** Trustee Ackerman, Trustee Harlem and Trustee Hootkins*



**H. Proposal to Join the Marin Chapter of the California Special Districts Association (CSDA).**

*It was M/S Trustee Schulze/Trustee Davis to adopt Resolution 2020/21-06 requesting membership in the Marin County Special Districts Association.*

*Motion passed with a roll call vote:*

*Ayes:, Trustee Benediktsson, Trustee Bloom, Trustee Davis, Trustee Deicke, Trustee Ettl, Trustee Gallian, Trustee Khush, Trustee McCaffery, Trustee Naythons, Trustee Pigoni, Trustee Predovich, Trustee Rich, Trustee Rowland, Trustee Schulze, Trustee Siwy, Trustee Snyder and Trustee Witt*

*No: (none)*

*Abstain: (none)*

*Absent: Trustee Ackerman, Trustee Harlem and Trustee Hootkins*

**8. COMMITTEE & STAFF REPORTS**

No committee or staff reports.

**9. MANAGER'S REPORT**

*Manager Smith and Assistant Manager Hawk offered to answer any questions pertaining to their written reports. (Manager's and Assistant Manager's reports were included in the January Board packet)*

**10. WRITTEN COMMUNICATIONS**

No written communications.

**11. OPEN TIME FOR BOARD OR STAFF COMMENTS**

Trustee Schulze recognized Trustee Pigoni for her contributions to the District while serving as the Board President.

Trustee Gallian echoed Trustee Schulze sentiments. She also added that President Harlem wanted the Board to know that the next Board meeting will be held in March and an Executive Committee meeting will be held in February.

**12. ADJOURNMENT**

There being no further business to come before the Board, it was M/S Trustee Davis/Trustee Schulze to adjourn the meeting at 8:32 pm.

\_\_\_\_\_  
*District Representative*  
*MSMVCD*

\_\_\_\_\_  
*Date of Approval*

\_\_\_\_\_  
*Trustee*  
*MSMVCD Board of Trustees*

\_\_\_\_\_  
*Date of Approval*

Marin/Sonoma Mosquito & Vector Control District  
 Fulltime Payroll  
 1/1-1/15/21

Check/Voucher	Check Type	Check Date	Employee Id	Employee Name	Net Amount	Dir Dep
1360	Regular	1/15/2021	114	Crayne, Jennifer M	3,128.88	3,128.88
1361	Regular	1/15/2021	83	Delsid, Paula A	160.34	160.34
1362	Regular	1/15/2021	87	Smith, Philip D	5,715.81	5,715.81
1363	Regular	1/15/2021	81	Williams, Dawn A	2,083.01	2,083.01
1364	Regular	1/15/2021	60	Brooks, Sarah M	1,517.52	1,517.52
1365	Regular	1/15/2021	64	Holt, Kristen A	3,075.31	3,075.31
1366	Regular	1/15/2021	118	Liebman, Kelly A	3,353.39	3,353.39
1367	Regular	1/15/2021	115	Ball, Bradley A	2,264.46	2,264.46
1368	Regular	1/15/2021	62	Beardsley, Kevin G	1,551.85	1,551.85
1369	Regular	1/15/2021	86	Beck, David G	2,755.45	2,755.45
1370	Regular	1/15/2021	26	Cole, Michael S	3,111.75	3,111.75
1371	Regular	1/15/2021	76	Engh, Eric S	3,080.13	3,080.13
1372	Regular	1/15/2021	55	Hawk, Erik T	4,268.44	4,268.44
1373	Regular	1/15/2021	93	Karinen, Kasey L	2,411.23	2,411.23
1374	Regular	1/15/2021	48	Leslie, Daniel W	3,076.24	3,076.24
1375	Regular	1/15/2021	74	Miller, Steven L	2,741.32	2,741.32
1376	Regular	1/15/2021	63	Mohrman Jr, John C	2,795.68	2,795.68
1377	Regular	1/15/2021	52	Morton, Robert D	2,664.31	2,664.31
1378	Regular	1/15/2021	61	Nadale, Marc A	2,929.93	2,929.93
1379	Regular	1/15/2021	96	Newman, Jared K	2,454.46	2,454.46
1380	Regular	1/15/2021	34	Ohlinger, Bruce R	2,617.52	2,617.52
1381	Regular	1/15/2021	58	Petersen, Jeffery R	2,816.73	2,816.73
1382	Regular	1/15/2021	67	Picinich, Nick A	9,918.74	9,918.74
1383	Regular	1/15/2021	40	Reed, Nathen C	3,615.89	3,615.89
1384	Regular	1/15/2021	53	Russo Jr, Anthony J	2,875.08	2,875.08
1385	Regular	1/15/2021	45	Sequeira, Jason A	3,159.17	3,159.17
1386	Regular	1/15/2021	106	Smith, James L	2,565.49	2,565.49
1387	Regular	1/15/2021	68	Tescalco, Joseph A	1,600.37	1,600.37
1388	Regular	1/15/2021	56	Thomas-Nett, Teresa A	2,562.81	2,562.81
1389	Regular	1/15/2021	120	Tyner, Keith W	2,329.70	2,329.70
1390	Regular	1/15/2021	54	Wells, Michael L	2,695.92	2,695.92
1391	Regular	1/15/2021	104	McGovern, Robert A	3,262.50	3,262.50
1392	Regular	1/15/2021	37	Sequeira, Nizza N	3,053.00	3,053.00

**Totals for Payroll Checks**      **33 Items**      **98,212.43**      **98,212.43**

**Summary**

Check Type	Count	Net Amount	Dir Dep
Regular	33	98,212.43	98,212.43
<b>Totals</b>	<b>33</b>	<b>98,212.43</b>	<b>98,212.43</b>

**Report Totals**

Check Type	Count	Net Amount	Dir Dep
Regular	33	98,212.43	98,212.43
<b>Totals</b>	<b>33</b>	<b>98,212.43</b>	<b>98,212.43</b>

Marin/Sonoma Mosquito & Vector Control District  
 Full Time Payroll  
 January 16-31, 2021

Check/Voucher	Check Type	Check Date	Employee Id	Employee Name	Net Amount	Dir Dep
1397	Regular	1/29/2021	114	Crayne, Jennifer M	3,128.88	3,128.88
1398	Regular	1/29/2021	83	Delsid, Paula A	566.07	566.07
1399	Regular	1/29/2021	87	Smith, Philip D	5,715.81	5,715.81
1400	Regular	1/29/2021	81	Williams, Dawn A	2,083.01	2,083.01
1401	Regular	1/29/2021	60	Brooks, Sarah M	1,205.36	1,205.36
1402	Regular	1/29/2021	64	Holt, Kristen A	3,075.31	3,075.31
1403	Regular	1/29/2021	118	Liebman, Kelly A	3,353.39	3,353.39
1404	Regular	1/29/2021	115	Ball, Bradley A	2,449.62	2,449.62
1405	Regular	1/29/2021	62	Beardsley, Kevin G	1,551.85	1,551.85
1406	Regular	1/29/2021	86	Beck, David G	2,755.45	2,755.45
1407	Regular	1/29/2021	26	Cole, Michael S	3,111.75	3,111.75
1408	Regular	1/29/2021	76	Engh, Eric S	3,080.13	3,080.13
1409	Regular	1/29/2021	55	Hawk, Erik T	4,268.44	4,268.44
1410	Regular	1/29/2021	93	Karinen, Kasey L	2,411.23	2,411.23
1411	Regular	1/29/2021	48	Leslie, Daniel W	3,076.24	3,076.24
1412	Regular	1/29/2021	74	Miller, Steven L	2,741.32	2,741.32
1413	Regular	1/29/2021	63	Mohrman Jr, John C	2,795.68	2,795.68
1414	Regular	1/29/2021	52	Morton, Robert D	2,664.31	2,664.31
1415	Regular	1/29/2021	61	Nadale, Marc A	2,929.93	2,929.93
1416	Regular	1/29/2021	96	Newman, Jared K	2,454.46	2,454.46
1417	Regular	1/29/2021	34	Ohlinger, Bruce R	2,617.52	2,617.52
1418	Regular	1/29/2021	58	Petersen, Jeffery R	2,816.73	2,816.73
1419	Regular	1/29/2021	40	Reed, Nathen C	3,222.14	3,222.14
1420	Regular	1/29/2021	53	Russo Jr, Anthony J	2,875.08	2,875.08
1421	Regular	1/29/2021	45	Sequeira, Jason A	3,159.17	3,159.17
1422	Regular	1/29/2021	106	Smith, James L	2,565.49	2,565.49
1423	Regular	1/29/2021	68	Tescalco, Joseph A	1,600.37	1,600.37
1424	Regular	1/29/2021	56	Thomas-Nett, Teresa A	2,562.81	2,562.81
1425	Regular	1/29/2021	120	Tyner, Keith W	2,329.70	2,329.70
1426	Regular	1/29/2021	54	Wells, Michael L	2,695.92	2,695.92
1427	Regular	1/29/2021	104	McGovern, Robert A	3,262.50	3,262.50
1428	Regular	1/29/2021	37	Sequeira, Nizza N	3,053.00	3,053.00

**Totals for Payroll Checks**      **32 Items**      **88,178.67**      **88,178.67**  
**Summary**

Check Type	Count	Net Amount	Dir Dep
Regular	32	88,178.67	88,178.67
<b>Totals</b>	<b>32</b>	<b>88,178.67</b>	<b>88,178.67</b>

**Report Totals**

Check Type	Count	Net Amount	Dir Dep
Regular	32	88,178.67	88,178.67
<b>Totals</b>	<b>32</b>	<b>88,178.67</b>	<b>88,178.67</b>

