

# DELTA MOSQUITO & VECTOR CONTROL DISTRICT

Dr. Mustapha Debboun  
*General Manager*

1737 West Houston Avenue \* Visalia, California 93291  
Phone (559) 732-8606 \* (877) 732-8606 \* Fax (559)-732-7441

Crystal Grippin  
*Scientific Program Manager*

www.deltamvcd.org



Hector Cardenas  
*Operations Program Manager*

Erick Arriaga  
*Community Education & Outreach Coordinator*

Mary Ellen Gomez  
*Administrative Assistant*

Paul Harlien  
*Foreman*

Rick Alvarez  
*Vector Control Supervisor*

Bryan Ruiz  
*Supervisor Assistant*

**DATE:** Friday, December 9, 2022

**TO:** Board of Trustees, Delta Mosquito and Vector Control District (DMVCD)

**FROM:** Dr. Mustapha Debboun, General Manager

**SUBJECT:** Regular Meeting of the District's Board of Trustees

**TIME:** Wednesday, December 14, 2022, at 4:30 p.m.

**PLACE:** District Boardroom, 1737 West Houston Avenue, Visalia CA, 93291  
Teleconference Dial in Number: 1-978-990-5000 access code 575024

## AGENDA:

1. **Roll Call**
2. **Presentation of the City of Dinuba Recognition Plaque by City of Dinuba Mayor**  
Linda Launer, Mayor of the City of Dinuba will formally present the Recognition Plaque to the General Manager and the Board of Trustees.
3. **Employee Introduction**  
The General Manager will introduce Rebecca Harlien, Administrative Analyst to the members of the Board of Trustees.
4. **Public Forum (Limited to three minutes per speaker)**
  - a) Members of the public may comment on any item not on the Agenda that is within the jurisdiction of the Board of Trustees (Board). Under state law, matters presented during public comment cannot be discussed or acted upon by the Board in this meeting.
  - b) For items on the Agenda, the public is invited to make comments during the public comment period.

- c) Any person addressing the Board will be limited to a maximum of three (3) minutes. Public comments will be limited to a total of 15 minutes during the public comment period.
- d) If there are more than five (5) persons wishing to comment, then time will be divided equally between all persons wishing to speak, so that everyone has an opportunity to address the Board.
- e) Live verbal public comments may be made by members of the public in person or via phone. (Teleconference Dial in Number: 1-978-990-5000 access code 575024).
- f) Public comments may be submitted by email to [comments@deltamvcd.org](mailto:comments@deltamvcd.org)

**ACTION 5. Consent Calendar**

- a) November Minutes
- b) November Payroll (Board Order #19)
- c) November Bills (Board Orders #20 through #24)
- d) December Payroll (Board Order #25)
- e) December Bills (Board Order #26)

**6. Manager's Report**

The General Manager will report on items of Delta Mosquito and Vector Control District (DMVCD) operational interest.

**ACTION 7. Audit Preparation**

The General Manager will request for the Board of Trustees to approve the audit preparation from Price Paige & Company Consulting.

**ACTION 8. Holiday Gift**

The General Manager will request from the Board of Trustees to approve a Save Mart Holiday grocery gift card in the amount of \$50.00 to each employee. The amount will be added to the employees' W-2.

**ACTION 9. January Meeting**

Due to the Holidays, the General Manager will request to cancel the regular Board of Trustees Meeting in January 2023.

**10. Board of Trustees Member Comments**

The Board of Trustees members will have a chance to make any additional comments regarding items within the jurisdiction of the District.

**11. Future Agenda Items**

The Board of Trustees members will have a chance to add future agenda items if they choose to.

**ACTION 12. Adjournment**

Adjourn Meeting of the Board of Trustees to reconvene on Wednesday, February 8, 2023, at 4:30 p.m. in the Delta Mosquito and Vector Control District Boardroom, 1737 W. Houston Ave., Visalia, CA.

**Note:** Items designated for information are appropriate for Board action if the Board wishes to take action.

## **1. Roll Call**

## **2. Presentation of the City of Dinuba Recognition Plaque**

### **3. Employee Introduction**

## **4. Public Forum**

## **5. Consent Calendar**

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Minutes of the Board of Trustees – Wednesday, November 9, 2022, Start: 4:30 p.m.

## 1. **Roll Call:**

Present: Greg Gomez, President; Belen Gomez, Secretary,  
Larry Roberts, Kevin Caskey, and Rosemary Hellwig

Absent: Linda Guttierrez

Staff: Dr. Mustapha Debboun, General Manager; Mary Ellen Gomez, Administrative Assistant

## 2. **District Safety Award:**

Dr. Debboun along with Board President Greg Gomez presented a Certificate of Safety Award to Mario Sanchez, Technician III/Mechanic.

## 3. **Public Forum:**

None. Two letters that were emailed from Malaika Elias and Barry Wray in regard to Oxitec 's future field trials in the Delta Mosquito and Vector Control District (DMVCD) were presented to the Board of Trustees.

## 4. **Consent Calendar:**

Following discussion, it was moved by Belen Gomez, seconded by Greg Gomez, and the Board of Trustees unanimously approved to accept the consent calendar as presented.

## 5. **Manager's Report:**

Dr. Debboun provided an update on the District's current operations and informed the Board of Trustees that the staff did an excellent job during the 2022 Mosquito Season and deserve a



celebration and recognition for their outstanding efforts. In addition, Dr. Debboun informed and presented an electronic blog by the California Special Districts Association (CSDA) on the 100-year history of DMVCD and a write up by the Special District Leadership Foundation (SDLF) recognizing DMVCD as one of the 10 SDLF Transparency Challenge winners in the volume 17 issue of Specials Districts, a publication of the CSDA.

**6. Sick Leave Policy Revision:**

Revisions to Policy #3003 were presented to the Board of Trustees for review. One minor change was added to Section 3003.2.4 and the Board of Trustees approved the amended the District's Sick Leave Policy after it was moved by Larry Roberts and seconded by Kevin Caskey.

**7. Price Paige & Company:**

The General Manager presented the engagement letter to the Board of Trustees for the fiscal audit covering 2021/22.

**8. Quarterly Expense/Revenue Report:**

The Administrative Assistant presented the Quarterly Expense and Revenue Report to the Board of Trustees.

**9. End of Mosquito Season Staff Luncheon:**

The General Manager requested to have lunch catered to DMVCD Staff in celebration and recognition of their outstanding efforts during the 2022 Mosquito Season. The catered staff luncheon was approved by the Board of Trustees after it was moved by Rosemary Hellwig and seconded by Belen Gomez.

**10. Board Member Comments:**

Rosemary Hellwig inquired if Mir Bear-Johnson was going to be replaced and Dr. Debboun explained as of now, there is no plan to fill the position as long other Management Personnel are satisfactorily filling that void. Rosemary Hellwig commended all the staff for a job well done.

Larry Roberts inquired as to how many Biologists we have now and if the vacant one has been filled. Dr. Debboun notified the Board of Trustees the position is still vacant but the intent to fill it when we find a suitable candidate. Rosemary Hellwig inquired about the kissing bugs the prior Biologist was hired to work on along with ticks and Dr. Debboun explained that in the 3-month period the Biologist was here, it wasn't long enough to fully achieve that goal.

Various Board Members commended and thanked all of the DMVCD staff for doing a great with the "limited" space we have and achieving excellent District goals.

**11. Future Agenda Items:**

None.

**12. Adjournment:**

It was moved by Kevin Caskey, seconded by Larry Roberts and the Board unanimously approved to adjourn the meeting of the DMVCD's Board of Trustees at 5:20 p.m.

Dr. Mustapha Debboun, Recording Secretary

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November Payroll

Board Order No. 19  
Consent Calendar Exhibit II

VOUCHER	PAYEE	DESCRIPTION	Budget Line Item	AMOUNT
37213	DEBBOUN, MUSTAPHA	MANAGER		9,495.61
37214	ALVAREZ, RICK	VECTOR CONTROL SUPERVISOR		5,713.06
37215	ARRIAGA, ERICK	COMMUNITY EDUCATION & OUTREACH COORDINATOR		4,670.92
37216	CARDENAS, HECTOR	OPERATIONS PROGRAM MANAGER		5,900.32
37217	FERGUSON, BRYAN	VECTOR CONTROL TECHNICIAN III/MECHANIC		5,283.57
37218	GOMEZ, MARY ELLEN	ADMINISTRATIVE ASSISTANT		4,677.20
37219	GRIPPIN, CRYSTAL	SCIENTIFIC PROGRAM MANAGER		5,049.29
37220	HARLIEN, PAUL	FOREMAN		5,521.62
37221	HARLIEN, REBECCA	ADMINISTRATIVE ANALYST		5,674.35
37222	NAKATA, MARK	BIOLOGIST		5,735.83
37223	RUIZ, BRYAN	VECTOR CONTROL TECHNICIAN III		4,811.37
37224	SANCHEZ, MARIO	VECTOR CONTROL TECHNICIAN III/MECHANIC		4,555.58
37225	TROUPIN, ANDREA	BIOLOGIST		5,347.76
37226	VALDIVIAS, JAVIER	BIOLOGIST		5,441.79
		<i>Sub-Total Full-Time Payroll</i>		\$77,878.27
37227	VSP	Vision Plan Premium		553.33
37228	DELTA DENTAL PLAN	Dental Plan Premium		1,540.43
37229	LINCOLN FINANCIAL GROUP	Life/STD & LTD Insurance		1,132.60
37230	DELTA VECTOR CONTROL DIST - EFTPS	CalPERS Health Insurance Premium		23,517.93
37231	DELTA VECTOR CONTROL DIST - EFTPS	Social Security/ Medicare/ Federal Income Tax	Employee 71% - District 29%	31,599.50
37232	DELTA VECTOR CONTROL DIST - EFTPS	State Income Tax	Employee 100%	5,929.67
37233	DELTA VECTOR CONTROL DIST - EFTPS	CalPERS Retirement	Employee 40% - District 60%	16,662.07
37234	DELTA VECT CONT DIST	Flex Benefit Plan	Employee 100%	1,174.96
37235	ICMA RETIREMENT TRUST	Deferred Retirement Trust	Employee 77% - District 23%	2,523.95
		<i>Total for Full-Time Payroll Taxes &amp; Benefits</i>		\$ 162,512.71
37236	AMERICAN INCORPORATED			1,977.18
		Semi-Annual HVAC Service	1195.00 Building/Yard	
		Servicing of HVAC unit (Lab)	782.18 Building/Yard	
37237	FEDEX			247.36
		Cole Parmer - Homogenizer Shipping	228.46 Lab Assessment	
		Thorgren Order - Shipping Charge	18.90 Lab Assessment	
37238	FRESNO OXYGEN	Dry Ice		244.19
37239	MISSION LINEN			844.59
		Uniforms	596.15 Uniforms	
		Janitorial	248.44 Janitorial	
37240	PRICE PAIGE & COMPANY	GASB Calculation - Work in Progress	Professional Services	1,275.00
37241	SMART & FINAL			207.18
		Sugar	65.97 Lab Assessment	
		Paper Towels - trifold and rolls	93.27 Janitorial	
		Tomatoes, Lettuce, Hamburger Meat, Cheese and aluminum trays (staff luncheon)	47.94 Misc Expense	
37242	SPEX	Nesting Tray Set	Lab Supplies	104.57
37243	TF TIRE	(4) tires for flatbed trailer	Auto Supplies	605.02
37244	US BANK			13,117.81
		Hilton Waikiki - Crystal Grippin SOVE	1173.75 Travel	
		Hilton Waikiki - Dr. Debboun SOVE	1408.50 Travel	
		United Airlines - Dr. Debboun Baggage Fee SOVE	35.00 Travel	
		Entomological Society - Dues Dr. Debboun	184.00 Dues	
		El Tarasco - Lunch w/Greg	43.46 Travel	

## November Payroll

Board Order No. 19  
Consent Calendar Exhibit II

VOUCHER	PAYEE	DESCRIPTION		Budget Line Item	AMOUNT
		Printed Solid - PRUSA Enclosure	466.53	Lab Assessment	
		FoodMaxx - Dry Ice	117.87	Lab Assessment	
		FoodMaxx - Dry Ice	88.95	Lab Assessment	
		SaveMart - Dry Ice	53.00	Lab Assessment	
		FoodMaxx - Dry Ice	56.12	Lab Assessment	
		Kysan - RF 5001B motor	219.12	Lab Assessment	
		Thorgren - 3" Fan	128.75	Lab Assessment	
		PetSmart - 300w heater	41.76	Fish Supplies	
		Amazon - Hikari Ich-x, water conditioner, relay remotes	102.15	Fish Supplies	
		Amazon - Grommet Kit, 6pk dymo tape, Petg filament, soldering tip, brush heads	198.58	Lab Assessment	
		Printed Solid - Fire Suppression System	141.03	Lab Assessment	
		DigiKey - Bulkhead Connector	448.86	Lab Assessment	
		LaQuinta - Paul Harlien AZ Hotel Stay - Jeep pickup	127.52	Travel	
		FilterBuy - HVAC filters	191.39	Building/Yard	
		Verizon Wireless	1784.18	Telephone/Cellphones	
		Amazon - 140pk microfuse kit, 272pc car blade fuses, 30pc combination fuses	45.69	Auto Supplies	
		Dreamhost	3.00	Subscriptions	
		FoodMaxx - Dry Ice	99.02	Lab Assessment	
		USPS - Certified Mailpiece to Oklahoma City, OK	8.93	Office Supplies	
		Smart & Final - Plates, Aluminum Pans, Foil, Variety Pack Chips, Bottled Water	194.23	Name, Logo & Celebration	
		Food4Less - Plastic Bags, Condiments, Pappy's Seasoning	46.32	Name, Logo & Celebration	
		Costco - End of season luncheon pizzas	107.96	Misc Expense	
		Google - Domain Name	198.80	Subscriptions	
		SipTrunk - Efax	279.12	Telephone/Cellphones	
		Smart & Final - Hamburger patties, hotdogs, hotdog and hamburger buns, lettuce/tomatoes	145.08	Name, Logo & Celebration	
		WalMart - 10 bags of ice	41.45	Name, Logo & Celebration	
		WalMart - (6) 12pks soda, (9) bags of ice	67.88	Name, Logo & Celebration	
		Food4Less - Misc Items End of Season Luncheon	38.20	Misc. Expense	
		Zira - Time Keeping System (8) months	960.93	Subscriptions	
		Dultmeier - Repair kit, DC solenoid valve (A1 mistblower)	487.92	Operational	
		USPS - Certified Mailpiece CDPH EPA ID Registration	7.85	Office supplies	
		Amazon-5/16 heatshrink black, 5/16 heatshrink red, (5) Steel Mesh 20	87.60	Lab Assessment	
		Amazon-Universal Tire Repair Patches	49.90	Auto Supplies	
		Amazon-Neewer Upgraded 660, Lightdow 48 pc macro, Godox foldable flash/vic xproC Trigger	1,304.27	Assessment	
		Love's-Paul Harlien AZ trip to pick up the Jeep	94.53	Fuel	
		Shell Oil-Paul Harlien AZ trip to pick up the Jeep	112.70	Fuel	
		Pilot -Paul Harlien AZ trip to pick up the Jeep	90.09	Fuel	
		U-haul propane tank fill	27.07	Name, Logo, & Celebration	
		Costco - Cookies and Ice Cream for Employee Birthday Celebration	41.66	Miscellaneous	
		Party City- Outdoor Arch Kit, balloons, plastic tableclothes for 100 Year Celebration	102.63	Name, Logo, & Celebration	
		4Imprint,Inc- Drawstring sport pack, Koozie Chill Kooler for 100 Year Celebration	941.09	Name, Logo, & Celebration	
		Big 5- EZ Up 1Grey 1White for 100 Year Celebration	368.88	Name, Logo, & Celebration	
		Walmart- Bagged Candy, Balloon Pump for 100 Year Celebration	55.91	Name, Logo, & Celebration	
		DollarTree- Bucket,Card Stand, Hooks, Posterboard, Trifold board for 100 Year Celebration	14.02	Name, Logo, & Celebration	
		Walmart- Novelty kids items for 100 Year Celebration	37.03	Name, Logo, & Celebration	
		Walmart- 10 Gal Aquarium for 100 Year Celebration	19.03	Name, Logo, & Celebration	
		Party City- 150 Mini Sticks for Balloons for 100 Year Celebration	28.50	Name, Logo, & Celebration	
37245	VALLEY PACIFIC	Fuel		Fuel	1,651.05
			<i>Total Bills</i>		\$20,273.95
			<i>Total Board Order #19</i>		\$ 182,786.66

CLAIM #	PAYEE	DESCRIPTION	Budget Line Item	AMOUNT
37246	JUAN PABLO ORTEGA	Laboratory Tech I		1,689.07
37247	PAUL RAPER	Vector Control Tech II		1,525.28
37248	CARLOS RODRIGUEZ	Vector Control Tech II		1,779.41
37249	ADRIAN SIFUENTES	Vector Control Tech II		1,867.52
37250	BRYAN FERGUSON	Overtime		23.83
37251	BRYAN RUIZ	Overtime		25.09
37252	DELTA VECTOR CONTROL DIST - EFTPS	Social Security/ Medicare/ Federal Income Tax		1,873.02
37253	DELTA VECTOR CONTROL DIST - EFTPS	State Income Tax		174.44
37254	DELTA VECTOR CONTROL DIST - EFTPS	CalPERS Retirement		321.75
		<b>TOTAL PAYROLL</b>		<b>\$9,279.41</b>
37255	CLINE'S	Monthly Contract	Maint Contract	72.47
37256	FASTENAL			90.94
		(400) Screws and (200) nuts	19.44 Building/Yard	
		(50) 2.5x4mm Screws	5.81 Lab - Assessment	
		(60) 3/8 16x3/4	65.69 Fish Supplies	
37257	GROSS & STEVEN'S	Alignment	Auto	79.95
37258	HARBOR FREIGHT	Power Probe, Deerskin Gloves	Shop Supplies	309.54
37259	HOME DEPOT			329.41
		(2) stacking chairs, (2) artificial grass rugs	91.05 Name, Logo & Celebration	
		Telescoping pole	50.59 Building/Yard	
		Spray bottles and paper towels	59.40 Janitorial	
		(8) 3/4" corner braces	67.84 Building/Yard	
		(4) 3/4" corner braces and (5) S-Binders	58.74 Lab - Assessment	
		Finance Charge	1.79 Misc. Fee	
37260	LOWE'S			772.95
		Plastic clamp, spray nozzle, hose reel	225.08 Building/Yard	
		Barbecue	308.19 Misc Expense	
		3/4" fittings and salt	48.98 Fish Supplies	
		Salt, fittings, male and female hose repair parts	85.46 Fish Supplies	
		50' hose	17.50 Building/Yard	
		Wood handle	8.06 Lab - Assessment	
		Wire Black & Red Primary wires	65.91 Lab - Assessment	
		(9) 1/4 clamp	13.77 Lab - Assessment	
37261	SO CAL EDISON	Utilities	Utilities	2,650.54
		<b>TOTAL BILLS</b>		<b>\$4,305.80</b>
		<b>TOTAL BOARD ORDER #20</b>		<b>\$13,585.21</b>

CLAIM #	PAYEE	DESCRIPTION	Budget Line Item	AMOUNT
37262	EMCOR	VF Drive Replacement	4,940.00 Building/Yard	9,291.00
		Replace BSL-3 condenser fan motor/pressure switch/pressure control & transducer	4,351.00 Building/Yard	
		<b>TOTAL BILLS</b>		<b>\$9,291.00</b>
		<b>TOTAL BOARD ORDER #21</b>		<b>\$9,291.00</b>

CLAIM #	PAYEE	DESCRIPTION	Budget Line Item	AMOUNT
37263	ADAPCO/AZELIS			74,080.35
		OEQ Throttle arm cylinder A1Mist	273.12 Auto Supplies	
		Larvoil BVA 2	73,807.23 Chemical/ Spray Material	
37264	AUTO ZONE	EGR Valve, wiper blades, brake booster	Auto Supplies	527.33
37265	AWARDS AND SIGNS UNLIMITED			270.99
		11.8" and 4" digitally printed decals	97.25 Auto Supplies	
		Perpetual Plaque with engraving	173.74 Office Supplies	
37266	CITY OF VISALIA	Utilities	Utilities	118.15
37267	MESA ENERGY/EMCOR SERVICES	Service Call Lab AAON Unit	Building/Yard	710.00
37268	PACIFIC WEST	Monthly Service Contract	Maint Contract	250.00
37269	TULARE COUNTY SOLID WASTE	Disposal of (6) tires	Building/Yard	40.00
		<b>TOTAL BILLS</b>		<b>\$75,996.82</b>
		<b>TOTAL BOARD ORDER #22</b>		<b>\$75,996.82</b>

CLAIM #	PAYEE	DESCRIPTION	Budget Line Item	AMOUNT
37270	JUAN PABLO ORTEGA	Laboratory Tech I		1,396.85
37271	PAUL RAPER	Vector Control Tech II		1,455.75
37272	CARLOS RODRIGUEZ	Vector Control Tech II		1,487.47
37273	ADRIAN SIFUENTES	Vector Control Tech II		1,348.03
37274	ADRIAN SIFUENTES	Overtime		20.05
37275	DELTA VECTOR CONTROL DIST - EFTPS	Social Security/ Medicare/ Federal Income Tax		1,440.88
37276	DELTA VECTOR CONTROL DIST - EFTPS	State Income Tax		114.56
37277	DELTA VECTOR CONTROL DIST - EFTPS	CalPERS Retirement		1,020.26
37278	DELTA VECTOR CONTROL DIST - EFTPS	CalPERS Health additional payment		363.23
		<b>TOTAL PAYROLL</b>		<b>\$8,647.08</b>
37279	COMCAST	Internet	Telephone/Cell Phones	337.36
37280	EMD NETWORKING	Voip phones	430.00 Telephone/Cell Phones	3,141.75
		Total Care Monthly Contract	2,576.75 Maint Contract	
		Service Calls - Quick Books Update- File Access	135.00 Office Supplies	
37281	ENTERPRISE	Leased Vehicles	Capital-Vehicles	1,909.68
37282	LOZANO SMITH	Prepare Brown Act Update- 2022 Warrant Draft	Professional Services	90.00
37283	VALLEY PACIFIC	Fuel	Fuel	338.86
37284	VERIZON	Cellphones	Telephone/Cell Phones	919.13
		<b>TOTAL BILLS</b>		<b>\$6,736.78</b>
		<b>TOTAL BOARD ORDER #23</b>		<b>\$15,383.86</b>



CLAIM #	PAYEE	DESCRIPTION	Budget Line Item	AMOUNT
37285	TARGET SPECIALTY PRODUCTS	(10) bags XRG Ultra, (7) bags XRG, 1 case XR briquet, (3) bags Duplex G	Operational Supplies	10,848.71
		<i>TOTAL BILLS</i>		<i>\$10,848.71</i>
		<i>TOTAL BOARD ORDER #24</i>		<i>\$10,848.71</i>

December Payroll

VOUCHER	PAYEE	DESCRIPTION	Budget Line Item	AMOUNT
37286	DEBBOUN, MUSTAPHA	MANAGER		8,798.81
37287	ALVAREZ, RICK	VECTOR CONTROL SUPERVISOR		5,713.06
37288	ARRIAGA, ERICK	COMMUNITY EDUCATION & OUTREACH COORDINATOR		4,670.90
37289	CARDENAS, HECTOR	OPERATIONS PROGRAM MANAGER		5,900.30
37290	FERGUSON, BRYAN	VECTOR CONTROL TECHNICIAN III/MECHANIC		5,283.57
37291	GOMEZ, MARY ELLEN	ADMINISTRATIVE ASSISTANT		4,677.21
37292	GRIPPIN, CRYSTAL	SCIENTIFIC PROGRAM MANAGER		6,065.84
37293	HARLIEN, PAUL	FOREMAN		5,521.61
37294	HARLIEN, REBECCA	ADMINISTRATIVE ANALYST		5,697.36
37295	NAKATA, MARK	BIOLOGIST		5,735.84
37296	RUIZ, BRYAN	VECTOR CONTROL TECHNICIAN III		5,719.37
37297	SANCHEZ, MARIO	VECTOR CONTROL TECHNICIAN III/MECHANIC		4,555.56
37298	SANCHEZ, MARIO	OVERTIME		21.33
37299	TROUPIN, ANDREA	BIOLOGIST		5,347.76
37300	VALDIVIAS, JAVIER	BIOLOGIST		5,441.78
		<i>Sub-Total Full-Time Payroll</i>		<b>\$79,150.30</b>
37301	VSP	Vision Plan Premium		553.33
37302	DELTA DENTAL PLAN	Dental Plan Premium		1,540.43
37303	LINCOLN FINANCIAL GROUP	Life/STD & LTD Insurance		1,132.60
37304	DELTA VECTOR CONTROL DIST - EFTPS	CalPERS Health Insurance Premium		23,881.16
37305	DELTA VECTOR CONTROL DIST - EFTPS	Social Security/ Medicare/ Federal Income Tax	Employee 71% - District 29%	31,242.08
37306	DELTA VECTOR CONTROL DIST - EFTPS	State Income Tax	Employee 100%	5,763.18
37307	DELTA VECTOR CONTROL DIST - EFTPS	CalPERS Retirement	Employee 40% - District 60%	16,598.19
37308	DELTA VECT CONT DIST	Flex Benefit Plan	Employee 100%	1,174.96
37309	ICMA RETIREMENT TRUST	Deferred Retirement Trust	Employee 77% - District 23%	75.00
		<i>Total for Full-Time Payroll Taxes &amp; Benefits</i>		<b>\$ 161,111.23</b>
37310	ADAPCO	Additional Payment--Invoice Correction Fyfanon Purchase	Capital	120.55
37311	CENTRAL VALLEY BUSINESS FORMS	Business Cards- Rebecca Harlien	Office Supplies	53.23
37312	LINXUP	GPS	GPS	859.57
37313	MISSION LINEN SUPPLY			1,275.66
		Uniforms	840.89 Uniforms	
		Janitorial	434.77 Janitorial	
37314	NAPA			1,006.19
		T-36 wipers, brake shoes, flywheel, clutch, slave cylinder, rack & pinion	846.58 Auto Supplies	
		T-41 thermostat, front brake, shock, radiator	159.61 Auto Supplies	
37315	SMART AND FINAL			268.76
		Quart storage bags, foil containers, meat cleaver, 16oz cups	58.50 Misc. Expense	
		Cleaning products, handsoap, toilet paper, papertowels(roll and trifold)	210.26 Janitorial	
37316	SO CAL GAS	Utilities	Utilities	351.24
37317	US BANK			11,147.65
		Wrangler Fix PCM	573.00 Auto Supplies	
		Ebay- Radio for Colorado T-44	43.40 Auto Supplies	
		Costco- Cookies, Ice Cream	41.66 Misc. Expense	
		Joann Stores- white fabric, extra strong thread, capucine thread (tick flagging)	44.33 Lab Supplies	
		Lowe's- (5) 6ft wood poles (tick flagging)	43.29 Lab Supplies	
		Sacramento Koi- Gambusia Solutions- 80 Watt replacement bulb	102.16 Fish Supplies	
		American Biological Safety Association- Cont. Ed Webinar	360.00 Continuing Ed	
		Home Depot- 2 Solar Panel Bird Wire	104.59 Building/Yard	