Account	Date	Amount	Check	Description
H 7487	01/07/2021	5,000.00	806455036	ALDRICH NETWORK CONSULTING
H 7487	01/07/2021	630.36	806455037	ALDRICH NETWORK CONSULTING
H 7487	01/07/2021	100.00	806455038	AMERICAN TOW SERVICE
H 7487	01/07/2021	6,200.80	806455039	ARGO ADVENTURE/LIEWER
H 7487	01/07/2021	114.07	806455040	AT & T
H 7487	01/07/2021	876.41	806455041	BOLT
H 7487	01/07/2021	539,750.00	806455042	CALPERS
H 7487	01/07/2021	24,867.73	806455043	CALPERS 457 PLAN
H 7487	01/07/2021	1,987.30	806455044	CINTAS CORPORATION
H 7487	01/07/2021	71.14	806455045	COMPLETE WELDERS SUPPLY, INC.
H 7487	01/07/2021	48.50	806455046	CONCENTRA OCCUPATIONAL HEALTH CNTRS
H 7487	01/07/2021	3,491.34	806455047	DELTA DENTAL OF CALIFORNIA
H 7487	01/07/2021	67.48	806455048	FISHER SCIENTIFIC
H 7487	01/07/2021	680.07	806455049	GREAT AMERICA FINANCIAL SERVICES
H 7487	01/07/2021	265.86	806455050	THE HARTFORD
H 7487	01/07/2021	139.73	806455051	HOME DEPOT CREDIT SERVICES
H 7487	01/07/2021	4,826.00	806455052	LIEBERT CASSIDY WHITMORE
H 7487	01/07/2021	5.17	806455053	LOWE'S BUSINESS ACCOUNT
H 7487	01/07/2021	250.00	806455054	NAJTECH, LLC
H 7487	01/07/2021	3,024.74	806455055	NATIONWIDE TRUST COMPANY, FSB
H 7487	01/07/2021	1,949.59	806455056	NORTH BAY PETROLEUM
H 7487	01/07/2021	250.00	806455057	QUADIENT FINANCE USA, INC.
H 7487	01/07/2021	30.01	806455058	REDWOOD LOCK LLC
H 7487	01/07/2021	76.65	806455059	RELIABLE HARDWARE AND STEEL CO.
H 7487	01/07/2021	378.09	806455060	SANTA ROSA AUTO PARTS
H 7487	01/07/2021	2,509.68	806455061	SEBASTOPOL BEARING & HYDRAULIC
H 7487	01/07/2021	103.00	806455062	SONOMA MEDIA INVESTMENTS, LLC
H 7487	01/07/2021	3,604.50	806455063	SONOMA MEDIA GROUP
H 7487	01/07/2021	368.35	806455064	STROUPE PETROLEUM MAINTENANCE, INC.
H 7487	01/07/2021	629.16	806455065	TASC
H 7487	01/07/2021	827.31	806455066	TEAMSTERS LOCAL UNION NO. 856 HEALT
H 7487	01/07/2021	2,282.69	806455067	VERIZON WIRELESS
H 7487	01/07/2021	861.89	806455068	VISION SERVICE PLAN (CA)
Total		606,267.62		
Count		33		

A/P 1.07.21

During the signing of these checks  
all supporting documents were provided

Signature:   
Signature: 

Account	Date	Amount	Check	Description
H 7487	01/20/2021	366.47	806455069	ADAPCO, INC.
H 7487	01/20/2021	1,279.14	806455070	AFLAC
H 7487	01/20/2021	5,000.00	806455071	ALDRICH NETWORK CONSULTING
H 7487	01/20/2021	254.38	806455072	ALDRICH NETWORK CONSULTING
H 7487	01/20/2021	1,395.50	806455073	BEST BEST & KRIEGER, LLC.
H 7487	01/20/2021	1,154.93	806455074	BOLT
H 7487	01/20/2021	179.85	806455075	BRODIE'S TIRE & BRAKE INC.
H 7487	01/20/2021	544.00	806455076	CAGWIN & DORWARD
H 7487	01/20/2021	5,367.73	806455077	CALPERS 457 PLAN
H 7487	01/20/2021	22,080.00	806455078	CHARLES LEON WILLIAMS CONSTRUCTION
H 7487	01/20/2021	1,411.51	806455079	CINTAS CORPORATION
H 7487	01/20/2021	2,089.04	806455080	CITY OF COTATI
H 7487	01/20/2021	155.05	806455081	COMCAST BUSINESS
H 7487	01/20/2021	18,708.53	806455082	COUNTY OF MARIN
H 7487	01/20/2021	1,470.00	806455083	DIVERSIFIED LABRATORY REPAIR
H 7487	01/20/2021	20,000.00	806455084	EVERBRIDGE INC.
H 7487	01/20/2021	2,802.89	806455085	G & C AUTOBODY
H 7487	01/20/2021	56,759.36	806455086	KAISER FOUNDATION HEALTH PLAN
H 7487	01/20/2021	350.00	806455087	KASEY KARINEN
H 7487	01/20/2021	2,010.00	806455088	LIEBERT CASSIDY WHITMORE
H 7487	01/20/2021	270.94	806455089	LIFE TECHNOLOGIES CORPORATION
H 7487	01/20/2021	118,607.13	806455090	MARIN COUNTY EMPLOYEES RETIREMENT A
H 7487	01/20/2021	50.00	806455091	MARIN INDEPENDENT JOURNAL
H 7487	01/20/2021	989.54	806455092	MITEL
H 7487	01/20/2021	3,024.74	806455093	NATIONWIDE TRUST COMPANY, FSB
H 7487	01/20/2021	6,687.00	806455094	NORTH BAY COMMERCIAL SERVICES INC.
H 7487	01/20/2021	1,234.18	806455095	NORTH BAY PETROLEUM
H 7487	01/20/2021	167.83	806455096	OFFICE DEPOT BUSINESS CREDIT
H 7487	01/20/2021	26.29	806455097	P.G. & E.
H 7487	01/20/2021	3,911.86	806455098	P.G. & E.
H 7487	01/20/2021	1,450.00	806455099	PATRICK VON ELM
H 7487	01/20/2021	340.32	806455100	PREFERRED ALLIANCE, INC.
H 7487	01/20/2021	231.03	806455101	RECOLOGY SONOMA MARIN
H 7487	01/20/2021	1,642.50	806455102	RICHARD A. SANCHEZ
H 7487	01/20/2021	713.92	806455103	SANTA ROSA AUTO PARTS
H 7487	01/20/2021	5.46	806455104	SEBASTOPOL BEARING & HYDRAULIC
H 7487	01/20/2021	283.50	806455105	SONOMA MEDIA INVESTMENTS, LLC
H 7487	01/20/2021	629.16	806455106	TASC
H 7487	01/20/2021	8,678.38	806455107	US BANK
H 7487	01/20/2021	1,844.01	806455108	VANTAGEPOINT TRANSFER AGENTS-803673
H 7487	01/20/2021	200.00	806455109	DAWN WILLIAMS
Total		294,366.17		
Count		41		

A/P 1.20.21

During the signing of these checks  
all supporting documents were provided.

Signature: *Amara Davis*  
Signature: *DSM/2*

**Marin/Sonoma Mosquito & Vector Control District**  
**Full Time Payroll**  
**2/1-2/15/21**

Check/Voucher	Check Type	Check Date	Employee Id	Employee Name	Net Amount	Dir Dep
1434	Regular	2/12/2021	114	Crayne, Jennifer M	3,128.88	3,128.88
1435	Regular	2/12/2021	83	Delsid, Paula A	898.89	898.89
1436	Regular	2/12/2021	87	Smith, Philip D	5,715.81	5,715.81
1437	Regular	2/12/2021	81	Williams, Dawn A	2,083.01	2,083.01
1438	Regular	2/12/2021	60	Brooks, Sarah M	3,149.27	3,149.27
1439	Regular	2/12/2021	64	Holt, Kristen A	3,075.31	3,075.31
1440	Regular	2/12/2021	118	Liebman, Kelly A	3,353.39	3,353.39
1441	Regular	2/12/2021	115	Ball, Bradley A	2,359.50	2,359.50
1442	Regular	2/12/2021	62	Beardsley, Kevin G	1,678.41	1,678.41
1443	Regular	2/12/2021	86	Beck, David G	2,755.45	2,755.45
1444	Regular	2/12/2021	26	Cole, Michael S	3,111.75	3,111.75
1445	Regular	2/12/2021	76	Engh, Eric S	3,080.13	3,080.13
1446	Regular	2/12/2021	55	Hawk, Erik T	4,268.44	4,268.44
1447	Regular	2/12/2021	93	Karinen, Kasey L	2,411.23	2,411.23
1448	Regular	2/12/2021	48	Leslie, Daniel W	3,105.37	3,105.37
1449	Regular	2/12/2021	74	Miller, Steven L	2,753.42	2,753.42
1450	Regular	2/12/2021	63	Mohrman Jr, John C	2,919.27	2,919.27
1451	Regular	2/12/2021	52	Morton, Robert D	2,664.31	2,664.31
1452	Regular	2/12/2021	61	Nadale, Marc A	2,929.93	2,929.93
1453	Regular	2/12/2021	96	Newman, Jared K	2,454.46	2,454.46
1454	Regular	2/12/2021	34	Ohlinger, Bruce R	2,617.52	2,617.52
1455	Regular	2/12/2021	58	Petersen, Jeffery R	2,816.73	2,816.73
1456	Regular	2/12/2021	40	Reed, Nathen C	3,222.14	3,222.14
1457	Regular	2/12/2021	53	Russo Jr, Anthony J	2,875.08	2,875.08
1458	Regular	2/12/2021	45	Sequeira, Jason A	3,159.17	3,159.17
1459	Regular	2/12/2021	106	Smith, James L	2,565.49	2,565.49
1460	Regular	2/12/2021	68	Tescalco, Joseph A	1,600.37	1,600.37
1461	Regular	2/12/2021	56	Thomas-Nett, Teresa A	2,562.81	2,562.81
1462	Regular	2/12/2021	120	Tyner, Keith W	2,329.70	2,329.70
1463	Regular	2/12/2021	54	Wells, Michael L	2,695.92	2,695.92
1464	Regular	2/12/2021	104	McGovern, Robert A	3,262.50	3,262.50
1465	Regular	2/12/2021	37	Sequeira, Nizza N	3,053.00	3,053.00

<b>Totals for Payroll Checks</b>	<b>32 Items</b>		<b>90,656.66</b>	<b>90,656.66</b>
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**Summary**

	Check Type	Count	Net Amount	Dir Dep
	Regular	32	90,656.66	90,656.66
	<b>Totals</b>	<b>32</b>	<b>90,656.66</b>	<b>90,656.66</b>

**Report Totals**

	Check Type	Count	Net Amount	Dir Dep
	Regular	32	90,656.66	90,656.66
	<b>Totals</b>	<b>32</b>	<b>90,656.66</b>	<b>90,656.66</b>

Marin/Sonoma Mosquito & Vector Control  
Full Time Payroll  
February 16-28, 2021