December Payroll

Board Order No. 25  
Consent Calendar Exhibit VIII

VOUCHER	PAYEE	DESCRIPTION		Budget Line Item	AMOUNT
		Grand Sierra Resort Casino- AMCH Conference, Dr. Debboun, Hector, Andrea, Mark	423.75	Travel	
		Home Depot- Earthquake Survival Tool, Gas shut off tool	5.35	Safety	
		Southwest Airlines- Round Trip Flight For AMCA Dr. Debboun, Hector, Andrea, Mark	1521.80	Travel	
		AMCA 89th Annual Meeting- Dr. Debboun, Hector, Mark, Andrea	1940.00	Continuing Ed	
		Pita Kabob- Lunch With Greg Gomez	48.82	Travel	
		Super Taco- Lunch With Paul Harlien	17.90	Travel	
		Sacramento Koi- Gambusia Solutions- 4 UV lamps, 5 carbon filter	1079.94	Fish Supplies	
		Amazon- 1 tire patch kit	71.60	Auto Supplies	
		Amazon-1 tire patches	34.72	Auto Supplies	
		Amazon- 1 Foxwell NT301 OBD Scanner	72.14	Auto Supplies	
		Amazon- 100 Piece Windshield Wash, 1 FX Stereo Receiver	66.07	Auto Supplies	
		DMV- Registration Of New Jeep, Service Fee	171.53	Capital- Vehicles	
		Graybar- Westgate T8 HL light bulbs	861.49	Building/Yard	
		HardCore 4x4 Tube Doors, Windshield Channel Header, Tailgate Tonneau, Truck Cab	841.74	Capital- Vehicles	
		Tractor Supply Co -1Fence Energizer,1 Roll of Alum Wire,1 AFW INS WDPST NL YLW 25	270.50	Building/Yard	
		Post Office- 2 Rolls Of Stamps	120.00	Office Supplies	
		US Postal Service- Certified Mail Fee and Postage	5.44	Misc. Expense	
		Vallarta Market- Veggies, Tortillas, Sodas, End Of Season Luncheon	54.92	Misc. Expense	
		Jalisco Meat Market- Chicken and Meat, End Of Season Luncheon	160.00	Misc. Expense	
		Home Depot- 4 Liquid Nails, 2 Dry Wall Screws, 10 Strip Wood, 10 Ca Lumber Fee	48.99	Building/Yard	
		Vallarta Market- Guacamole, 2 Roaster Pans	14.76	Misc. Expense	
		Amazon- 1 Sales Order Books	30.02	Office Supplies	
		Amazon- 2 Flag Pole Solar Lights	91.10	Building/Yard	
		4 Imprint USA Safety Vests and Set Up Charge	966.37	Safety	
		4 Imprint USA Hi-D Pulpboard Poster- 100 Year Celebration	187.54	Name, Logo & Celebration	
		Zira Technologies-Time Keeping	132.00	Subscriptions	
		Dreamhost	3.00	Subscriptions	
		Filterbuy.com- Filters	109.63	Building/Yard	
		Google- Domain Name	205.54	Subscriptions	
		Siptrunk Inc- Efax	278.56	Cellphones/telephones	
37318	WALMART	Glade Plug-ins and refills		Janitorial	36.22
			<i>Total Bills</i>		<i>\$15,119.07</i>
			<i>Total Board Order #25</i>		<i>\$ 176,230.30</i>

CLAIM #	PAYEE	DESCRIPTION	Budget Line Item	AMOUNT
37319	JUAN PABLO ORTEGA	Laboratory Tech I		1,515.87
37320	PAUL RAPER	Vector Control Tech II		1,455.76
37321	CARLOS RODRIGUEZ	Vector Control Tech II		1,654.74
37322	ADRIAN SIFUENTES	Vector Control Tech II		1,529.38
37323	DELTA VECTOR CONTROL DIST - EFTPS	Social Security/ Medicare/ Federal Income Tax		1,602.32
37324	DELTA VECTOR CONTROL DIST - EFTPS	State Income Tax		131.48
37325	DELTA VECTOR CONTROL DIST - EFTPS	CalPERS Retirement		1,111.90
		<b>TOTAL PAYROLL</b>		<b>\$9,001.45</b>
37326	CITY OF VISALIA	Utilities	Utilities	118.15
37327	EMD NETWORKING SERVICES	Voip phones	Telephones/Cell Phones	430.00
37328	FISHER SCIENTIFIC	Phosphate Buffered Saline 100ML	Lab Supplies	41.05
37329	FRESNO OXYGEN	Bronze Welding Rod	Shop Supplies	28.93
37330	HOME DEPOT			333.09
		Toilet, WaxRing, Supply Line, Painters Touch, Tap Handles	293.09 Building/Yard	
		Late Fee - to be waived next statement	40.00 Misc. Expense	
37331	PACIFIC WEST	Monthly Service Contract	Maint. Contract	250.00
37332	SO CAL EDISON	Utilities	Utilities	2,382.53
37333	VALLEY PACIFIC PETROLEUM	Fuel	Fuel	248.45
		<b>TOTAL BILLS</b>		<b>\$3,832.20</b>
		<b>TOTAL BOARD ORDER #26</b>		<b>\$12,833.65</b>

## **6. Manager's Report**

# DELTA MOSQUITO & VECTOR CONTROL DISTRICT

Dr. Mustapha Debboun  
*General Manager*

1737 West Houston Avenue \* Visalia, California 93291  
Phone (559) 732-8606 \* (877) 732-8606 \* Fax (559)-732-7441

Crystal Grippin  
*Scientific Program Manager*

Hector Cardenas  
*Operations Program Manager*

[www.deltamvcd.org](http://www.deltamvcd.org)

Erick Arriaga  
*Community Education & Outreach Coordinator*

Mary Ellen Gomez  
*Administrative Assistant*



Paul Harlien  
*Foreman*

Rick Alvarez  
*Vector Control Supervisor*

Bryan Ruiz  
*Supervisor Assistant*

## REPORT OF THE MANAGER November 2022

### I. Water and Weather

The temperature cooled significantly in November. The Delta Mosquito and Vector Control District (DMVCD) Weather Station reported an average high temperature of 64.3°F with an average low of 38.4°F and 0.95 inches of rainfall. The National Oceanic and Atmospheric Administration 1981-2010 seasonal averages for high and low temperatures in November were 64.4°F and 43.3°F respectively, with average rainfall of 0.99 inches.

Water storage at Pine Flat Reservoir increased to 174,119 acre-feet by the end of November. Pine Flat Reservoir's water inflow increased slightly to 318 cubic feet per second (CFS) while its release decreased to 100 CFS. The Lake Kaweah Reservoir also increased compared to the previous month, storing 15,457 acre-feet by the end of November. Lake Kaweah's inflow increased to 51 CFS and its release dropped to 23 CFS.

### II. Narrative

Field operations received 33 service requests in November which consisted of a vector control technician inspecting the reported property for any standing water that mosquito larvae can breed in. During this time, the technician uses an integrated vector management strategy to reduce any mosquito breeding found. In addition, technicians use this opportunity to educate residents on mosquito breeding prevention, and how to protect themselves from mosquito bites. Field staff completed a total of 41 mosquito inspections throughout the District including rural and urban locations. Staff conducted 22 mosquito larval applications, and are currently working on updating storm drain locations in our local database.

Larviciding aerial treatment for the Kaweah River Rock Plant in Woodlake was canceled due to the inactivity of mosquito activity. No additional applications were needed for the remainder of the 2022 mosquito season.

Operations began fleet vehicle winter maintenance. All vehicles receive a multi-point inspection which include engine, transmission, cabin filter, air conditioning, heater system, front and rear brake pads, rotors, parking brake, fluids (brake fluid, engine oil, etc.), lights, and more. Staff have completed 3 fleet vehicle inspections. In addition, the maintenance and modifications for specialized equipment is currently on-going for the A1 Super Duty spay unit. All chemical lines are being replaced with oil resistant material, gas throttle has been upgraded to prevent equipment failure, and chemical valves are currently being modified to prevent any pesticide spills.

Staff completed the laboratory building bird exclusion project which consisted of installation of an electric wire along the roof perimeter to prevent bird landings (Figure 1). To prevent bird harborage, the staff installed exclusion material around all solar panels that will prevent birds and other pests (Figure 2). In addition, the lighting project replacing all incandescent lighting in the mechanic shop with energy efficient light emitting diode (LED) light bulbs has been completed.



Figure 1. Bird electric wire installed to prevent bird activity.



Figure 2. Bird exclusion material installed around laboratory roof solar panels.

Routine mosquito surveillance has ended for the season. Laboratory staff have begun reviewing and analyzing 2022 surveillance data for the District Annual Report. Preliminary results for 2022 show that a total of 232,127 mosquitoes were trapped in 9,293 trap nights for an average of 25.0 mosquitoes per trap night for the entire mosquito season. The top three mosquito species caught in 2022 were *Culex quinquefasciatus* at 77.8% of total abundance, *Aedes aegypti* at 16.3%, and *Cx. tarsalis* at 3.6%.

Compared to 2021, a total of 154,124 mosquitoes were trapped in 6,927 trap nights for an average of 22.2 mosquitoes per trap night for the entire mosquito season. The top three mosquito species caught in 2021 were *Cx. quinquefasciatus* at 75.9% of total abundance, *Ae. aegypti* at 10.7%, and *Cx. tarsalis* at 5.2%.

For 2022, a total of 977 mosquito samples tested positive for West Nile virus (WNV), 6 for St. Louis encephalitis virus (SLEV), and 3 for both WNV and SLEV out of 4,753 mosquito samples tested. In 2021, 278 mosquito samples tested positive for WNV and 4 for SLEV out of 3,052 samples tested.

There was 1 homeowner mosquitofish request in November and distributed a total of 48 mosquitofish. In November of 2021, there was also 1 homeowner mosquitofish requested and distributed a total of 48 mosquitofish. Approximately 7,031 mosquitofish fry were produced in November 2022 and 77 mosquitofish in November 2021.



This year, no mosquito larvae samples were brought to the laboratory for species identification or resistance testing in November. Last year also, no mosquito larval samples were collected in November. Susceptible *Cx. quinquefasciatus*, *Cx. tarsalis*, and *Ae. aegypti* colonies were maintained for insecticide resistance testing. Laboratory staff tested mosquito populations from rural Exeter for resistance to technical grade and formulated etofenprox and pyrethrum products.

A Senior Public Health Biologist, from the California Department of Public Health (CDPH) trained District operations and laboratory staff on ticks and tick surveillance for Tulare County on November 17, 2022. Laboratory staff underwent further training on field collection techniques at a sentinel location. Ticks collected during this event will be identified to species and shipped to the state for tick-borne disease testing.

The CDPH Vector Control Technician Exam 87 for the South San Joaquin Valley Region took place at DMVCD on November 17, 2022. The exam was taken by over 40 technicians from across the region, and two of DMVCD staff passed the exam.

The DMVCD attended 3 student job fair events at local junior high schools, DMVCD represented 1 of the many public health agencies at these events. DeltaMVCD helps kids learn about the different career paths and importance in vector control agencies.

On November 2, DMVCD opened its doors to other members of the Mosquito and Vector Control Association of California (MVCAC) for District tours. The tour hours were from 3pm-5pm. General managers and employees from other mosquito and vector control districts across the state visited and viewed our District headquarters. During the tour, they also viewed a short video highlighting the services done at DMVCD. The District also highlighted the Laboratory and Operations procedures and equipment (Figure 3).



Figure 3. The District's Mosquito and Vector Control Association of California open house displaying DMVCD Operational equipment.

A short history of the District was published in the quarterly newsletter of the Tulare Historical Society in their December issue (Figure 4).

## *History and 100-Year Anniversary Celebration of Delta Mosquito and Vector Control District*

By Erick Arriaga and Mustapha Debboun

Delta Mosquito Abatement District (DMAD) was formed on September 19, 1922. The Visalia Women’s Civic Club was highly influential in its formation. The interest was stimulated by numerous cases of the mosquito-borne disease, Malaria as well as a severe pest mosquito problem. The Delta MAD included 16 square miles in 1922 and was the seventh mosquito abatement district to be formed in California when the California State Legislature incorporated the formation of mosquito abatement districts in 1915.

The Delta MAD began with one full-time employee, Director E.I. Feemster and two seasonal employees during each summer to cover the original 16 square miles that made up the District during the first 25 years. After the end of World War II, and from 1946 to 1948, Delta MAD annexed the northern part of Tulare County to include 10 additional cities bringing the size of the District to over 712 square miles. During the expansion, staff was increased to 14 full-time employees. The growth of the Delta MAD was due to increased public interest and demand on incorporating mosquito control in their new communities.

Throughout the years, Delta Mosquito and Vector Control District (DMVCD) as it is known now, has taken on additional responsibilities and integrated mosquito management methods of control. Originally, the main mission to control mosquitoes was to control the spread of their mosquito-borne disease, Malaria. However, in the 1940s and 1950s, Delta MAD began conducting missions to control also filth flies using physical, mechanical, and source reduction, as there was a large issue with flies among the local agricultural growers within the District. In 1960, Delta MAD purchased its first plane to apply treatments on larger breeding sources

As efforts on source reduction were showing success, the amount and size of sources were reduced, and aerial treatment was contracted out to aerial-application piloting services for the few areas where aerial pesticide application was still needed. In the 1970s, Delta MAD intensified its work to control the spread of the mosquito-borne disease, Western Equine Encephalitis.

After 51 years of being known as Delta Mosquito Abatement District, its name was changed to Delta Vector Control District in 1973. In 2021, the District’s name was changed to Delta Mosquito and Vector Control District with an updated logo to reflect its priorities. In 2022, Delta MVCD began a collaborative effort with Oxitec Ltd on a new and innovative mosquito control method approved by the Environmental Protection Agency to control the invasive yellow fever mosquito, *Aedes aegypti*. Today, Delta Mosquito and Vector Control District serves over 712 square miles in Northern Tulare County and employs a team of 20 full time employees who are supplemented by an additional 26 seasonal employees during the peak summer months of the mosquito season. Every season, our team at Delta MVCD works diligently on incorporating better, improved, innovative, and more efficient ways of combatting the mosquitoes that transmit serious mosquito-borne diseases.

This year, we celebrated our 100-year Anniversary Milestone. Everyone was invited to an Open House to celebrate our monumental anniversary and showcased the District’s headquarters, cutting edge laboratory, fish hatchery, new surveillance and pesticide application equipment, with food, music, and giveaways. The successful event was held at our District headquarters location on Saturday, October 8, 2022.

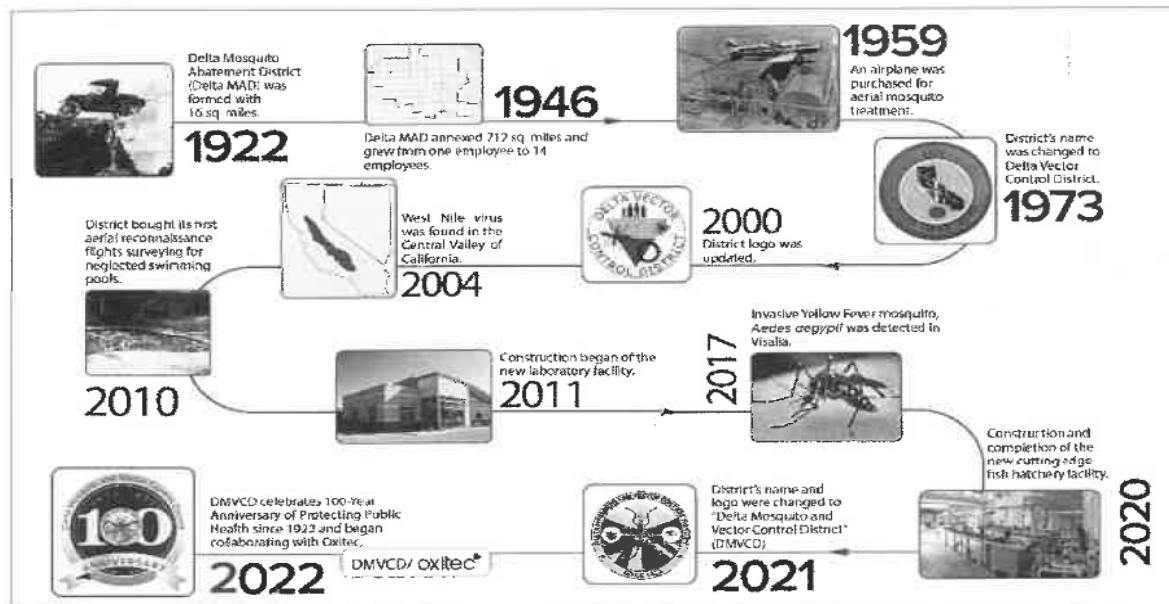


Figure 4. Tulare Historical Society quarterly newsletter outlining the history of DMVCD.

There were 34 service requests in November:

**2022 Service Request Summary**

<b>2022</b>	<b>Mosquito-Fish</b>	<b>Inspection</b>	<b>Mosquito</b>	<b>Source</b>	<b>Other</b>	<b>Total</b>
<b>January</b>	0	0	0	5	0	<b>5</b>
<b>February</b>	2	0	7	7	0	<b>16</b>
<b>March</b>	4	0	7	14	0	<b>25</b>
<b>April</b>	12	0	10	17	0	<b>39</b>
<b>May</b>	15	6	9	23	0	<b>53</b>
<b>June</b>	15	43	28	36	0	<b>122</b>
<b>July</b>	9	29	86	24	1	<b>149</b>
<b>August</b>	9	17	153	48	0	<b>227</b>
<b>September</b>	5	21	63	22	2	<b>113</b>
<b>October</b>	5	8	47	15	0	<b>75</b>
<b>November</b>	1	0	25	8	0	<b>34</b>
<b>Total</b>	<b>68</b>	<b>107</b>	<b>282</b>	<b>171</b>	<b>3</b>	<b>631</b>

**III. Vector and Disease Surveillance**

**Delta MVCD Summaries**

Humans: One potential human case of WNV is being investigated by the Tulare Public Health Department and awaiting final results.

Birds: Three dead birds were reported in November. However, only one was suitable for collection. In 2022, 2 dead birds have tested positive for WNV out of the 8 dead birds tested so far.

Mosquitoes: Routine mosquito surveillance has ended for the year. So far in 2022, a total of 977 mosquito samples tested positive for WNV, 6 for SLEV, and 3 for both WNV and SLEV out of 4,753 mosquito samples tested.

**State Surveillance:**

Humans: 148 human cases of WNV from 24 counties and 11 SLEV human cases from 6 counties have been reported.

Birds: 186 dead birds from 23 counties have tested positive for WNV. So far, 1,262 dead birds have been tested in 2022.

Mosquitoes: 3,165 mosquito samples have tested positive for WNV out of 40,278 samples tested in 2022. Additionally, 153 mosquito samples have tested positive for SLEV out of 36,514 mosquito samples tested in 2022.

**IV. Expenditures & Revenues – 2022/23**

TOTAL BUDGET \$4,958,310.00

EXPENDITURES – July 1, 2022 – November 30, 2022

Salaries	\$1,439,666.56
Services & Supplies	\$569,472.38
Tax Admin Fee	\$0.00
Capital	\$58,872.52
Long Term Debt	\$0.00
<b>TOTAL EXPENDITURES</b>	<b>\$2,068,011.46</b>

REVENUE RECEIVED – July 1, 2022 – November 30, 2022

July	\$1,120.28
August	\$0.00
September	\$19,435.29
October	\$3,534.31
November	\$6,595.69
<b>TOTAL REVENUE TO DATE</b>	<b>\$30,685.57</b>

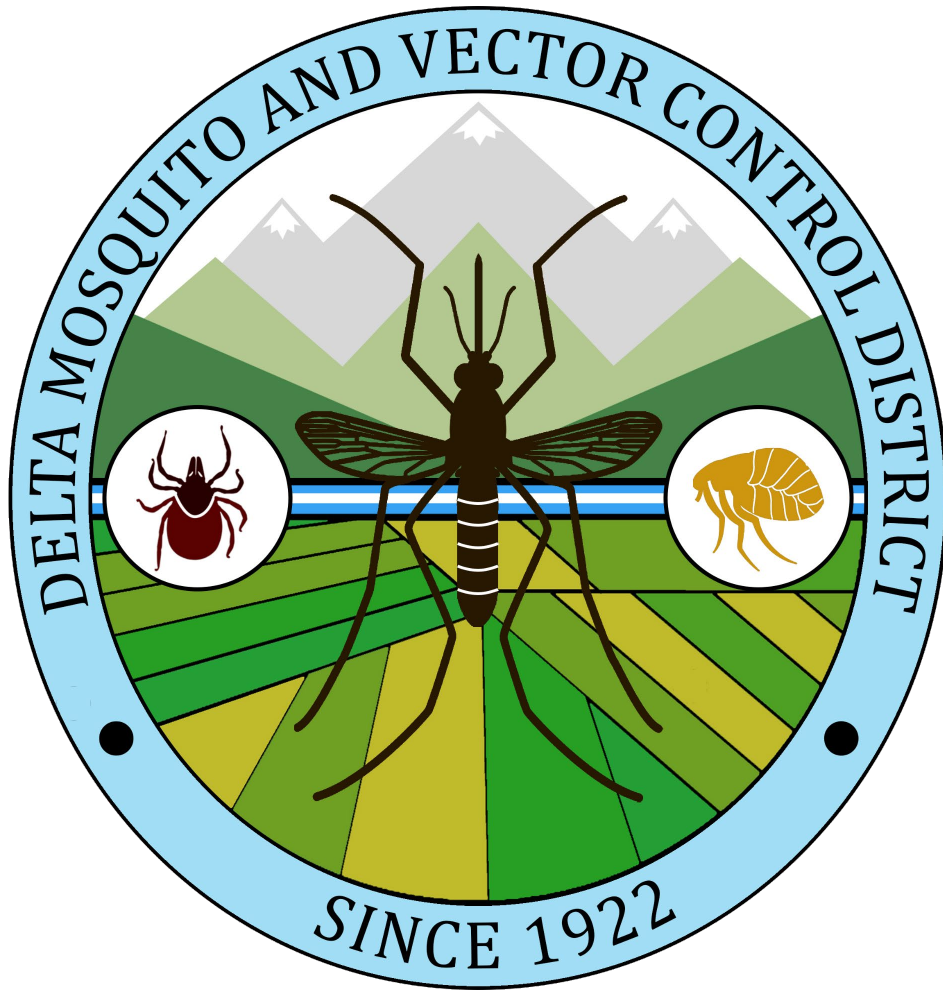
**V. Time Sheet Summary**

Month	Available Work Hrs.	Sick Hrs. Used	Total Hrs. Available for Work	Pct. Of Hrs. Avail for Work
July	5,880	20.5	5,859.5	99.65
August	6,440	39.5	6,400.5	99.38
September	5,456	48.25	5,407.75	99.12
October	5,040	32	5,008	99.37
November	3,168	88	3,080	97.22

The District has a vacation policy that requires 24-hour notice in order to ensure the operational integrity of the workforce. Sick leave for doctor, dentist and/ or family medical necessity also requires advance notice- in so much as it is possible. Illness is unplanned and therefore unscheduled. Attendance records for the current year are shown in the table.

\* December expenditures and revenue not available as of 12/09/2022

# 2022 Annual Report



**Delta Mosquito & Vector Control District**

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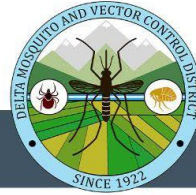
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# 2022 AT A GLANCE

DELTA MOSQUITO & VECTOR CONTROL DISTRICT (DMVCD)



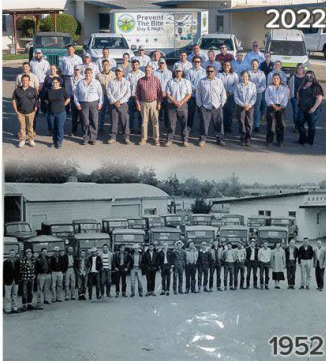
## 2022 AT A GLANCE

### 100 YEARS OF SERVICE

Delta MVCD was established in September 19, 1922

### DMVCD STRATEGY

Protect the Public Health from mosquito bites and vector-borne diseases using Integrated Vector Management (IVM)



### TOP 3 MOSQUITO SPECIES COLLECTED

*Culex quinquefasciatus* 78%  
*Aedes aegypti* 16%  
*Culex tarsalis* 4%

### Mosquito Samples Tested

4,753

980

8 Human West Nile virus Cases

West Nile virus positive Mosquito samples

Mosquito samples contain up to 50 mosquitoes

8 Dead birds tested



Birds positive for West Nile virus

2

### MOSQUITO-BREEDING SOURCES

13,500 Catch Basins

2,465 Mosquito Sources

24,836 Source Inspections

858 SERVICE REQUESTS

Mosquitoes Trapped 232,146

16 Mosquito Species

Total Inspections

88,644

DMVCD DRONE APPLICATION OVER CORNFIELD IN VISALIA



### COMMUNITY EDUCATION & OUTREACH

Events / Presentations 74  
 Participants 471  
 Radio Spots 120  
 Newspaper Ads 4

2021 2022 COLLABORATION WITH **oxitec**

SCIENTIFIC PUBLICATIONS 5  
 POSTERS 6

### PREVENT THE BITE DAY & NIGHT



**Tip**  
 Standing Water Weekly



**Toss**  
 Unused Containers



**Repel**  
 with EPA-Registered Insect repellents

## ABOUT THE DISTRICT

The Delta Mosquito and Vector Control District (DMVCD) was established in 1922 to protect residents from malaria, a mosquito-borne disease that was common to the Central Valley then. The Visalia Women's Club played a key role in the formation of the District. Today, the District is responsible for control of mosquito vectors of West Nile virus (WNV), St. Louis encephalitis virus (SLEV), Western equine encephalitis virus (WEEV) Chikungunya, Yellow fever, and Zika viruses. The District covers 712 square miles including the cities of Dinuba, Exeter, Farmersville, Visalia, and Woodlake, and the communities of Cutler, Orosi, Goshen, Ivanhoe, and Traver, all within Northern Tulare County.

### Our Vision

The DMVCD is the authority for vector control and vector-borne disease prevention in Northern Tulare County.

### Our Mission

The DMVCD is committed to protecting the public's health from vector-borne diseases and discomfort by delivering exceptional services which preserve and enhance the quality of life and desirability of the area to make northern Tulare County a safe place to live, work, and raise a family.

### Our Goals

1. Provide continual surveillance of mosquitoes to determine the threat of mosquito-borne disease transmission and annoyance levels.
2. Use safe, integrated vector management (IVM) methods to keep mosquito populations suppressed.
3. Promote cooperation and communication with property owners, residents, social and political groups, and governmental agencies.

### The Board of Trustees

As an independent special district, DMVCD serves its residents under the guidance of the Board of Trustees. The seven-member Board of Trustees consists of one resident from each of the incorporated cities in northern Tulare County and two representatives for the county-at-large.