Check/Voucher	Check Type	Check Date	Employee Id	Employee Name	Net Amount	Dir Dep
1470	Regular	2/26/2021	114	Crayne, Jennifer M	3,128.88	3,128.88
1471	Regular	2/26/2021	83	Delsid, Paula A	1,399.12	1,399.12
1472	Regular	2/26/2021	87	Smith, Philip D	5,993.85	5,993.85
1473	Regular	2/26/2021	81	Williams, Dawn A	2,083.01	2,083.01
1474	Regular	2/26/2021	60	Brooks, Sarah M	3,149.27	3,149.27
1475	Regular	2/26/2021	64	Holt, Kristen A	3,075.31	3,075.31
1476	Regular	2/26/2021	118	Liebman, Kelly A	3,353.39	3,353.39
1477	Regular	2/26/2021	115	Ball, Bradley A	2,359.50	2,359.50
1478	Regular	2/26/2021	62	Beardsley, Kevin G	1,551.85	1,551.85
1479	Regular	2/26/2021	86	Beck, David G	2,755.45	2,755.45
1480	Regular	2/26/2021	26	Cole, Michael S	3,111.75	3,111.75
1481	Regular	2/26/2021	76	Engh, Eric S	3,080.13	3,080.13
1482	Regular	2/26/2021	55	Hawk, Erik T	4,268.44	4,268.44
1483	Regular	2/26/2021	93	Karinen, Kasey L	1,292.94	1,292.94
1484	Regular	2/26/2021	48	Leslie, Daniel W	3,105.37	3,105.37
1485	Regular	2/26/2021	74	Miller, Steven L	2,753.42	2,753.42
1486	Regular	2/26/2021	63	Mohrman Jr, John C	2,795.68	2,795.68
1487	Regular	2/26/2021	52	Morton, Robert D	2,664.31	2,664.31
1488	Regular	2/26/2021	61	Nadale, Marc A	2,929.93	2,929.93
1489	Regular	2/26/2021	96	Newman, Jared K	2,454.46	2,454.46
1490	Regular	2/26/2021	34	Ohlinger, Bruce R	2,617.52	2,617.52
1491	Regular	2/26/2021	58	Petersen, Jeffery R	2,816.73	2,816.73
1492	Regular	2/26/2021	40	Reed, Nathen C	3,189.58	3,189.58
1493	Regular	2/26/2021	53	Russo Jr, Anthony J	2,875.08	2,875.08
1494	Regular	2/26/2021	45	Sequeira, Jason A	3,159.17	3,159.17
1495	Regular	2/26/2021	106	Smith, James L	2,565.49	2,565.49
1496	Regular	2/26/2021	68	Tescalco, Joseph A	1,600.37	1,600.37
1497	Regular	2/26/2021	56	Thomas-Nett, Teresa A	2,562.81	2,562.81
1498	Regular	2/26/2021	120	Tyner, Keith W	2,329.70	2,329.70
1499	Regular	2/26/2021	54	Wells, Michael L	2,695.92	2,695.92
1500	Regular	2/26/2021	104	McGovern, Robert A	3,262.50	3,262.50
1501	Regular	2/26/2021	37	Sequeira, Nizza N	3,053.00	3,053.00

<b>Totals for Payroll Checks</b>	<b>32 Items</b>			<b>90,033.93</b>	<b>90,033.93</b>
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	Check Type	Count	Net Amount	Dir Dep
	Regular	32	90,033.93	90,033.93
	<b>Totals</b>	<b>32</b>	<b>90,033.93</b>	<b>90,033.93</b>

**Report Totals**

	Check Type	Count	Net Amount	Dir Dep
	Regular	32	90,033.93	90,033.93
	<b>Totals</b>	<b>32</b>	<b>90,033.93</b>	<b>90,033.93</b>

Account	Date	Amount	Check	Description
H 7487	02/03/2021	114.87	806455110	AT & T
H 7487	02/03/2021	379.00	806455111	BAY AREA AIR QUALITY
H 7487	02/03/2021	383.04	806455112	KEVIN BEARDSLEY
H 7487	02/03/2021	1,176.36	806455113	BRODIE'S TIRE & BRAKE INC.
H 7487	02/03/2021	5,367.73	806455114	CALPERS 457 PLAN
H 7487	02/03/2021	1,200.00	806455115	CHARLES LEON WILLIAMS CONSTRUCTION
H 7487	02/03/2021	1,367.79	806455116	CINTAS CORPORATION
H 7487	02/03/2021	88.62	806455117	COMPLETE WELDERS SUPPLY, INC.
H 7487	02/03/2021	3,441.80	806455118	DELTA DENTAL OF CALIFORNIA
H 7487	02/03/2021	3,046.96	806455119	FRONTIER PRECISION, INC.
H 7487	02/03/2021	373.47	806455120	GRAINGER
H 7487	02/03/2021	680.07	806455121	GREAT AMERICA FINANCIAL SERVICES
H 7487	02/03/2021	257.46	806455122	THE HARTFORD
H 7487	02/03/2021	222.66	806455123	HOME DEPOT CREDIT SERVICES
H 7487	02/03/2021	95.02	806455124	JAY'S ENGRAVING & RUBBER STAMPS
H 7487	02/03/2021	2,178.76	806455125	LEADING EDGE ASSOCIATES, INC.
H 7487	02/03/2021	5,075.00	806455126	LIEBERT CASSIDY WHITMORE
H 7487	02/03/2021	3,014.75	806455127	LIFE TECHNOLOGIES CORPORATION
H 7487	02/03/2021	343.06	806455128	JOHN MOHRMAN JR.
H 7487	02/03/2021	3,024.74	806455129	NATIONWIDE TRUST COMPANY, FSB
H 7487	02/03/2021	363.44	806455130	REDWOOD LOCK LLC
H 7487	02/03/2021	761.80	806455131	REYFF ELECTRIC INC.
H 7487	02/03/2021	4,285.97	806455132	SAFETY KLEEN CORP
H 7487	02/03/2021	29.18	806455133	SANTA ROSA AUTO PARTS
H 7487	02/03/2021	64.45	806455134	SEBASTOPOL BEARING & HYDRAULIC
H 7487	02/03/2021	103.00	806455135	SONOMA MEDIA INVESTMENTS, LLC
H 7487	02/03/2021	103.00	806455136	SONOMA MEDIA INVESTMENTS, LLC
H 7487	02/03/2021	629.15	806455137	TASC
H 7487	02/03/2021	827.31	806455138	TEAMSTERS LOCAL UNION NO. 856 HEALT
H 7487	02/03/2021	7,619.60	806455139	VERIZON WIRELESS
H 7487	02/03/2021	785.20	806455140	VISION SERVICE PLAN (CA)
Total		47,403.26		
Count		31		

A/P 2.03.21

During the signing of these checks  
all supporting documents were provided.

Signature:   
Signature: 



Account	Date	Amount	Check	Description
H 7487	02/17/2021	1,279.14	806455141	AFLAC
H 7487	02/17/2021	168.93	806455142	AIRGAS USA, LLC
H 7487	02/17/2021	5,000.00	806455143	ALDRICH NETWORK CONSULTING
H 7487	02/17/2021	7,770.19	806455144	ALDRICH NETWORK CONSULTING
H 7487	02/17/2021	1,192.50	806455145	BEST BEST & KRIEGER, LLC.
H 7487	02/17/2021	6,422.50	806455146	BLACK MOUNTAIN SOFTWARE
H 7487	02/17/2021	996.51	806455147	BRODIE'S TIRE & BRAKE INC.
H 7487	02/17/2021	975.00	806455148	PAM BUTTERFIELD PT
H 7487	02/17/2021	544.00	806455149	CAGWIN & DORWARD
H 7487	02/17/2021	5,367.73	806455150	CALPERS 457 PLAN
H 7487	02/17/2021	1,063.30	806455151	CINTAS CORPORATION
H 7487	02/17/2021	1,898.97	806455152	CLARKE MOSQUITO CONTROL PRODUCTS, I
H 7487	02/17/2021	155.05	806455153	COMCAST BUSINESS
H 7487	02/17/2021	19,752.32	806455154	COUNTY OF MARIN
H 7487	02/17/2021	13,267.33	806455155	ES OPCO USA LLC
H 7487	02/17/2021	13,631.28	806455156	GOLDENSTATE LUMBER- SANTA ROSA
H 7487	02/17/2021	452.47	806455157	HERC RENTALS INC.
H 7487	02/17/2021	43.75	806455158	ICMA RETIREMENT CORPORATION
H 7487	02/17/2021	815.63	806455159	INNOVATIVE SCREEN PRINTING
H 7487	02/17/2021	53,786.56	806455160	KAISER FOUNDATION HEALTH PLAN
H 7487	02/17/2021	275.14	806455161	LIFE TECHNOLOGIES CORPORATION
H 7487	02/17/2021	121,212.47	806455162	MARIN COUNTY EMPLOYEES RETIREMENT A
H 7487	02/17/2021	50.00	806455163	MARIN INDEPENDENT JOURNAL
H 7487	02/17/2021	975.00	806455164	MAZE & ASSOCIATES
H 7487	02/17/2021	990.65	806455165	MITEL
H 7487	02/17/2021	5,350.00	806455166	MUNICIPAL RESOURCE GROUP, LLC
H 7487	02/17/2021	3,064.74	806455167	NATIONWIDE TRUST COMPANY, FSB
H 7487	02/17/2021	5,676.48	806455168	NORTH BAY PETROLEUM
H 7487	02/17/2021	367.41	806455169	NORTH MARIN WATER DISTRICT
H 7487	02/17/2021	50.80	806455170	OFFICE DEPOT BUSINESS CREDIT
H 7487	02/17/2021	23.82	806455171	P.G. & E.
H 7487	02/17/2021	3,280.38	806455172	P.G. & E.
H 7487	02/17/2021	1,500.00	806455173	PATRICK VON ELM
H 7487	02/17/2021	1,293.54	806455174	PETALUMA MINUTEMAN PRESS
H 7487	02/17/2021	106.00	806455175	PREFERRED ALLIANCE, INC.
H 7487	02/17/2021	355.66	806455176	RECOLOGY SONOMA MARIN
H 7487	02/17/2021	1,642.50	806455177	RICHARD A. SANCHEZ
H 7487	02/17/2021	279.46	806455178	SANTA ROSA AUTO PARTS
H 7487	02/17/2021	265.73	806455179	SEBASTOPOL BEARING & HYDRAULIC
H 7487	02/17/2021	283.50	806455180	SONOMA MEDIA INVESTMENTS, LLC
H 7487	02/17/2021	629.16	806455181	TASC
H 7487	02/17/2021	3,393.00	806455182	TROPE GROUP
H 7487	02/17/2021	7,195.72	806455183	US BANK
H 7487	02/17/2021	2,107.44	806455184	VANTAGEPOINT TRANSFER AGENTS-803673
Total		294,951.76		
Count		44		

A/P 2.17.21

During the signing of these checks  
all supporting documents were provided.

Signature: *Amara Davis*

Signature: *[Signature]*

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# Marin/Sonoma Mosquito and Vector Control District



## 2020 Vector Surveillance Report

595 Helman Lane, Cotati, CA 94931

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(707) 285—2200; [www.msquito.org](http://www.msquito.org)

# LABORATORY PROGRAM OVERVIEW

## Arbovirus Surveillance Program

The Marin/Sonoma Mosquito and Vector Control District (the District) maintains a multifaceted surveillance program for arboviruses, including West Nile virus (WNV), St. Louis encephalitis virus (SLEV), and western equine encephalitis virus (WEEV). The District utilizes both active and passive surveillance techniques to detect and quantify the density of mosquito populations and the intensity of virus transmission in the region. This information is then used to predict areas of elevated disease risk and direct critical vector control interventions to effectively and efficiently protect human health.

Since 2014, the District has conducted enhanced surveillance to detect invasive *Aedes* mosquito species. In addition to larval and adult surveillance for the invasive *Aedes aegypti* and *Aedes albopictus*, the District also investigates travel-related cases of chikungunya, dengue and Zika viruses. All traps set around cases are checked for the presence of *Aedes* adult mosquitoes. All *Culex* adult mosquitoes collected in these areas are tested for all three viruses, though there is no evidence that local *Culex* spp. can transmit these viruses. As of 2020, no invasive *Aedes* mosquitoes have been identified in Marin or Sonoma counties.