Trustees are appointed by their respective City Council or the County Board of Supervisors to govern the District knowledgeably and effectively. Board members serve two or four-year terms according to the rules of their appointing body.

The regular Board meetings are held on the second Wednesday of each month at 1737 W. Houston Avenue in Visalia at 4:30 PM. The meetings are open to the public.



<b>Board Member</b>	<b>Position</b>	<b>Representing</b>
Greg Gomez	President	Farmersville
Belen Gomez	Secretary	Woodlake
Kevin Caskey	Trustee	County-at-large
Linda Guttierrez	Trustee	County-at-large
Larry Roberts	Trustee	Dinuba
Rosemary Hellwig	Trustee	Exeter
Vacant	Trustee	Visalia

## **District Personnel**

### **Administration**

Dr. Mustapha Debboun, *General Manager*  
 Mary Ellen Gomez, *Administrative Assistant*  
 Rebecca Harlien, *Administrative Analyst I*

### **Public Relations**

Erick Arriaga, *Community Education and Outreach Coordinator*

### **Laboratory**

Crystal Grippin, *Scientific Program Manager*  
 Javier Valdivias, *Biologist*  
 Mark Nakata, *Biologist*  
 Andrea Troupin, *Biologist*  
 Juan Pablo Ortega, *Laboratory Technician II*

### **Operations**

Hector Cardenas, *Operations Program Manager*  
 Paul Harlien, *Foreman*  
 Rick Alvarez, *Vector Control Field Supervisor*  
 Bryan Ruiz, *Vector Control Technician III*  
 Bryan Ferguson, *Vector Control Technician III-Mechanic*  
 Mario Sanchez, *Vector Control Technician III-Mechanic*  
 Adrian Sifuentes, *Vector Control Technician II*  
 Paul Raper, *Vector Control Technician II*  
 Carlos Rodriguez, *Vector Control Technician II*

## **Professional Associations**

Delta Mosquito and Vector Control District participates in various professional organizations that promote best practices in vector and vector-borne disease control, research, and management of special districts. The District is a member of Mosquito and Vector Control Association of California (MVCAC), American Mosquito Control Association (AMCA), Society for Vector Ecology (SOVE), Entomological Society of America (ESA), National Association of County and City Health Officials (NACCHO),

California Special District Association (CSDA), and the Tulare County Health Emergency Coalition (TCHEC).

## Publications, Presentations, and Posters

Advances in Arthropod Repellents. 2022. Elsevier & Academic Press, San Diego, CA. 339pp. Coats, J., C. Corona, and **M. Debboun**.

Delta Mosquito and Vector Control District's wireless smart mosquitofish feeder system. 2022. *AMCA and MVCAC Annual Conference*.

**Mark Nakata**, Crystal Grippin, Mir Bear-Johnson, Mustapha Debboun.

Kissing Bugs Among Us. 2022. *AMCA Annual Conference*.

**Mir Bear-Johnson & Andrea Troupin**, Crystal Grippin, Javier Valdivias, Mark Nakata, Erick Arriaga, Mustapha Debboun.

Utilizing Archived Data for District Operational Decisions. 2022. *MVCAC Annual Conference*.

**Hector Cardenas**, Crystal Grippin, Erick Arriaga, Rick Alvarez, Mark Nakata, Mir Bear-Johnson, Mustapha Debboun.

Pyrethrum resistance in *Culex quinquefasciatus* in Northern Tulare County, California. 2022. *AMCA and MVCAC Annual Conference*.

**Javier Valdivias**, Andrea Troupin, Mark Nakata, Crystal Grippin, Mir Bear-Johnson, Mustapha Debboun.

Developing a Triatomine Bug Surveillance Program in Tulare County, California. 2022. *SOVE*.

**Crystal Grippin**, Andrea Troupin, Mark Nakata, Mir Bear-Johnson, Mustapha Debboun.

The WALs to the cemetery: Examining efficacy under field conditions. 2022. *AMCA Annual Conference*.

**Crystal Grippin**, Javier Valdivias, Paul Harlien, Bryan Ruiz, Andrea Troupin, Mir Bear-Johnson, Mustapha Debboun.

Dengue Virus-2 Infection Affects Fecundity and Elicits Specific Transcriptional Changes in the Ovaries of *Aedes aegypti* Mosquitoes. 2022. *Frontiers in Microbiology*. 13:8867878.

F. Feitosa-Suntheimer, Z. Zhu, E. Mameli, G Dayama, AS Gold, A Broos-Caldwell, **Andrea Troupin**, et al.

Molecular analysis of knockdown resistance (kdr) mutations in the voltage-gated sodium channel of *Aedes aegypti* populations from Saudi Arabia. 2022. *Parasites & Vectors*, 15:375. Mashlawi, A.M., A.M. Al Nazawi, E.M. Noureldin, H. Alqahtani, J.A. Mayhoub, J. Saingamsook, **M. Debboun**, et al.

Ovicidal aroma shields for prevention of blow fly strikes caused by *Lucilia sericata* (Meigen), Diptera: Calliforidae. 2022. *Vector-Borne and Zoonotic Diseases*, 459-464.

Khater, H.F., G.S. Selem, Z. Hocine, M.M. Baz, A. Selim, N. Ahemed, S.A. Kandeel, **M. Debboun**, and A.K. Abdelwahab.

The contact/fumigant adulticidal effect of Egyptian oils against the house fly, *Musca domestica* (Diptera: Muscidae). 2022. International Journal of Veterinary Science, 1-7.  
Baz, M.M., R.I. Eltaly, **M. Debboun**, A. Selim, I.T. Radwan, N. Ahmed, and H.F. Khater.

*Triatoma protracta* (Uhler, 1894) (Hemiptera, Reduviidae) with *Trypanosoma cruzi* (Chagas, 1909) (Kinetoplastida, Trypanosomatidae) in the Central Valley of California, USA. 2022. Journal of Vector Ecology, 47: (1-3).

**Mir Bear-Johnson and M. Debboun.**

## SERVICE REQUESTS

The District provides services directly to residents in addition to routine surveillance and control efforts. Services include inspecting properties for mosquito-breeding sources, mosquitofish for front and backyard water features, and investigating reports of increased mosquito activity or standing water.

There were 743 service requests in 2022 (Table 1). This was a 25.1% decrease over the previous five-year average and an 18.1% decrease from 2021. This decrease was reflected in all categories of service requests, except for the Mosquito category, reporting the presence of mosquitoes, which increased by 39.0% compared to 2021 and 7.5% to the 5-year average. Part of this trend was due to increased resident understanding of the invasive *Aedes aegypti* mosquito. *Aedes aegypti* are aggressive, day-biting mosquitoes that prefer to lay their eggs in small, man-made containers, allowing them to thrive in common front and backyard environments. Although the number of mosquitofish requests dropped by 34.2% compared to 2021, it is still 23.4% higher than the previous five-year average, indicating an increase in the awareness of their use as an important control method for front and backyard water features. The number of requests for inspections and other requests was lower than both the 2021 numbers and the previous five-year average.

**Table 1. Number of service requests by category in 2022 compared to 2021 and the previous five-year average.**

Category	2022	2021	5-Year Average
Mosquito	431	310	400.8
Source	229	267	236.2
Mosquitofish	77	117	62.4
Inspection	3	202	268.2
Other	3	11	25
<b>TOTAL</b>	<b>743</b>	<b>907</b>	<b>992.6</b>

Although service requests were received every month, the majority were between June and August (Figure 1). This corresponds to the warmest summer temperatures of the year in the District. Warm weather increases mosquito abundance, leading to an increase in service requests during the hot summer months. The majority of households who requested services

had used District services before. This was closely followed by households who had heard about DMVCD through friends and family (Figure 2).

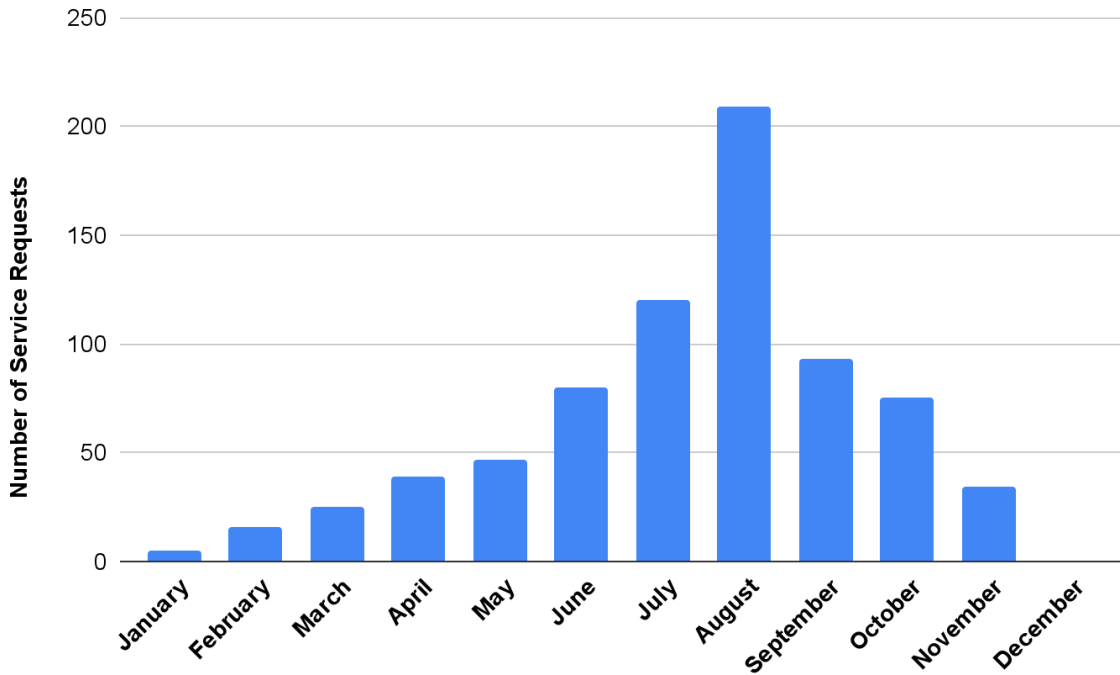


Figure 1. Number of service requests by month in 2022.

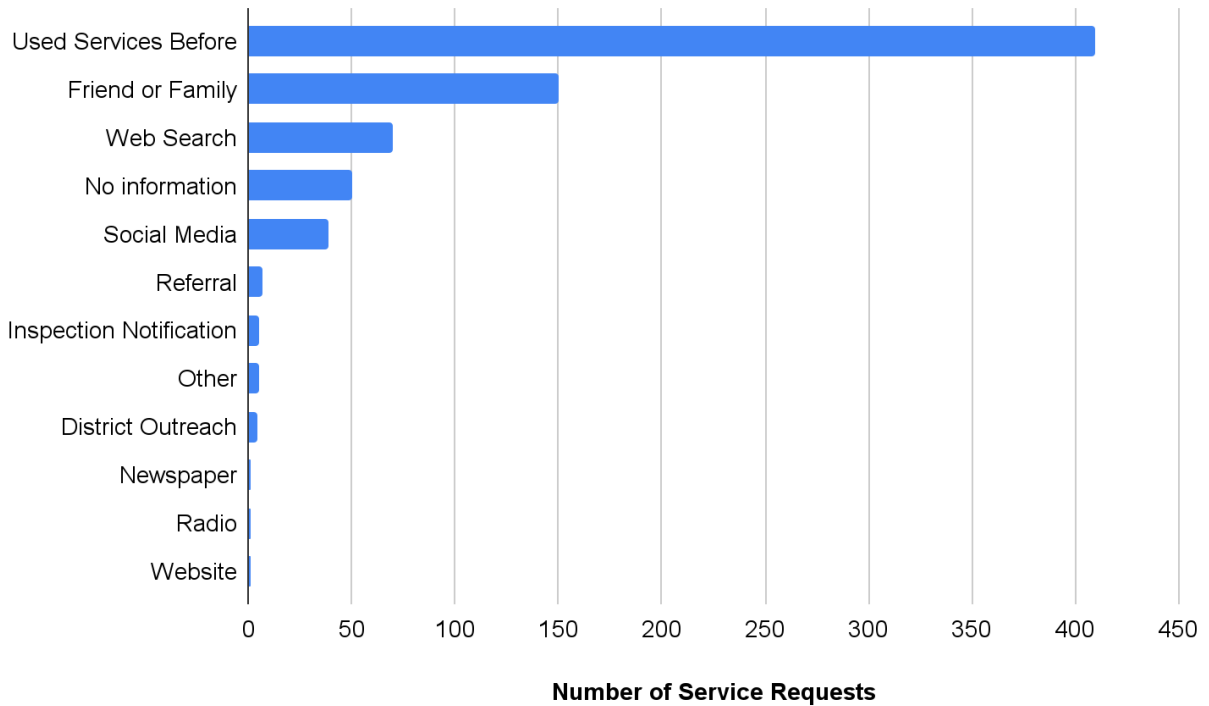


Figure 2. Individuals who requested services learned about DMVCD through a variety of ways.

## INTEGRATED VECTOR MANAGEMENT (IVM)

The DMVCD uses evidence-based IVM principles to protect residents from vectors and vector-borne diseases. The IVM combines surveillance, control, and community outreach techniques to improve the effectiveness, ecological soundness, and sustainability of vector control programs.

### Surveillance

The District monitors vector abundance and arbovirus activity through a variety of adult mosquito traps and by testing mosquitoes and dead birds for WNV, SLEV, and WEEV. Human cases are also reported and investigated alongside the Tulare County Public Health Department.