### Increased invasive *Aedes* surveillance

*During the 2019 season, the invasive species Aedes aegypti was found closer to our district borders than ever before. In response, our laboratory increased surveillance for these mosquitoes, particularly in the eastern portion of Sonoma County. The District set out additional BG Sentinel traps, which are specifically designed to attract and catch these aggressive, day-biting mosquitoes. Weekly collections this season thankfully showed no evidence of this new species. However, our neighboring counties weren't quite as lucky. In 2020, this species was detected for the first time in Yolo, Sutter, Butte and Shasta counties. The District will continue to survey all areas where this species might be found, but we need your help! Call and let us know if you're being bitten by mosquitoes, and make sure to let us know if it's during the daytime!*



# LABORATORY PROGRAM OVERVIEW

## Tick and Tick-Borne Disease Surveillance Program

Throughout the year, District laboratory staff collect ticks of different species and life stages from trails in state, regional, and local parks and recreation areas around Marin and Sonoma counties. Ticks are collected by dragging a one meter square flannel flag on the ground and in the vegetation along trails. Collected specimens are identified and separated by species, sex and life stages to be tested for pathogens when appropriate. The three main species collected by the District are *Dermacentor occidentalis* (the Pacific Coast tick), *Dermacentor variabilis* (the American dog tick) and *Ixodes pacificus* (the western black-legged tick).

*Ixodes pacificus* is the common tick species in the area that can transmit *Borrelia burgdorferi*, the bacteria that causes Lyme disease. Adults and nymphs of this species are tested for this pathogen, as well as *Borrelia miyamotoi*, which is a bacteria that causes a relapsing fever-type illness. To date, no human cases of *B. miyamotoi* have been reported in California, but the bacteria has been found in *I. pacificus* ticks throughout the state, including in Marin and Sonoma counties. *I. pacificus* also transmits the human pathogen *Anaplasma phagocytophilum*. In 2020, the District collaborated with state health to test a subset of ticks for this bacteria.



District staff checking for ticks



5 male and 4 female  
*Ixodes pacificus* on a flag

# EXECUTIVE SUMMARY

## Arbovirus Surveillance Program

In 2020, 43 mosquito pools from Marin and 345 pools from Sonoma were tested for WNV, SLEv, and WEEv. No virus was detected in any mosquito pools\* in either county. A total of 14 dead birds were reported, of which 10 were viable for WNV testing. One (1) bird from San Rafael in Marin County tested positive for WNV.

In 2020, local health departments informed the District of two (2) travel-associated probable cases of arthropod-borne diseases in Marin County and nine (9) in Sonoma. All mosquito pools collected during disease follow-ups were tested for chikungunya, dengue and Zika viruses, as well as WNV, SLEv and WEEv. All pools tested negative for all viruses.

### WNV detection 2004—2020

Year	Humans	Dead Birds	Mosquito Pools*	Sentinel Chickens
2004	0	72	1	0
2005	1	92	0	0
2006	1	29	5	0
2007	1	23	1	0
2008	0	12	2	0
2009	0	N/A	0	0
2010	0	N/A	0	0
2011	0	N/A	2	0
2012	0	28	3	1
2013	2	46	5	3
2014	0	43	12	3
2015	1	14	12	0
2016	0	13	2	N/A
2017	0	6	1	N/A
2018	0	0	1	N/A
2019	0	0	0	N/A
<b>2020</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>N/A</b>

\*N/A indicates that testing was not conducted

### Mosquito pools by species

Marin County	
Species	Number of Pools
<i>Culex erythrothorax</i>	14
<i>Culex pipiens</i>	15
<i>Culex stigmatosoma</i>	5
<i>Culex tarsalis</i>	9
<i>Culex thriambus</i>	0
<b>Total</b>	<b>43</b>
Sonoma County	
Species	Number of Pools
<i>Culex erythrothorax</i>	145
<i>Culex pipiens</i>	44
<i>Culex stigmatosoma</i>	94
<i>Culex tarsalis</i>	61
<i>Culex thriambus</i>	1
<b>Total</b>	<b>345</b>

### West Nile Virus Dead Bird Hotline

*The California Department of Public Health runs a hotline that residents from any county in the state can call when they find a dead bird. If you find one, please let them know! When birds are the right species and in the right condition, the District can have them tested for WNV. Visit [westnile.ca.gov](http://westnile.ca.gov) for more info.*

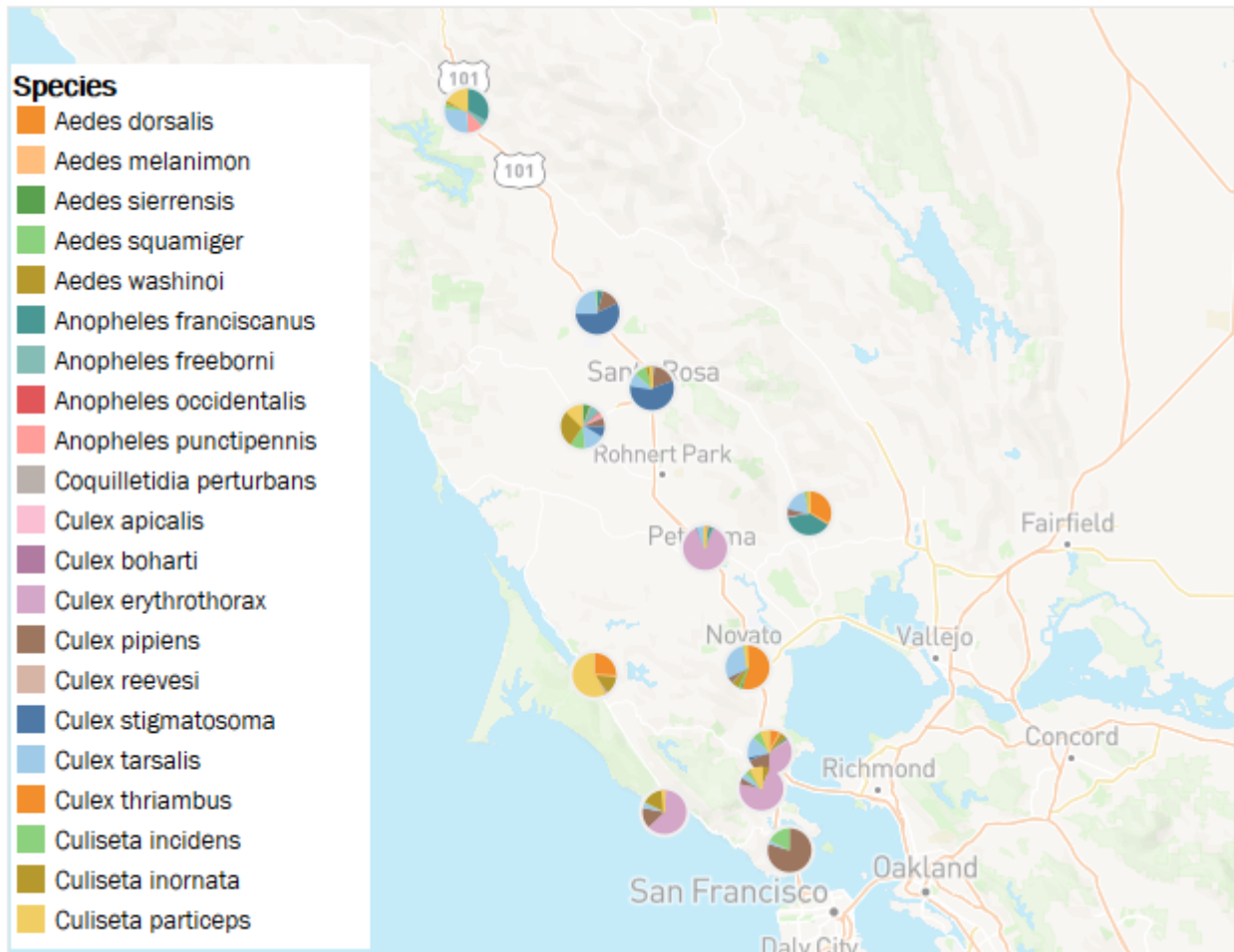


\*Female mosquitoes of the same species collected in the same trap are pooled (up to 50 per tube) to be tested for the presence of WNV, SLEv and WEEv.

# ADULT MOSQUITO DISTRIBUTION

## Arbovirus Surveillance Program

***DID YOU KNOW:*** Even though most of our 23 species of mosquitoes are found throughout Marin and Sonoma counties, some are more prevalent in certain areas than others! Here we can see the number of adults of each species that were collected in certain cities in Marin and Sonoma counties in 2020. Notice any trends? You might see that *Culex erythrothorax* was quite abundant in Petaluma, whereas *Culex stigmatosoma* was the prevailing species in Santa Rosa during the 2020 season. Knowing this, we can target larval sources of these different species in different regions.




# EXECUTIVE SUMMARY

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## Tick and Tick-Borne Disease Surveillance Program

In 2020, staff from the District sampled trails in state parks, regional parks, and the Marin Municipal Water District (MMWD) lands. A total of 20 sampling events occurred during the season, resulting in 1277 adult *Ixodes pacificus* and 58 *I. pacificus* nymphs being collected for testing. While lab staff were able to adapt to the changing regulations of 2020, surveillance was postponed from mid-March through May. This allowed the District and the parks time to develop appropriate COVID-19 site specific protection plans. Unfortunately this time period is also when nymphs of *I. pacificus* are most prevalent. For this reason, District staff did not collect as many nymphs in 2020 as have been collected in previous years. They are looking forward to increasing surveillance in the spring of 2021.

### 2020 Overview

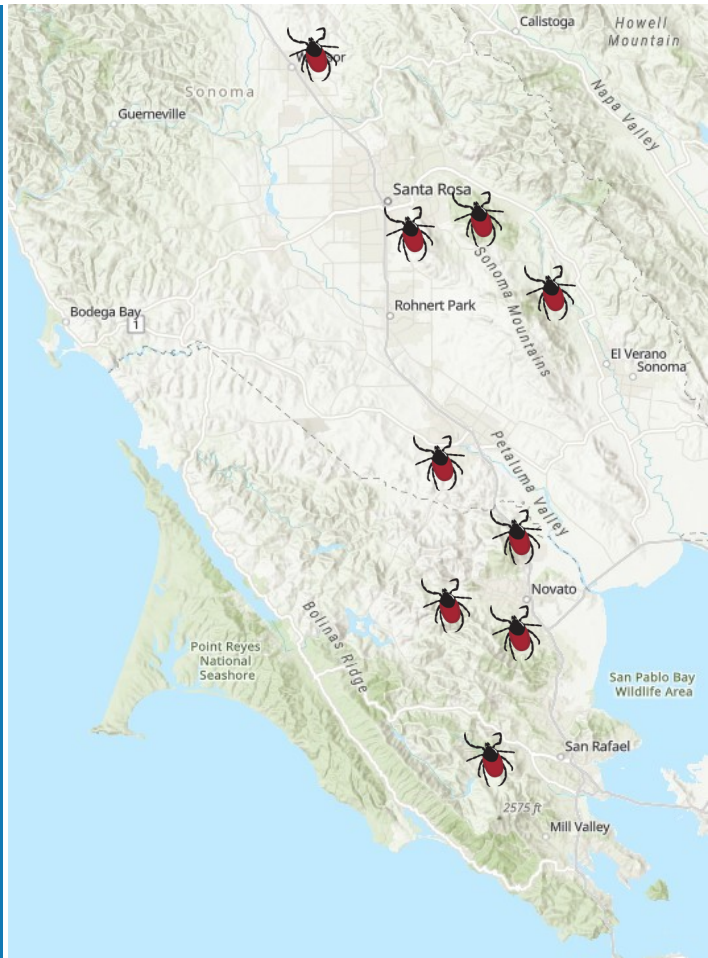


#### Parks Sampled

10 pools of adult ticks and 2 nymphs from Marin County, and 5 pools of adult ticks from Sonoma County tested positive for *Borrelia burgdorferi* (pgs 7-8)

7 pools of adult ticks and 3 nymphs from Marin County, and 5 pools of adult ticks from Sonoma County tested positive for *Borrelia miyamotoi* (pgs 7-8)

44 pools of adults and 88 nymphs from Marin County collected in 2019 and 2020 were tested for *Anaplasma phagocytophilum*, in collaboration with the California Department of Public Health. 3 pools of adults and 2 nymphs tested positive for the bacteria



# 2020 ADULT TICK TESTING

## Tick and Tick-Borne Disease Surveillance program

Of the 1277 adult *Ixodes pacificus* ticks tested in 2020, 15 pools tested positive for *Borrelia burgdorferi*, giving an overall minimum infection prevalence (MIP)\* of 1.74% for Marin and Sonoma counties. The 10-year MIP for adult ticks in these counties is 1.92%.