Districtwide, the average number of mosquitoes was 25.0, with an average of 22.8 female mosquitoes per trap night, for the 2022 mosquito season. Female mosquitoes can transmit diseases of public health concern because they require a blood meal to lay eggs. During 9,293 collections, the District caught a total of 232,127 mosquitoes, of which 91.2% were female (Table 2). Of the 16 mosquito species represented, *Culex quinquefasciatus* contributed the most to total mosquito abundance at 77.8% followed by *Ae. aegypti* at 16.3% and *Culex tarsalis* at 3.6%.

**Table 2. Adult mosquito abundance by sex and species in 2022.**

SPECIES	FEMALES	MALES	TOTAL	Mosquitoes per Trap Night
<i>Culex quinquefasciatus</i>	176,050	4,499	180,549	19.4
<i>Aedes aegypti</i>	22,741	15,045	37,786	4.1
<i>Culex tarsalis</i>	7,746	673	8,419	0.9
<i>Culex stigmatosoma</i>	4,029	192	4,221	0.5
<i>Anopheles freeborni</i>	420	14	434	0.0
<i>Culex erythrothorax</i>	304	0	304	0.0
<i>Anopheles franciscanus</i>	206	2	208	0.0
<i>Aedes melanimon</i>	56	0	56	0.0
<i>Culex thriambus</i>	46	3	49	0.0
<i>Aedes nigromaculis</i>	38	0	38	0.0
<i>Culiseta inornata</i>	26	1	27	0.0
<i>Culiseta incidens</i>	17	0	17	0.0
<i>Culiseta particeps</i>	6	1	7	0.0
<i>Aedes vexans</i>	6	0	6	0.0
<i>Aedes sierrensis</i>	4	0	4	0.0
<i>Anopheles punctipennis</i>	2	0	2	0.0

<b>TOTAL</b>	<b>211,697</b>	<b>20,430</b>	<b>232,127</b>	<b>25.0</b>
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Vector control technicians collected 579 larval samples. Of these, 142 were collected to identify the species present and 437 to monitor control efforts. *Ae. aegypti* species were identified in 47.9% of samples followed by *Cx. stigmatosoma* at 26.0%, *Cx. quinquefasciatus* at 17.6%, and *Cx. tarsalis* at 8.5% (Table 3). None of the mosquito larvae collected to monitor control efforts showed resistance to the treatment.

**Table 3. Mosquito species identified in larval samples in 2022.**

<b>SPECIES</b>	<b>SAMPLES</b>	<b>PERCENT of SAMPLES</b>
<i>Aedes aegypti</i>	68	47.9
<i>Culex stigmatosoma</i>	37	26.0
<i>Culex quinquefasciatus</i>	25	17.6
<i>Culex tarsalis</i>	12	8.5

Every mosquito sample contains 10 to 50 female mosquitoes of a single species that were caught in the same trap. The five *Culex* species tested are *Cx. quinquefasciatus*, *Cx. tarsalis*, *Cx. stigmatosoma*, *Cx. thriambus*, and *Cx. erythrothorax*. A total of 4,753 mosquito samples composed of 167,013 individual mosquitoes were tested in 2022. While no samples were positive for WEEV, 977 tested positive for WNV (Figure 3), 6 for SLEV (Figure 4), and 3 for both WNV and SLEV.

In 2022, 13 dead birds were reported to the District directly or through the California WNV Call Center. Of these, 9 were viable for disease testing. Dead bird carcasses are considered testable only if they have died within the past 48 hours, have no obvious physical trauma that led to death, and are of an accepted species for testing. Of the 9 birds tested, 2 were positive for WNV (Figure 5).

The Tulare County Public Health Department reported 8 human arbovirus infections to the District in 2022. Of these, 6 were WNV and 2 were SLEV.

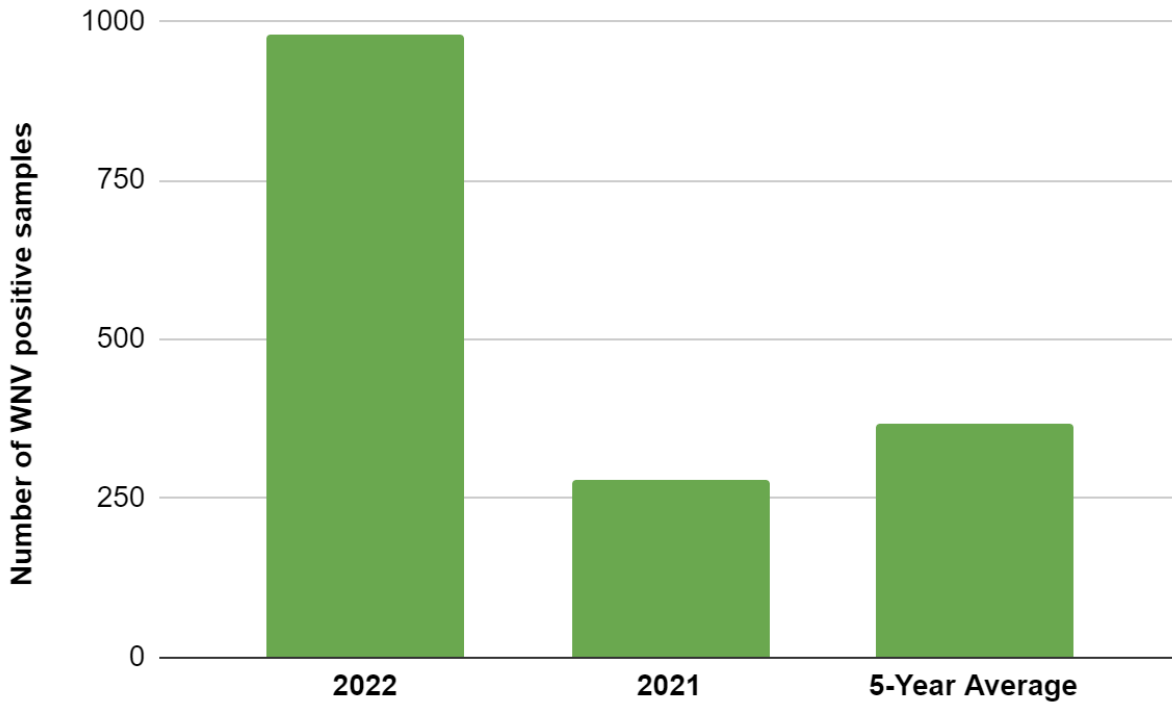


Figure 3. WNV positive mosquito samples in 2022 compared to 2021 and the previous 5-year average.

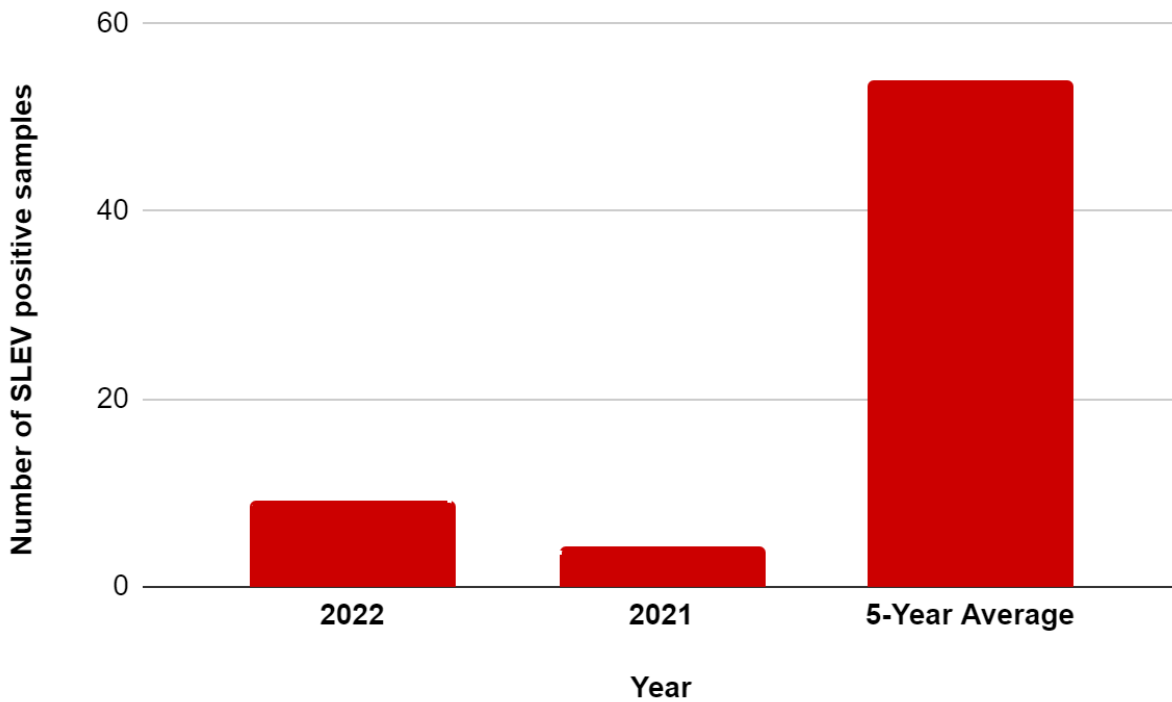


Figure 4. SLEV positive mosquito samples in 2022 compared to 2021 and the previous 5-year average.

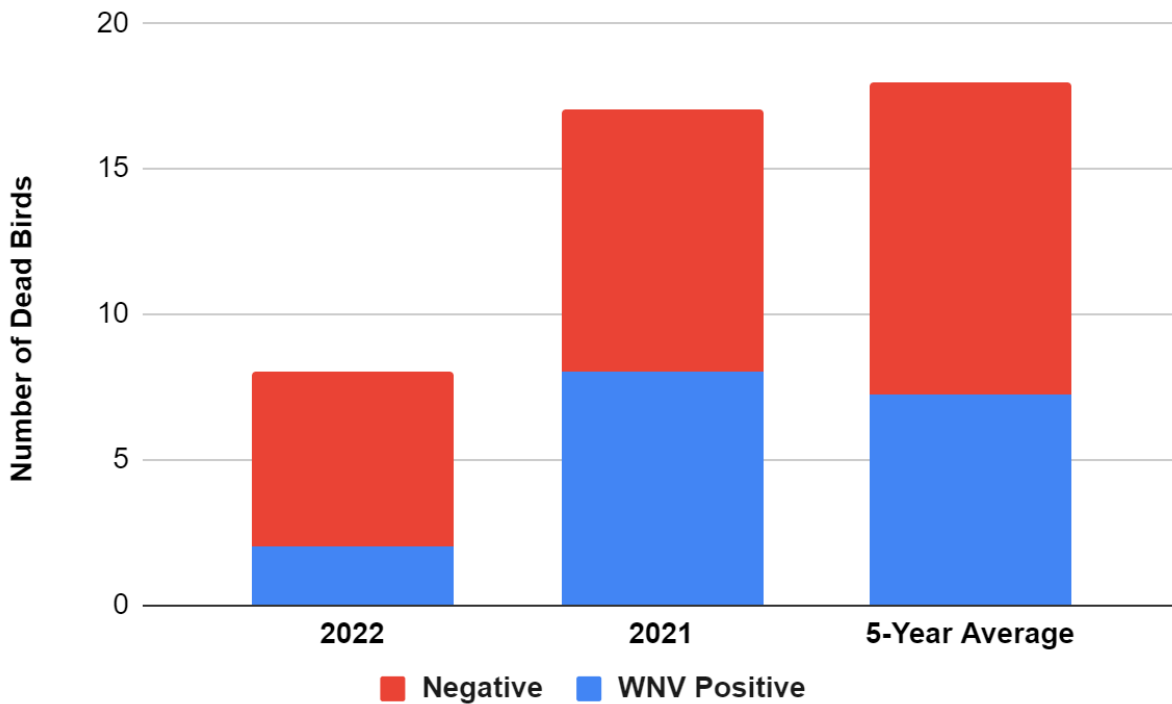


Figure 5. WNV positive dead birds in 2022 compared to 2021 and the 5-year average.

## Control

Delta Mosquito and Vector Control District's mosquito control program is prevention focused, relying on the early identification and control of larval mosquito sources to reduce the biting adult mosquito populations. Physical, biological, and chemical control methods are used to control larval sources, allowing for mosquito-specific control. The vast majority of the District's mosquito control program consists of larval-based control. Mosquito larviciding is both efficient and cost effective. Larval based control eliminates mosquito larvae before they develop into mosquitoes that are capable of transmitting mosquito-borne diseases to humans. Larval based products used to control mosquito larvae are target specific, i.e., they have minimal to no effects on non-target organisms. However, when adult mosquito populations become a threat to public health and transmit diseases such as WNV, the District takes measures to control adult mosquitoes by conducting adult mosquito treatments to break the disease cycle in the population and continue with surveillance and larval based control.

The Urban Mosquito Program main focus is to reduce the mosquito populations of both native and invasive species of mosquitoes in urban locations throughout the District's jurisdiction. Surveillance trapping efforts allow operations to make scientific based decisions on the use of resources to reduce arbovirus disease risk and high mosquito population. In addition, operations expanded on the Wide Area Larviciding System



(WALS) program in 2022. The WALS is an additional tool in our Integrated Vector Management Program (IVM) and is a method to dispense larvicides to a broader geographical area to target mosquito larvae in difficult to find breeding habitats. We utilize this method to target *Ae. aegypti* which is a cryptic breeding mosquito in urban locations. This mosquito season we increased our applications from 2021 with 7 applications covering 63.5 acres per application to 48 applications covering 50 acres per application.

In 2022, technicians controlled 3,786 (15.24%) mosquito-breeding sources out of 24,836 known or historical mosquito sources inspections (Table 4). Catch basins were treated monthly during the high mosquito season. In accordance with IVM principles, a variety of control methods were used to control mosquito-breeding sources and prevent insecticide resistance in mosquitoes (Table 5).