Marin County parks and recreation areas had 10 *B. burgdorferi* positive pools out of 534 total adult ticks tested, for a MIP of 1.87%. The 10-year MIP for adult ticks in Marin County is 2.20%. Seven (7) adult tick pools tested positive for *Borrelia miyamotoi*, for a MIP 1.31%.

Sonoma County parks and recreation areas had five (5) *B. burgdorferi* positive pools out of 743 total adult ticks tested, for a MIP of 0.67%. The 10-year MIP for adult ticks in Sonoma County is 1.72%. Five (5) adult tick pools tested positive for *B. miyamotoi*, for a MIP of 0.67%.

### Marin County

Park/Trail	Adults Tested	Pools Tested	<i>Borrelia burgdorferi s.l.</i>		<i>Borrelia miyamotoi</i>	
			Pos. Pools	MIP	Pos. Pools	MIP
<b>Indian Tree OSP</b>	<b>240</b>	<b>52</b>	<b>2</b>	<b>0.83%</b>	<b>2</b>	<b>0.83%</b>
Big Trees Trail	190	41	2	1.05%	2	1.05%
Fire Road	50	11	0	0.00%	0	0.00%
<b>Indian Valley OSP</b>	<b>112</b>	<b>26</b>	<b>1</b>	<b>0.89%</b>	<b>3</b>	<b>2.68%</b>
Pacheco Road	14	4	0	0.00%	0	0.00%
Susan Alexander Trail	8	2	0	0.00%	0	0.00%
Waterfall to Susan Alexander Trail	90	20	1	1.11%	3	3.33%
<b>Marin Municipal Water District</b>	<b>164</b>	<b>34</b>	<b>4</b>	<b>2.44%</b>	<b>0</b>	<b>0.00%</b>
Alex Forman Trail	164	34	4	2.44%	0	0.00%
<b>Olompali State Park</b>	<b>18</b>	<b>5</b>	<b>3</b>	<b>16.67%</b>	<b>2</b>	<b>11.11%</b>
Loop Trail	10	3	1	10.00%	2	20.00%
Miwok Trail	8	2	2	25.00%	0	0.00%
<b>Overall</b>	<b>534</b>	<b>117</b>	<b>10</b>	<b>1.87%</b>	<b>7</b>	<b>1.31%</b>

### Sonoma County

Park/Trail	Adults Tested	Pools Tested	<i>Borrelia burgdorferi s.l.</i>		<i>Borrelia miyamotoi</i>	
			Pos. Pools	MIP	Pos. Pools	MIP
<b>Annadel SP</b>	<b>73</b>	<b>15</b>	<b>1</b>	<b>1.37%</b>	<b>2</b>	<b>2.74%</b>
Lawndale Trail	73	15	1	1.37%	2	2.74%
<b>Foothill RP</b>	<b>33</b>	<b>8</b>	<b>0</b>	<b>0.00%</b>	<b>0</b>	<b>0.00%</b>
Ravine Trail	15	4	0	0.00%	0	0.00%
Three Lakes Trail	8	2	0	0.00%	0	0.00%
Westside Trail	10	2	0	0.00%	0	0.00%
<b>Helen Putnam RP</b>	<b>158</b>	<b>35</b>	<b>1</b>	<b>0.63%</b>	<b>1</b>	<b>0.63%</b>
Filaree Trail	25	6	1	4.00%	0	0.00%
Filaree Trail/Pomo Trail	27	6	0	0.00%	1	3.70%
Pomo Trail	29	7	0	0.00%	0	0.00%
South Loop Trail	77	16	0	0.00%	0	0.00%
<b>Jack London SP</b>	<b>205</b>	<b>43</b>	<b>3</b>	<b>1.46%</b>	<b>2</b>	<b>0.98%</b>
Lake Rd/Lake Trail	88	19	1	1.14%	2	2.27%
Wolf House Ruins Trail	117	24	2	1.71%	0	0.00%
<b>Taylor Mountain RP</b>	<b>274</b>	<b>56</b>	<b>0</b>	<b>0.00%</b>	<b>0</b>	<b>0.00%</b>
Red Tail Trail	274	56	0	0.00%	0	0.00%
<b>Overall</b>	<b>743</b>	<b>157</b>	<b>5</b>	<b>0.67%</b>	<b>5</b>	<b>0.67%</b>

\*MIP—Minimum Infection Prevalence = (number of positive tick pools/total ticks tested)\*100; used when ticks are tested in pools up to 5



# 2020 NYMPHAL TICK TESTING

## Tick and Tick-Borne Disease Surveillance Program

Due to COVID-19 regulations and county shelter in place orders in 2020, District staff suspended tick surveillance in both counties beginning in March. Upon completing required site-specific COVID-19 protection plans for each county, staff were able to resume tick surveillance in June. Unfortunately, the typical *Ixodes pacificus* nymph season is March through May in northern California. Therefore this season only 58 nymphs were collected in Marin County, and none were collected in Sonoma County. District staff are looking forward to increased surveillance in the spring of 2021.

Of the 58 nymphal *I. pacificus* ticks tested in 2020, two (2) tested positive for *Borrelia burgdorferi*, giving an overall infection prevalence (IP)\* of 3.45% for Marin County. The 10-year MIP for nymphs in Marin County is 3.84%. Three (3) nymphs from Marin County tested positive for *Borrelia miyamotoi*, for an IP of 5.17%

The 10-year *B. burgdorferi* MIP for nymphs in Marin and Sonoma counties is 4.15%. The 10-year *B. burgdorferi* MIP for nymphs in Sonoma County is 4.43%^.

### Marin County

Park/Trail	Nymphs Tested	<i>Borrelia burgdorferi s.l.</i>		<i>Borrelia miyamotoi</i>	
		Pos. Pools	IP	Pos. Pools	IP
<b>Indian Tree OSP</b>	<b>2</b>	<b>0</b>	<b>0.00%</b>	<b>0</b>	<b>0.00%</b>
Big Trees Trail	2	0	0.00%	0	0.00%
<b>Indian Valley OSP</b>	<b>1</b>	<b>0</b>	<b>0.00%</b>	<b>0</b>	<b>0.00%</b>
Waterfall to Susan Alexander Trail	1	0	0.00%	0	0.00%
<b>Marin Municipal Water District</b>	<b>55</b>	<b>2</b>	<b>3.64%</b>	<b>3</b>	<b>5.45%</b>
Alex Forman Trail	55	2	3.64%	3	5.45%
<b>Overall</b>	<b>58</b>	<b>2</b>	<b>3.45%</b>	<b>3</b>	<b>5.17%</b>

\*IP—Infection Prevalence = (number of positive ticks/total ticks tested)\*100

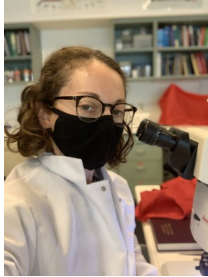
^2010 - 2019 10-year MIP is used here because no nymphs were collected in Sonoma County in 2020

## Additional Tick Testing in 2020

*In addition to the laboratory testing that the District conducted to identify *Borrelia burgdorferi* and *Borrelia miyamotoi*, staff collaborated with the California Department of Public Health, Vector-borne Disease Section (VBDS) to test a subset of samples for *Anaplasma phagocytophilum*. This bacteria causes a febrile disease called anaplasmosis. Cases of this disease are diagnosed annually in California, and sporadically in Marin and Sonoma counties. VBDS staff tested 54 nymphs and 18 pools of 87 adult *Ixodes pacificus* ticks collected by the District in 2020. District staff also provided 34 nymphs and 26 pools of 130 adult ticks collected in 2019 for analysis. Overall 2 nymphs and 3 pools of adult ticks tested positive for *A. phagocytophilum*, with one pool of adults also testing positive for *Borrelia burgdorferi*.*

# Q&A WITH THE SCIENTIFIC PROGRAMS MANAGER

## Tick and Tick-Borne Disease Surveillance Program



Meet Dr. Kelly Liebman, Scientific Programs Manager at the District! Kelly has been studying and working with vector-borne diseases for more than 15 years. With an educational and professional background in public health and entomology, she joined the District in April 2018 after working as a biologist with the California Department of Public Health, Vector-borne Disease Section. While out and about in the counties, Kelly and our lab staff are commonly asked a number of interesting questions about what we do and why we do it. Here are the answers to some of those questions.

**Q: What are you doing with that white flag? Surrendering?**

A: As part of our tick surveillance program, we go out onto public trails and monitor ticks. To do this, we drag a white cloth along the trail for about 15 steps, then check it for ticks. The flannel fabric mimics animal hide (or human skin/clothes!), so ticks that are looking for a host will grab onto the cloth. The white color makes it easier for us to spot the tiny ticks.

**Q: I have seen so many ticks this year! Is it a big tick year?**

A: This is a question that we get every year. Unfortunately we don't have any data to be able to say if there are more ticks out one year compared to another. It's important to remember that there is variability on each trail from year to year. You may see a ton of ticks one year, and then virtually none the next! This unpredictability is why we emphasize the use of personal protective measures to avoid tick bites, even in areas you think might not have ticks.

**Q: How do you protect yourself when you're out looking for ticks?**

A: We follow the same suggestions that we recommend for the public. This includes using an EPA-registered repellent, wearing light-colored clothing with long sleeves/pants, and treating clothes and boots with permethrin. While we are at the park, we do our best to stay on the trails, though this can be tricky for us these days since we do like to move out of the way to keep 6 feet apart from other visitors. Because of this we do periodic tick checks while we are collecting. When we return to the office, we change our clothes and check for ticks. For more information on preventing tick bites, please see our website at [www.msamosquito.org/tick-bite-prevention](http://www.msamosquito.org/tick-bite-prevention).

**Q: Do all ticks carry the same diseases?**

A: Not all ticks carry the same diseases. Here in Marin and Sonoma counties, the most prevalent pathogens are carried by the western black-legged tick, *Ixodes pacificus*.

**Q: How has COVID-19 impacted the tick surveillance program?**

A: A number of changes were implemented this past year to make sure that our staff was safely able to conduct our surveillance. One of the biggest changes is that we now tend to do tick surveillance independently. In previous years, you could regularly find at least two lab staff on a trail at once. Now we try to do different parks/trails, and when that's not possible we follow our new COVID-19 protocols, which include staying 6 feet apart and wearing masks. During the initial shelter in place order, we refrained from tick surveillance, as the counties and the District worked to develop a COVID-19 safety plan.

Have a question we didn't answer? Give us a call! (707) 285 - 2200

# TICK SAFETY TIPS

## Tick and Tick-Borne Disease Surveillance Program

### **Before entering tick habitat, take the following precautions**

- Consider applying an effective tick repellent to exposed skin that has one of the following EPA-registered active ingredients: DEET, picaridin, IR3535, oil of lemon eucalyptus (OLE), or para-menthane-diol (PMD).
- Consider treating clothes/personal outdoor equipment with an acaricide containing permethrin.
- Wear light-colored clothing (making it easier to spot ticks).
- Wear long pants, long sleeves, and long socks whenever possible. This makes it more difficult for the tick to get to your skin.

### **While in tick habitat**

- Stay on trails. Adult ticks are typically more abundant on uphill sides of trails.
- Avoid contact with nymphal habitats, including leaf litter, downed logs and tree trunks.
- Periodically check people and animals for ticks.

### **After exiting tick habitat**

- Check people and animals for ticks, promptly removing any that might be on clothing or skin.
- Tumble dry clothes in a dryer on high heat for 10 minutes to kill ticks.
- Shower after coming indoors and carefully check for ticks.
- Properly remove any attached ticks immediately.

### **How to properly remove a tick**

- Ideally, use tweezers to grasp the head of the tick as close to the skin as possible.
- Pull upward with steady, even pressure. DO NOT twist or jerk the tick; this can cause the mouthparts to break off and remain in the skin. If this happens, remove the mouthparts with tweezers. If you are unable to remove the mouthparts easily with clean tweezers, leave it alone and let the skin heal.
- After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol or soap and water.
- Never crush a tick with your fingers. Dispose of a live tick by putting it in alcohol, placing it in a sealed bag/container, wrapping it tightly in tape, or flushing it down the toilet.
- If redness or pain develops at the tick bite site, consult your physician.

For more information about our services and programs:

**Marin/Sonoma Mosquito and Vector Control District**

595 Helman Lane, Cotati, CA 94931

(707) 285 - 2200 [www.msquito.org](http://www.msquito.org)



# Laboratory Update

## January and February 2021

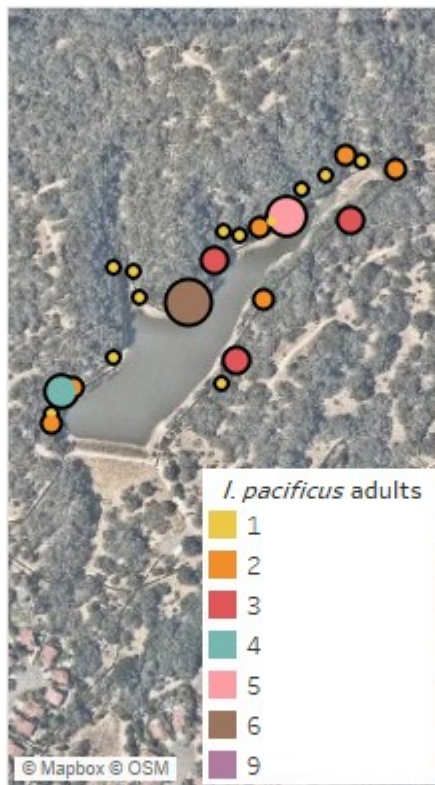
### Tick Surveillance

Each month, laboratory staff visit the Marin Municipal Water District, Annadel State Park and Foothill Regional Park. During each visit, staff walk the same pre-defined trails, stopping every 15 steps to identify, count and record the number of ticks on the flag. These ticks are then released back into the environment. This type of sampling allows us to see trends in tick abundance over time. Below is a map of where adult ticks were found at each site in February 2021, as well as information from visits in November and December 2020 and January and February 2021.

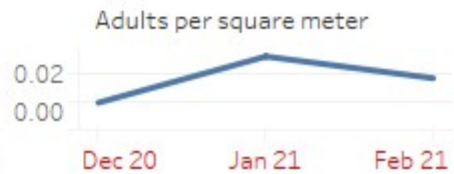
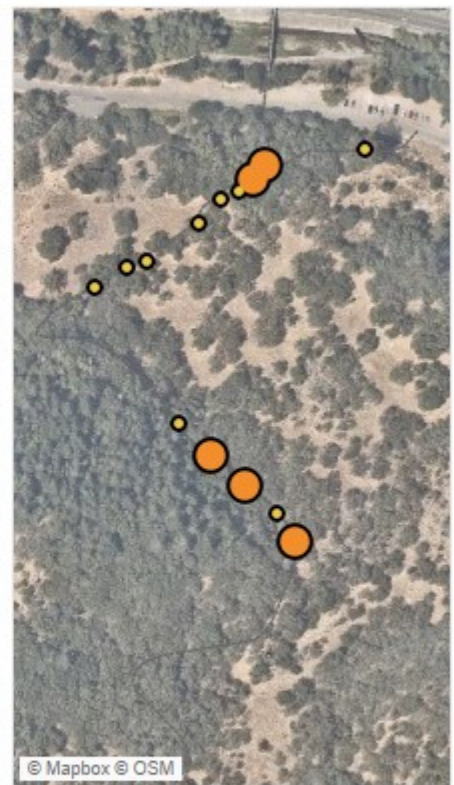
**MMWD**  
Adults Feb 2021



**Foothill RP**  
Adults Feb 2021



**Annadel SP**  
Adults Feb 2021



Additional tick surveillance occurred in January and February at Camino Alto OSP in Marin County and Foothill RP and Shiloh Ranch RP in Sonoma County. Collected ticks will be tested for *Borrelia burgdorferi* and *Borrelia miyamotoi*.



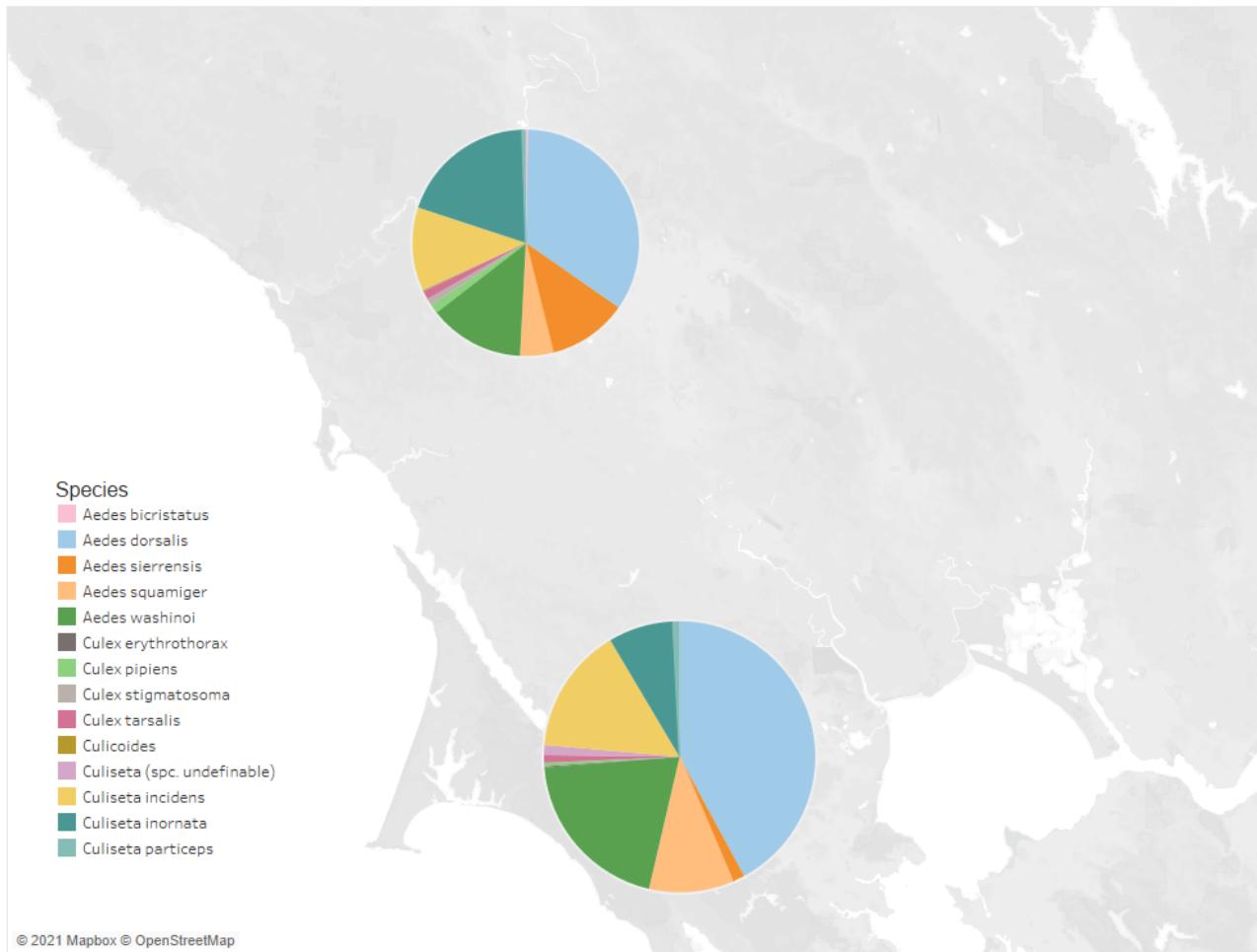
# Laboratory Update January and February 2021

## Larval Mosquitoes

Larval samples identified by lab staff:  
290 samples from Marin County with 7,451 larvae  
328 samples from Sonoma County with 5,199 larvae

The most abundant species in both counties was *Aedes dorsalis*.