The District developed an Unmanned Aircraft System (UAS) application program (Figure 6). Four staff members were trained and certified in the Federal Aviation Administration part 107 to pilot small UAS. In addition, the 4 staff members were certified by the Department of Pesticide Regulation to conduct aerial application by UAS. The intent of this program is to integrate this aerial method to the IVM program to focus in rural problematic areas. This program allows the District to survey and conduct applications in a safe and effective manner in locations that are virtually inaccessible by traditional ground application methods. This season the District conducted a total of three applications in rural locations.



Figure 6. Staff of DMVCD conducting an Unmanned Aircraft System application mission.

Table 4. Total sources and treatments of catch basins and historical sources in the District in 2022.

SOURCE TYPE	TOTAL SOURCES	TREATED	INSPECTIONS
Catch Basins	13,500	63,808	63,808
Historical Sources	2,958	3,786	24,836

Mosquitofish, *Gambusia affinis*, are a large component of maintaining permanent water sources such as ponds and troughs. In 2022, the Auburn Fish Hatchery produced 15,871 mosquitofish. Of these, 3,303 mosquitofish were used to treat 91 mosquito-breeding sites in 2022 (Table 4). Free mosquitofish are also available to residents by request.

**Table 5. Operational data for control efforts in 2022.**

<b>PHYSICAL CONTROL OPERATIONS</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>
Number of sources	**	**	554
<b>MOSQUITOFISH OPERATIONS</b>			
Number of sites stocked	91	161	184
Number of fish used	3,303	3,856	3,214
<b>ADULTICIDE OPERATIONS</b>			
Number of operations	26	12	5
Pyronyl 525 (oz)	4,606.7	4,859	2,961.1
Fyfanon EW (oz)	7,186.2	N/A	N/A
<b>SURFACE AGENTS</b>			
Agnique Liquid (oz)	518	424.8	666.5
BVA2 larvicide (gallons)	5,352.5	5,867.5	4,492.8
<b>BIORATIONAL LARVICIDES</b>			
<b><i>Bacillus thuringiensis israelensis (Bti)</i></b>			
VectoBac 12AS (oz)	25,958.6	30,454.5	140,974
VectoBac G (lb)	60	40	41
VectoBac GR (lb)	287	0	40
VectoBac WDG (lb)	1,200	74	88
<b><i>Bacillus sphaericus (Bs)</i></b>			
VectoLex Granules (lb)	175	15	45
VectoLex WSP (each)	541	351	1,512
<b><i>Bti and Bs</i></b>			
FourStar 180 (each)	121	99	7
<b>Spinosad</b>			
Natular 2EC (oz)	1,521.5	926.9	853
Natular DT (each)	126	0	237
Natular G30 (lb)	291.7	18.25	31.9
Natular XRT(each)	342	46	0
<b>Insect growth regulator (methoprene)</b>			
Altosid Briquets (each)	68	147	164
Altosid Liquid (oz)	909.5	488.1	1,148

Altosid Pellets WSP (each)	63,808	57,726	69,572
Altosid Sand Mix (lb)	13	618.6	695.5
Altosid XRG (lb)	351.1	498.3	482
Altosid XRG Ultra (lb)	1,597	N/A	N/A
MetaLarv XRP (each)	N/A	1,394	00
Sumilarv WSP 25g (each)	43	N/A	N/A

\*\* Data for 2022 was not quantifiable due to the implementation of a new data record system Fieldseeker.

## Community Education and Outreach

The goal of community education and outreach is to increase resident participation in preventing nuisance biting and vector-borne diseases by educating residents to reduce mosquito-breeding water sources and use the appropriate personal protective measures to reduce mosquito bites.

In 2022, the District purchased a new van with brand imaging and new canopy booth set-up (Figure 7) for use at different events throughout the year. District staff attended a total of 89 events which included 22 Rawhide baseball games, 20 farmers markets, 9 community events, 5 flea markets, 8 school events, and a senior center event in Visalia. These events were attended by over 600 visitors and took place in Visalia, Exeter, Farmersville, Dinuba, and London.



**Figure 7. DMVCD outreach booth setup.**

During the mosquito season, the District had weekend radio spots on the local top-hits radio station. Messaging focused on reducing mosquito-breeding sources and bite prevention. In total, 120 thirty-second radio spots were aired monthly from July to October. Additionally, 8 half-page advertisements were placed in a local newspaper, *The Good Life* whose senior audience is at high risk of neuroinvasive WNV infections.

The technicians were provided new door hangers that were redesigned to clarify messaging at each of their property visits (Figure 8). Technicians were also provided with mosquito species information cards to educate residents during residential inspections (Figure 9). With the new drone program, the new trailer for the equipment has been wrapped with the District's logo and mission (Figure 10).



# NOTICE

## We Need Access to Your Property

Please prepare your property for a technician's visit on

1st Visit on: \_\_\_\_\_  2nd Visit \_\_\_\_\_

or call (559) 732-8606 to reschedule.

Property visits are an inspection of your front and backyards for water sources where mosquitoes may breed. Mosquitoes have the potential to transmit mosquito-borne disease to humans.

- They were unable to access your property due to:
  - Locked Gate
  - Dog(s)
  - Other: \_\_\_\_\_

**Prevent the Bite Day and Night by checking these common sources:**

Please dump and drain all standing water found.

Our technicians will check and discuss options for larger water sources, like fountains, ponds, and unused pools.






Inspector: \_\_\_\_\_ Date: \_\_\_\_\_



Delta Mosquito & Vector Control District  
 1737 W. Houston Ave, Visalia 93291  
 559-732-8606 - [www.deltamvcd.org](http://www.deltamvcd.org)  
 Hours of Operation: M - F 7:00 am - 4:00 pm

**No representative of DMVCD will ever ask you you to pay for services.**

Figure 8. The new DMVCD property inspection door hangers.

<p><b><i>Culex tarsalis</i></b> (Western Encephalitis Mosquito)</p>  <p><b>SEASON/ACTIVE:</b> Spring to fall  <b>PREFERS TO BITE:</b> Birds, mammals &amp; humans  <b>BITES DURING:</b> Dawn, dusk and night  <b>BREEDS IN:</b> Natural and man-made fresh water sources  <b>PUBLIC HEALTH IMPORTANCE:</b> Capable of transmitting West Nile Virus, St Louis Encephalitis virus, &amp; Western Equine Encephalitis Virus  <b>SIGNIFICANCE:</b> High Pest and seasonal disease risk</p>	<p><b><i>Aedes aegypti</i></b> (Yellow Fever Mosquito)</p>  <p><b>SEASON/ACTIVE:</b> Mid to late summer and fall  <b>PREFERS TO BITE:</b> Humans  <b>BITES DURING:</b> Daytime and near dusk/dawn  <b>BREEDS IN:</b> Small, man-made containers like pet water bowls and plant trays  <b>PUBLIC HEALTH IMPORTANCE:</b> Capable of transmitting Zika, Dengue, Chikungunya, Yellow Fever  <b>SIGNIFICANCE:</b> High pest, currently no local disease transmission</p>	<p><b><i>Culex quinquefasciatus</i></b> (Southern House Mosquito)</p>  <p><b>SEASON/ACTIVE:</b> Spring to Fall  <b>PREFERS TO BITE:</b> Birds, large mammals &amp; humans  <b>BITES DURING:</b> Dawn/ dusk and night  <b>BREEDS IN:</b> Ponds, catch basins, neglected pools, and other residential sources  <b>PUBLIC HEALTH IMPORTANCE:</b> Capable of transmitting West Nile Virus and St. Louis Encephalitis  <b>SIGNIFICANCE:</b> High pest and seasonal disease risk</p>
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**Figure 9. Mosquito information cards used by technicians to educate residents during residential inspections.**





Figure 10. DMVCD drone trailer with completed graphic wrap.

The District also celebrated its 100th year anniversary, since its creation on September 19, 1922. For this monumental anniversary, the District created a summary of the major milestones of the District during its 100 years of service (Figure 11). Additionally, the Tulare County Historical Society and California Special Districts Association posted a write-up about DMVCD's 100-year history on its website. The District held an open house on October 8, 2022, inviting all residents within the District to celebrate its 100-year anniversary.

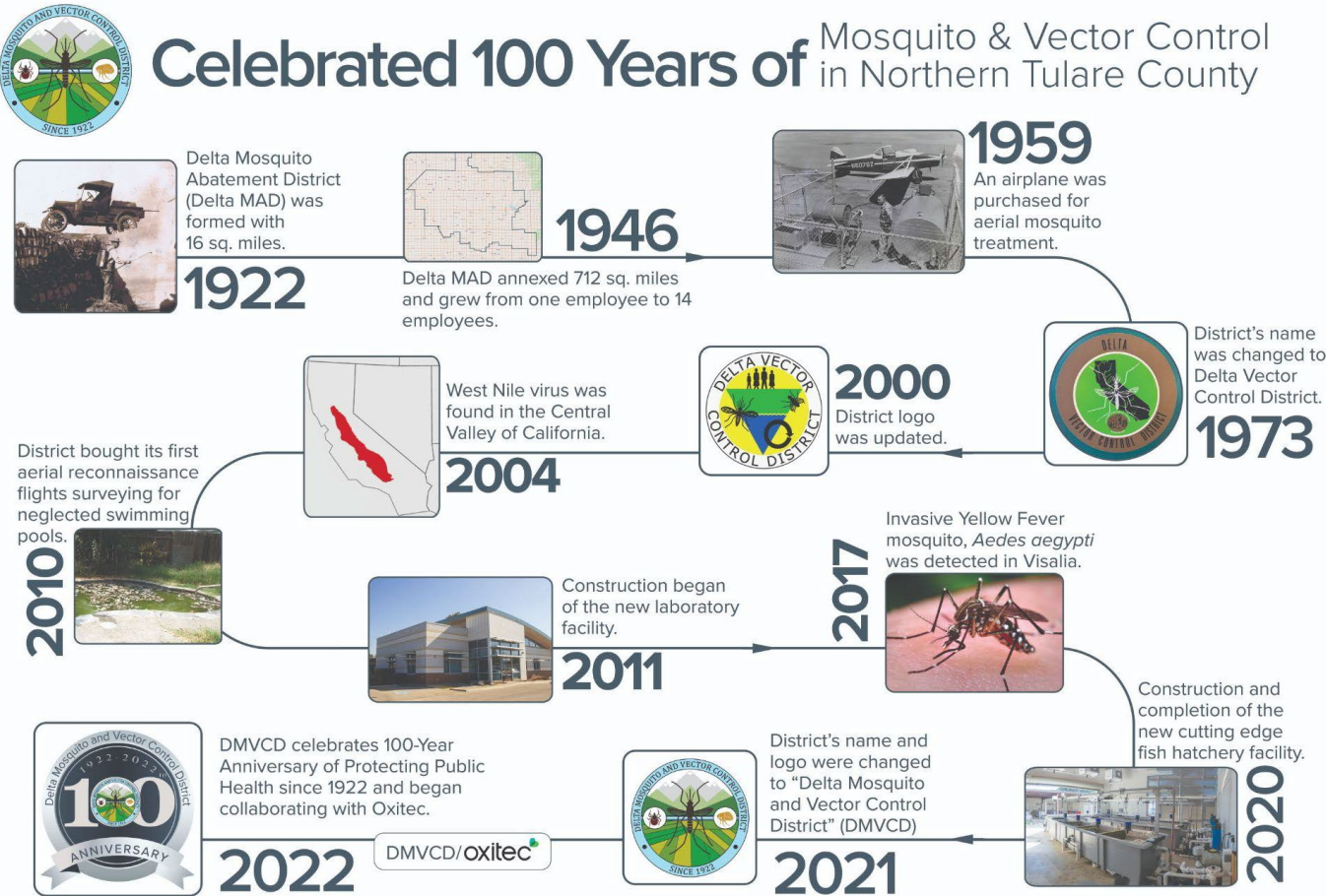


Figure 11. Key milestones during the District's 100 years of service.

In addition, Special District Leadership Foundation (SDLF) recognized Delta Mosquito and Vector Control District as one of the 10 SDLF Transparency Challenge winners in the September/October 2022 issue of *Special Districts*, a publication of the California Special District Association (Figure 12).





The Special District Leadership Foundation (SDLF) recognizes the Delta Mosquito and Vector Control District (District) as one of the ten 2021 SDLF Transparency Challenge winners! The district shares their insight about the process and the benefits of this transparency recognition.

**Share your experience completing the Transparency Challenge**

Our Delta Mosquito & Vector Control District (DMVCD) already had most of the appropriate documents, and needed only to add some policies and ensured all documents were posted on the DMVCD’s website. Going through the comprehensive list gave us a better understanding of where various documents are kept at the DMVCD and encouraged us to take a closer look at the number of our policies. This experience was invaluable and definitely made us more aware of all of the steps and requirements resulting in us taking the time to further educate ourselves and staff about some of the additional rules and regulations pertaining to special districts. Overall, the SDLF Transparency Challenge application process was not difficult but quite educational and rewarding.

**Why was completing the challenge important to your district?**

As an independent special district who seldom has members of the public attend board meetings, it can feel like we don’t need to change or update what we are currently doing. Working towards a goal such as the Transparency Challenge helped highlight how improvement is always needed and how important it is to continue to conduct important transparency activities of our district. Additionally, it made all of us more confident in our actions by increasing our special district transparency and becoming more responsive to all members of the public and their concerns.