Total larvae by county - Jan/Feb 2021



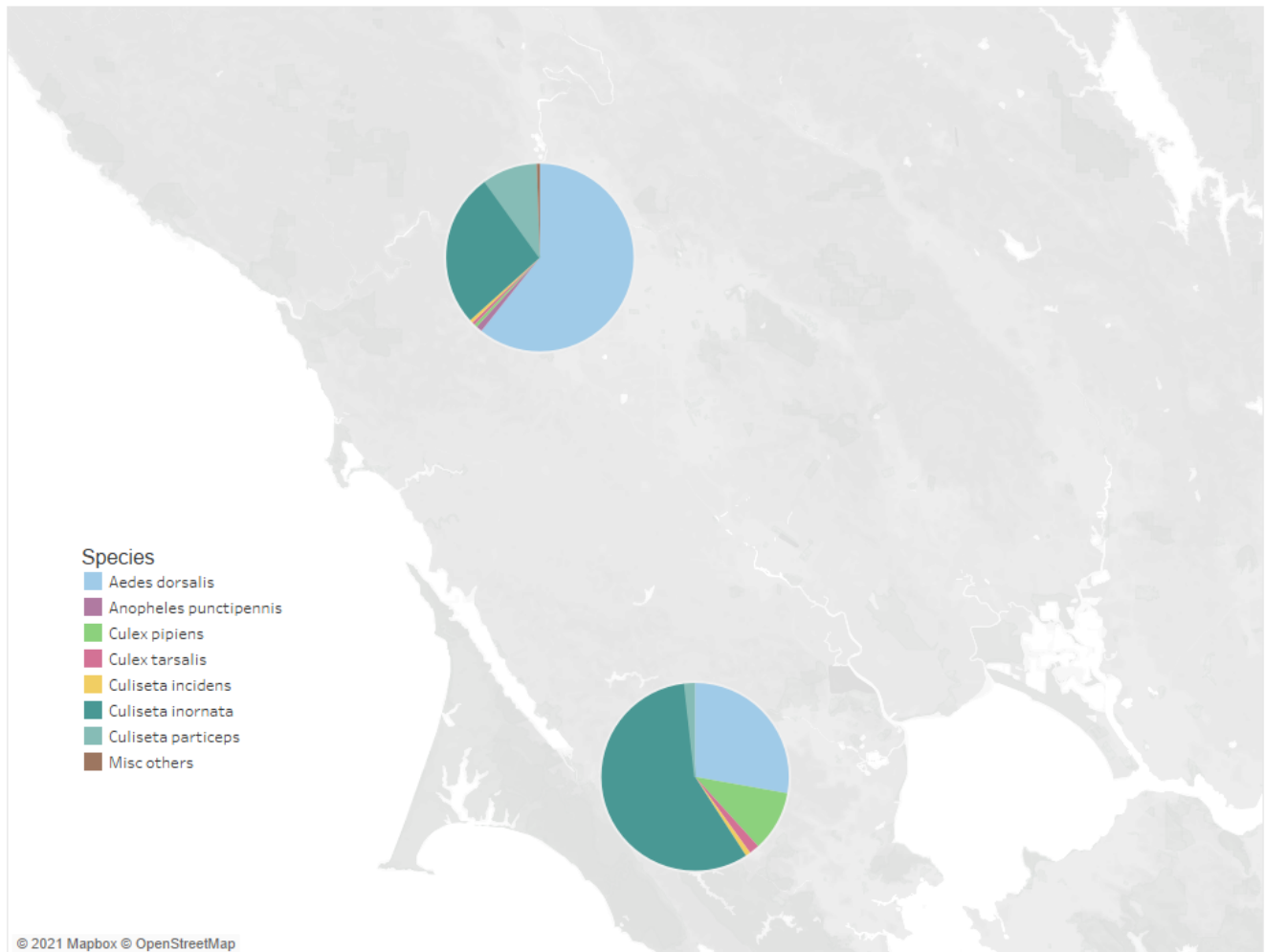


# Laboratory Update January and February 2021

## Adult Mosquitoes

Laboratory staff identified adult mosquitoes that emerged in larval sample cups, 16 EVS traps from Marin County, and four sweep net samples (two from Marin and two from Sonoma).

Total adults by county - Jan/Feb 2021



## Additional Lab Activities

Lab staff have been maintaining *Culex pipiens* and *Aedes sierrensis* colonies for use in pesticide resistance and equipment testing. In addition, biologist Kristen Holt completed the testing of all ticks collected in 2020. Lead biologist Sarah Brooks worked diligently to provide data for the NPDES report, while also being trained in the use of the Trimble GPS units and computer software. Scientific Programs Manager Kelly Liebman has put together several informative dashboards using newly obtained MapVision data. She also provided an update on invasive *Aedes* species to all staff and put together the 2020 Annual Report for the laboratory.

## MEMORANDUM



DATE: March 10, 2021  
TO: Board of Trustees  
FROM: Philip D. Smith, Manager  
SUBJECT: **Unmanned Aerial Systems (UAS): Proposed Policy UAS-1**

### **RECOMMENDED ACTION**

Staff recommends that the Board:

1. Review & discuss this report, the attached draft Policy UAS-1 and Resolution 2020/21-07.
2. Consider a motion to adopt the proposed Resolution 2020/21-07, which approves Policy UAS-1 and adds it to the District Operations Manual.

### **BACKGROUND**

In March 2020, staff reported to the Board on progress made towards the development of an Unmanned Aerial Systems (UAS) program. As used in this report and the proposed policy, the term UAS refers to small, unmanned aircraft operated by a remote pilot with a maximum takeoff weight of 55 pounds. Limitations on flight speed, allowable airspace, and altitude restrictions are incorporated into the federal regulations.

Several “early adopter” mosquito and vector control districts in California have pioneered the use of UAS for various purposes such as assessing mosquito habitat and production in addition to photogrammetry and mapping. A few districts have progressed to using UAS to apply public health pesticides, for example liquid larvicides. The District is in a good position to benefit from the lessons learned and best practices developed by these vanguard districts.

Some potential advantages of UAS are cost savings for treatments in remote areas and/or areas with especially problematic access that currently require the use of a conventional helicopter, and the speed of gathering certain data compared to sending personnel into remote areas, such as salt marshes, by foot, boat or amphibious vehicle.

Since the March 2020 report, staff has undertaken training towards obtaining their individual Remote Pilot Certificates, which are issued by the Federal Aviation Administration (FAA) under Part 107 of the Code of Federal Regulations as well as participating in specialized training offered by the University of California. Additional “hands-on” flight training will be obtained when pandemic conditions permit. In January 2021, the District took delivery of a DJI Mavic 2 Enterprise Zoom UAS and an associated accessory package (see photo on page 2).

In early March, the District applied to the FAA for a Certificate of Authorization, which is required for a public agency to conduct UAS operations. Issuance usually takes two to three months.



DJI Mavic 2 Enterprise Zoom

## **DISCUSSION & ANALYSIS**

Staff considers that UAS will augment and support the District's current mosquito surveillance and control operations, as well as the District's education and outreach programs. These units may also prove beneficial to the District's scientific programs and laboratory operations. The DJI Mavic 2 Enterprise Zoom UAS will initially be used to train personnel and gain experience in assessing the conditions of mosquito habitat. Depending on the onboard camera capability, this type of UAS is capable of surveillance for vegetation status and/or assessing whether standing water or mosquito larvae are present in an area. As staff gains further experience and training, other uses will be developed. As previously mentioned, other districts are using UAS for smaller scale aerial treatments that presently require the use of amphibious all-terrain vehicles or a manned helicopter, which costs \$1,550 per flight hour (plus the ferry flight time).

The UAS flight plan and application pattern can be pre-programmed with great accuracy before the UAS takes flight. This feature will likely be beneficial for small scale aerial applications, especially in congested areas, by providing cost savings and efficiency. Preprogrammed flight patterns will also be beneficial in providing a high level of accuracy for data collection applications. Most UAS now incorporate safety features such as automated obstacle avoidance and a one button push "return to base" program in the event problems are encountered during flight.

Liability and hull insurance coverage is provided at reasonable cost through the District's participation in the Vector Control Joint Powers Agency (VCJPA). Hull insurance premiums are currently set at 4% of the unit's replacement value.



**RESOLUTION NO. 2020/21-07**

**A RESOLUTION OF THE BOARD OF TRUSTEES OF THE  
MARIN/SONOMA MOSQUITO AND VECTOR CONTROL DISTRICT  
ADOPTING POLICY UAS-1 GOVERNING THE DISTRICT'S USE OF  
UNMANNED AERIAL SYSTEMS (UAS)**

**WHEREAS**, unmanned aerial systems (UAS) have demonstrated their utility in various industries such as agriculture, building inspections, and search and rescue operations; and

**WHEREAS**, the Marin/Sonoma Mosquito and Vector Control District (District) acknowledges that the commercial use of UAS is a new and rapidly growing field that holds significant promise in increasing efficiency when applied to vector surveillance and management; and

**WHEREAS**, the District recognizes the need to balance the protection of individual privacy with the mission of a public agency whose primary function is protecting public health; and

**WHEREAS**, the District considers that use of UAS has the potential to increase the efficiency of certain field operations such as assessing mosquito breeding sites, while potentially reducing costs of equipment and staff time by allowing staff to more readily access large and remote areas for inspections and treatments; and

**WHEREAS**, the District use of UAS may reduce certain employee safety risks associated with traditional methods of applying mosquito control materials in hazardous environments and also reduce the distance traveled when operating in remote areas; and

**WHEREAS**, UAS will be an important tool to facilitate the District's educational, surveillance, source reduction, laboratory and field operations, and increase efficiency and potentially reduce costs; and

**WHEREAS**, UAS may also offer increased precision during certain surveillance, reconnaissance and treatment operations; and

**WHEREAS**, the District desires to adopt a phased approach to studying potential uses and safely integrating the use of UAS into its field operations; and

**WHEREAS**, the District desires to adopt policies and procedures to ensure the judicious and safe use of UAS technology;

**NOW, THEREFORE BE IT RESOLVED** that the Marin/Sonoma Mosquito and Vector Control District Board of Trustees supports the development of UAS technology for the purposes of protecting the public from vectorborne disease, and hereby adopts Policy UAS-1 attached to this Resolution as Exhibit "A", which is incorporated herein by reference, specifying policies and procedures to ensure the judicious and safe use of UAS technology in vector surveillance and control operations.

**PASSED AND ADOPTED** at a regular meeting of the Board of Trustees of the Marin/Sonoma Mosquito and Vector Control District held on March 10, 2021 by the following vote:

	<i>Yes</i>	<i>No</i>	<i>Abstain</i>	<i>Absent</i>
Bruce Ackerman	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cathy Benediktsson	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gail Bloom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tamara Davis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Art Deicke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Julia Ettlin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laurie Gallian	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Susan Hootkins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ranjiv Khush	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shaun McCaffery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Matthew Naythons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carol Pigoni	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monique Predovich	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diana Rich	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Herb Rowland	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ed Schulze	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Veronica Siwy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Richard Snyder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
David Witt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pamela Harlem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vote Totals:				

ATTEST:

APPROVED:

\_\_\_\_\_  
 Carol Pigoni  
 Secretary, Board of Trustees

\_\_\_\_\_  
 Pamela Harlem  
 President, Board of Trustees

Exhibit A  
Policy UAS-1

**POLICY TITLE: Unmanned Aerial Systems (UAS)**

**NUMBER: UAS - 1**

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**Purpose & Scope:**

To establish procedures, guidance and standards to be followed by staff when using Unmanned Aerial Systems (UAS) to augment the District's mosquito monitoring and control program.

Trained and certified personnel may use UAS for the following purposes:

1. Gathering data for mapping purposes
2. The detection and assessment of vegetation and/or mosquito habitat
3. Detection of mosquito larvae using specially equipped UAS
4. Operational planning
5. Obtaining photographs or video recordings for public information
6. Conducting scientific or technical research

At no time shall District UAS be used for any purpose other than conducting District business.

Implementation of the procedures and processes contained in this policy are intended to ensure the safe, lawful, and effective operation of UAS. It is the responsibility of all those involved in UAS operations to read and understand the safety policies, required documentation, and reporting procedures addressed in this policy and future revisions. Additional manuals, revisions, and scenario-based procedures may be created to deal with particular operational needs or specific missions. If mission-specific guidance is needed, personnel operating UAS should consult with their supervisor or manager.

**General Policy**

Each UAS mission shall comply with Federal, State, and local UAS regulations and observe any restrictions imposed by the air traffic control entity that controls the airspace in which the operation is carried out.

**Privacy**

When conducting UAS operations, care shall be taken to protect the privacy of residents, visitors and business owners. Trained UAS operations personnel shall make efforts to protect individual rights and personal property before, during, and after the deployment of a UAS mission. Pilots in Command (PIC) will avoid using UAS for the purposes of collecting data where an expectation of privacy exists. Efforts to protect privacy are described by the following provisions:

- Data collected by the UAS, including photographs and or videos shall be used only in accordance with the District's mission and objectives.
- The PIC will make every effort to avoid capturing imagery of private residences or occupied structures that are not part of the mission objective.

- Photographic data containing personally identifiable imagery such as faces or vehicle license plates will not be retained longer than is needed for operational and analytical purposes.
- PIC will not fly over or within private property without the consent of the property owner or appropriate legal authority.
- PIC are responsible for destroying all photographs or video recordings that are made using the UAS within seven working days from the conclusion of the UAS operation if they contain personally identifiable information, including, but not limited to, images of faces or vehicle license plates.
- Flight imagery captured by UAS that is subsequently stored on a computer or other electronic device shall be carefully protected against data security risks.

### **Procedures Governing UAS Operations**

All flight operations conducted using UAS shall include a PIC and at least one visual observer (VO). The UAS must be operated during daylight hours, no higher than 400 feet above ground level, and without flying above persons not directly participating in the flight operations. The PIC and VO are prohibited from operating more than one UAS at a time.

The PIC shall hold a valid Remote Pilot certificate issued by the US Federal Aviation Administration (FAA) and any other licenses or certifications legally required for the conduct of the mission. In addition, the provisions of Assembly Bill 527 require that the PIC of a UAS operated for application of public health pesticides is required to hold an unmanned aircraft pilot's certificate issued by the California Department of Public Health (CDPH). Issuance of this certificate requires certification as a Vector Control Technician by the CDPH in the category of Mosquito Control, and successful completion of an examination administered by the California Department of Pesticide Regulation.

PICs are the final authority for safety and conduct of flight operations. They must appropriately brief VOs and other crew of the flight plan, document inspections, maintenance, and ensure that weather conditions are suitable for flight.

The PIC and VO must maintain an unaided visual line of sight (VLOS) with the UAS at all times.

Appropriate personal protective equipment must be worn during all operations that involve UAS, including safety glasses during the takeoff and landing phases of flight.

The PIC may fly the UAS only if satisfied that the flight can be made safely. A preflight inspection of the UAS and its control station systems shall be conducted by the PIC to ensure that the UAS is in a condition for safe operation. The PIC shall also conduct a pre-mission survey of the flight area to evaluate local geography, identify hazards, verify minimum flight visibility of 3 miles from the control station, and determine where the PIC and VO should be positioned so that VLOS with the UAS is maintained throughout the operation.

When planning and conducting UAS operations, the PIC will make diligent efforts to minimize the risk of injury, property damage, or intrusion upon privacy. The UAS may not be flown within 25 feet of any person. The use of UAS shall not impede local law enforcement, firefighters, or other emergency responders from responding to the scene of an emergency.

All incidents involving loss of control of the UAS, and/or collisions with a person, animal, or structure shall be reported verbally to the PIC's supervisor or manager as soon as it is safe to do so. A written summary of the incident shall be provided to the PIC's supervisor or manager within one (1) working day of the incident.

In the event of an accident, ensuring the safety of all involved is imperative. If an accident occurs, the UAS operations will cease immediately. District personnel should offer assistance to anyone affected and contact 911 if necessary. Local police or state authorities shall be notified about all injury causing accidents or as otherwise required by law. An accident report shall be submitted, including pictures of the accident situation if available. Flight personnel are not to discuss or communicate any information regarding the accident with anyone except the proper authorities, program supervisors, or District management. The District will coordinate with any persons or organization that may request information pertaining to the accident.

Within ten (10) calendar days of any operation that results in a serious injury, or results in property damage of at least \$500, the PIC shall file a report with the FAA.

A maintenance record book shall be maintained for each UAS.

An entry in a flight logbook shall be made by the PIC to document each UAS operation. This record shall be retained for at least three (3) years following the UAS flight.

### **Required Training**

In addition to federal and state licensure and certification requirements, personnel assigned to UAS flight operations will receive training coordinated by, or administered by, District personnel. Training topics will include but not be limited to the following areas: familiarization with the aircraft and its systems, pre- and post-flight maintenance procedures, best storage practices, safety precautions, terminology, battery charging and care.

VOs will receive training on communications to be used during flight and procedures designed to ensure safe operation of the UAS.

## Manager's Report

- Construction of the new storage shed located behind the vehicle storage building is nearing completion. Bruce Ohlinger, our Source Reduction Specialist who is heading up the construction, assisted by Vector Control Technicians Mike Wells and Jeff Petersen, are preparing to install the fiber cement lap siding, the metal roofing system, and paint to match the existing nearby buildings. During the recent inspection, the City Building Inspector complimented the team on the quality of workmanship.
- As of March 3rd, 2021, the balance in the District's OPEB trust fund held at CalPERS CERBT for future retiree medical expenses has increased to \$7,158,502. In late summer, Marilyn Oliver and her team at Bartel Associates will prepare a biennial Valuation Report for the Board's consideration.
- Staff are beginning to prepare the draft budget for fiscal year 2021-22. In mid-April, the Budget Committee will hold the first of two scheduled meetings to consider the draft budget and provide direction to staff before the Board reviews it at the June 9 meeting.
- The virtual version of the Mosquito & Vector Control Association of California's annual conference (February 1<sup>st</sup> – 3<sup>rd</sup>) went smoothly with many informative speakers and sessions. Presentations by Assistant Manager Hawk and former Trustee Mike Thompson were well received.
- Board President Pamela Harlem advises that there will be no meeting in April. The next meeting is slated for May 12, 2021.
- Thanks to quick action and persistent follow-through by Erik Hawk, all District staff who wished to be vaccinated against COVID-19 were offered the opportunity to receive an initial dose last month. Second vaccination appointments begin on March 9.
- Last month we sent a letter to Grant Davis, head of Sonoma Water, seeking payment of invoices for mosquito surveillance and control work on Sonoma Valley County Sanitation District (SVCSD) lands located off Ramal Road in Sonoma. The letter notes that MSMVCD cannot continue to absorb the expense of mosquito surveillance and control work that is necessary at the SVCSD site. Costs incurred by MSMVCD for work performed on SVCSD lands from October 1, 2018 through October 1, 2020 totaled \$78,658, or approximately \$39,329 per year. During this period MSMVCD invoiced and received payment for \$5,484.26. We are also seeking payment of two outstanding invoices totaling \$6,309. The ultimate goal is to secure a long-term agreement between the agencies to formalize the longstanding work arrangements and ensure full reimbursement of costs.
- In a similar vein, staff members are preparing letters to other local government agencies, advising them that the District intends to recover more of its costs, and inviting them to enter into agreements for services. Preliminary estimates suggest that when these reimbursement measures are fully implemented, the annual expenses recouped could exceed \$200,000.

- On Friday February 25<sup>th</sup> we held a “socially distanced” farewell for Environmental Biologist Eric Engh who left District employment to pursue a career in science education. It is hard to overstate Eric’s many valuable contributions to the District, especially his exemplary development and stewardship of the Education Program. Attendance at the District’s periodic Open House events benefited greatly from his imaginative organization of many of the exhibits, especially the very popular “Backyard Bugs” contest. Mr. Engh has kindly agreed to volunteer as a contest judge at the next Open House.
- The recruitment window for the Shop/Facilities Assistant closed last month and initial interviews are set for March 15 &16. We anticipate making a final selection after a second round of interviews.
- Following a recruitment process, Dana Shigley was appointed to the Management Aide (Temporary) position. Ms. Shigley is now working closely with Financial Manager Jennifer Crayne, programmer Chris Moret and the Black Mountain Software transition team to prepare for implementation later this year of the District’s new Financial Management Information System.
- Field work by Maze & Associates who conduct the annual financial audit is scheduled for the week of September 13-17, with presentation to the Board at the December 8 meeting.
- Unfortunately, the District’s grant application to the state for funding in the amount of \$86,488 to provide emergency backup generator power was not selected for funding.

### Assistant Manager’s Report

- Likely due to the lack of rain, *Aedes squamiger* (California salt marsh mosquito) and *Aedes washinoi* (flood water mosquito) populations are currently low. This doesn’t happen very often! If we do see some significant rain events over the next few months, we could see an accelerated life cycle for both species, which could prove challenging. *Aedes dorsalis* populations, however, are flourishing and have required careful surveillance and treatment. Our first large scale larvicide application via helicopter occurred in February. *Culex tarsalis* (western encephalitis mosquito) larvae have also been observed and sampled in the field.
- The Scientific Programs Manager and Field Supervisors provided an invasive *Aedes* workshop for field staff to prepare for the upcoming season. The Scientific Programs Manager, Financial Manager, and Public Information Officer have also been working closely with receptionist staff on our messaging, as well as obtaining invasive *Aedes* related information from the public when answering calls and making service requests.
- We are currently in the recruitment process for laboratory and operations seasonal staff.



- On March 1, 2021 we welcomed Jessi Hagelshaw to our team. She was selected for the Vector Control Technician position.
- On February 17, we took our first trip this year into the Laguna de Santa Rosa with the airboat. We were surprised to see how much water was holding in the waterway system. On February 24, I operated the airboat and participated in an interagency tour of the Laguna de Santa Rosa from just south of Occidental Road to Guerneville Road. Representatives from Sonoma Water, the City of Santa Rosa, and the Town of Windsor were present and appreciated the opportunity to gain a first-hand view of the area and the issues it faces. The invasive *Ludwigia* (water primrose) is starting to leaf out. An observation of particular concern was that *Ludwigia* has now grown completely across the Laguna main channel just south of the Occidental Road bridge. We have not seen this before!
- District staff licensed as Vector Control Technicians by the State of California are wrapping up their required continuing education for the current two-year cycle.
- We discovered a small homeless encampment on District property and worked with our neighbor and the Cotati Police Department to address the situation.
- I am currently working with the City of Santa Rosa regarding the District's operations associated with the City's recycled water irrigation program. We are discussing the potential renewal of the existing agreement that provides for reimbursement to the District for labor, equipment, and material costs.
- Preliminary results of the source reduction work performed for the Sonoma Creek Enhancement Project are promising.