**Now that you have earned your SDLF Transparency Certificate, how will you use the recognition to highlight your district’s**

**accomplishment to your customers, constituents, and/or other stakeholders?**

As a district, we look forward to continuing to update our documents and make sure all of them are available, transparent, current, and up-to-date. Our members of the DMVCD Board of Trustees are aware of our district transparency, and we are always ready to direct all members of the district if they have any questions to our district transparency page on our DMVCD website. We always aspire to be transparent and hope that this will make all the members of our district feel more confident in our activities, services, and be more willing to engage with Delta Mosquito and Vector Control District.

**About Delta Mosquito and Vector Control District**

Delta Mosquito and Vector Control District, founded in 1922, is a special district charged with protecting the public from mosquito-borne diseases and mosquito nuisances. They protect northern Tulare County including Visalia, Dinuba, Exeter, Farmersville, Woodlake, Cutler, Orosi, and Ivanhoe. Their team is committed to protecting public health through mosquito control activities and mosquito-borne disease surveillance. For more information, visit [deltamvcd.org](http://deltamvcd.org).



It is now more important than ever for local governments (including special districts) to be open and accessible to the public. The Special District Leadership Foundation’s Transparency Challenge showcases the many steps districts take to show they are available and transparent to their constituents and customers.

Learn more at <https://www.sdlf.org/home>.

**Figure 12.** Special District Leadership Foundation (SDLF) recognizing DMVCD as one of the 10 SDLF Transparency Challenge winners.



## ***UPDATE: Innovative Mosquito Control***

To: Board of Trustees of the Delta Mosquito and Vector Control District

From: Delta Mosquito and Vector Control District and Oxitec Ltd.

Re: Battling the Spread of Invasive Mosquitoes

Date: November 28, 2022

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This letter is to update Board Members on the continued spread of the invasive *Aedes aegypti* mosquitoes throughout the state and the need to prioritize policies to slow the human health threat it poses. The health of millions of Californians are at risk by the spread of diseases never previously transmitted in the state.

*Aedes aegypti* is an invasive species in California and survives in tropical and temperate climates. This species transmits Zika, dengue, and chikungunya. In the past 10 years, climate change has magnified the risks of invasive mosquitoes, and *Aedes aegypti* can now withstand temperate California winters, remaining a threat year after year.

Since first being detected in 2013 in the Central Valley, *Aedes aegypti* has spread to over 300 towns and cities throughout California and 25 counties, increasing the risk of transmission of viruses that cause dengue, chikungunya, Zika, and yellow fever. According to the California Department of Public Health, “none of these viruses are currently known to be transmitted within California, but thousands of people are infected with these viruses in other parts of the world, including in Puerto Rico, Mexico, Central and South America, the Caribbean, and Asia. The presence of *Aedes aegypti* mosquitoes in California poses a threat that Zika, dengue, and chikungunya viruses can be transmitted in infested areas from returned infected travelers.”

Local transmission of these viruses is possible in California. This year, local transmission of dengue has occurred in Puerto Rico, Florida, and Arizona. The Mexican state of Sonora has reported 8,000 cases with 63 people dying from dengue in 2022. While 582 Floridians picked up dengue while traveling, 32 people were infected at home because *Aedes aegypti* mosquitoes are in their neighborhoods.

In the past ten years, no new tools have been approved in California to fight the spread of *Aedes aegypti*. The COVID pandemic has reinforced the need for proactive public health interventions before there is a wide-spread disease outbreak. Unfortunately, California is showing no urgency to support the development of new tools to fight mosquito-borne diseases.

It has come to our attention that a few legislators and groups have raised concerns about our efforts to get a limited duration research permit specifically limited to Tulare County to test a pioneering strategy that could help prevent and control an invasive mosquito population and the potential diseases that they could spread. Oxitec has developed a category of safe, sustainable chemical-free and highly effective biological pest control solutions to address invasive species.

Unfortunately, mosquito and vector control districts will soon reach a critical stage and not be able to stop *Aedes aegypti* from spreading diseases throughout the state, many of which have no cure or vaccine. Districts need new non-chemical tools that can help us fight back. To better control the spread of these pests and reduce health risks to Californians, we need the California Department of Pesticide Regulation (DPR) to follow the science and approve the research to give mosquito control districts additional tools to protect public health and safety.

This memo is to set the record straight and help address concerns that have been raised about Oxitec’s technology as it seeks approval from DPR for a research authorization permit that would allow it to use an innovative new tool through a pilot project, which will help control the invasive *Aedes aegypti* mosquitoes. The Mosquito and Vector Control

Association of California (MVCAC) are in strong support of using innovative techniques and agree that Oxitec's research application to DPR should move forward expeditiously. These districts understand it's important for the state to follow the science and approve the research necessary to give mosquito control districts additional tools to protect public health and safety.

Oxitec's technology can provide a key tool in the battle against *Aedes aegypti*. Like the successful programs in other countries, including Brazil, and here within the United States (Florida), Oxitec has developed a pioneering new technology that is safe, sustainable, and chemical-free by using a highly effective biological pest control solution. To ensure its effectiveness and safe use, Oxitec is seeking approval from DPR that would allow for limited use of pilot projects of its Friendly™ non-biting male *Aedes aegypti* mosquitoes. Male mosquitoes carry a self-limiting gene that is passed to biting, invasive female *Aedes aegypti* upon mating. (Only female mosquitoes bite; males are incapable of biting or imbibing blood.) As a result, the male's self-limiting gene, which cannot establish in the ecosystem, prevents female offspring from surviving. Only male progeny survive, thus preventing the potential spread of deadly diseases carried by female mosquitoes. Oxitec's technology does not use chemicals, and it does not harm beneficial insects like bees and butterflies. In addition, Oxitec is not testing on humans, and it is not introducing any risk to humans or the environment, as stated by the United States Environmental Protection Agency (USEPA) and Food and Drug Administration (FDA). It should also be noted that Oxitec's application would be limited only to pilot projects located in Tulare County, an area that is experiencing a significant increase in *Aedes aegypti*. Oxitec will seek approval from local governments before initiating any pilot projects.

Last, it's unfortunate this pioneering strategy, which US EPA has already approved for additional research under President Biden's Administration through an experimental use permit<sup>1</sup>, in addition to being subjected to peer reviewed research<sup>2</sup>, could miss an opportunity to sustainably control *Aedes aegypti* in California. This is because **some groups have taken the liberty to use a misinformation campaign instead of adhering to actual objective science-based information**. Certain groups are trying to persuade DPR from using a science-based approach to approve Oxitec's research authorization permit out of fear. Contrary to their assumptions, the use of Oxitec's technology has been extensively studied. But by no means is Oxitec suggesting its technology is a "one-size-fits-all solution." It is simply another tool, and a sustainable one without using chemicals, that could provide mosquito districts and public health officials the ability to stop the spread of *Aedes aegypti*. Oxitec must first be allowed to conduct more research in California through a research authorization permit as they have requested in their application to DPR. DPR has allowed for extensive public comment about this application, even more so than what has ever been previously required. At DPR's behest, Delta Mosquito and Vector Control District (Delta MVCD) and Oxitec have done extensive outreach and by having multiple webinars, knocking on over 1,000 doors and engaging the local community at every level. It is now time for the process to move forward and DPR to apply the science, or the state will continue to put the health of Californians at risk due to its losing battle against invasive mosquitoes.

For more information about the Delta MVCD-Oxitec project, please reach out to Delta MVCD General Manager, Mustapha Debboun ([mdebboun@deltamvcd.org](mailto:mdebboun@deltamvcd.org)) or Oxitec's Director of US Programs, Rajeev Vaidyanathan ([rajeev.vaidyanathan@oxitec.com](mailto:rajeev.vaidyanathan@oxitec.com)).

You can also learn more about Oxitec's pioneering technology [here](#).

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<sup>1</sup> [EPA Expands and Extends Testing of Genetically Engineered Mosquitoes to Reduce Mosquito Populations, March 7, 2022.](#)

<sup>2</sup> [Psyche – Journal of Entomology. Self-Limiting OX513A Aedes aegypti Demonstrate Full Susceptibility to Currently Used Insecticidal Chemistries as Compared to Indian Wild-Type Aedes aegypti \(hindawi.com\), April 2018.](#)

## **7. Audit Preparation**



December 7, 2022

Dr. Mustapha Debboun, General Manager  
Delta Mosquito and Vector Control District  
1737 West Houston Ave.  
Visalia, CA 93721

Dear Dr. Debboun:

This letter confirms the engagement of Price Paige & Company by the Delta Mosquito and Vector Control District (the "District") as of and for the year ended June 30, 2022, for professional consulting services as described below:

- 1) We will assist the District in the year-end close of its financial records for the year ended June 30, 2022 by analyzing and preparing reconciliations of the following balance sheet and income statement balances in preparation for the District's external financial statement audit:
  - a. Cash and Investments, including preparation of the District's bank reconciliations
  - b. Capital Assets
  - c. Long-term Debt
  - d. Compensated Absences
  - e. Other Post-Employment Benefits and related Deferred Inflows and Outflows of Resources
  - f. Net Pension Liability and related Deferred Inflows and Outflows of Resources
  - g. Cash to accrual conversion for Accounts Receivable and Accounts Payable
- 2) For the items listed above, we will provide all journal entries necessary to ensure that the District's trial balance reconciles to the supporting audit schedules.
- 3) We will serve as a liaison with the District's external auditors for any inquiries directly related to the balance sheet and income statement items listed above.
- 4) We will provide the District with additional consultation, including training of accounting personnel, as agreed upon with District management. The scope, timing, and extent of the additional consultation will be discussed prior to the commencement of any work.

All workpapers or other documents used by us during this engagement will be maintained in segregated files, and such originals and all copies will be returned to you upon the completion of our engagement.

You agree to oversee the nonaudit services by designating an individual, preferably from senior management, with suitable skill, knowledge, or experience; evaluate the adequacy and results of those services; and accept responsibility for them. These nonaudit services do not constitute an audit under Government Auditing Standards and such services will not be conducted in accordance with Government Auditing Standards. We will perform the services in accordance with applicable professional standards. We, in our sole professional judgment, reserve the right to refuse to perform any procedure or take any action that could be construed as assuming management responsibilities.

570 N. Magnolia Avenue, Suite 100  
Clovis, CA 93611

tel 559.299.9540

fax 559.299.2344

### **Electronic Data Communication and Storage and Use of Third-Party Service Provider**

In the interest of facilitating our services to the District, we may communicate by facsimile transmission, send data over the Internet, store electronic data via computer software applications hosted remotely on the Internet, or allow access to data through third-party vendors' secured portals or clouds. Electronic data that is confidential to the District may be transmitted or stored using these methods. We may use third-party service providers to store or transmit this data, such as providers of tax return preparation and document management software. In using these data communication and storage methods, our firm employs measures designed to maintain data security. We use reasonable efforts to keep such communications and data access secure in accordance with our obligations under applicable laws and professional standards. We also require all of our third-party vendors to do the same.

You recognize and accept that we have no control over the unauthorized interception or breach of any communications or data once it has been sent or has been subject to unauthorized access, notwithstanding all reasonable security measures employed by us or our third-party vendors, and consent to our use of these electronic devices and applications and submission of confidential client information to third-party service providers during this engagement.

### **Engagement Administration, Fees and Other**

We will schedule the engagement based in part on deadlines, working conditions, and the availability of your key personnel. We will plan the engagement based on the assumption that your personnel will cooperate and provide assistance by performing tasks such as preparing requested schedules, retrieving supporting documents, and preparing confirmations. If, for whatever reason, your personnel are unavailable to provide the necessary assistance in a timely manner, it may substantially increase the work we have to do to complete the engagement within the established deadlines, resulting in an increase in fees over our original fee estimate.

It is our policy to keep records related to this engagement for a minimum of seven years after the report release date.

Our fees for the above services for the year ended June 30, 2022 will be as follows:

Consulting Services, as listed in items 1-3	\$ 18,750
Additional Consulting, as listed in item 4 (hourly, not to exceed)	<u>5,000</u>
Total	<u>\$23,750</u>

Our fees are based on expected hours required to perform the service at our standard hourly rates. Our standard hourly rates vary according to the degree of responsibility involved and the experience level of the personnel assigned to your consulting engagement. Our billing rates are reviewed annually and, where appropriate, adjusted for any increases due to inflation and other factors. We will issue a monthly billing statement for the work completed in that month. Payments for services are due when rendered and interim billings may be submitted as work progresses and expenses are incurred. Our fee estimate is based on anticipated cooperation from your personnel and assumption that unexpected circumstances will not be encountered. If significant time is necessary, we will discuss it with you before we incur additional costs. The fees for these services will be billed at the hourly billing rate for the individual involved, plus out-of-pocket expenses.

If any dispute pertaining to our work product arises among the parties hereto, the parties agree first to try in good faith to settle the dispute by mediation administered by the American Arbitration Association under its Rules for Professional Accounting and Related Services Disputes before resorting to litigation. The costs of any mediation proceeding shall be shared equally by all parties.

All work will be suspended if your account becomes 90 days past due. No work will be resumed until your account is fully paid. You acknowledge and agree that in the event we stop work or withdraw from this engagement as a result of your failure to pay on a timely basis for services rendered as required by this engagement letter, we shall not be liable for any damages that occur as a result of our ceasing to render services. Client and accountant both agree that any dispute over fees charged by the accountant to the client will be submitted for resolution by arbitration in accordance with the Rules for Professional Accounting and Related Services Disputes of the American Arbitration Association. Such arbitration shall be binding and final. IN AGREEING TO ARBITRATION, WE BOTH ACKNOWLEDGE THAT, IN THE EVENT OF A DISPUTE OVER FEES CHARGED BY THE ACCOUNTANT, EACH OF US IS GIVING UP THE RIGHT TO HAVE THE DISPUTE DECIDED IN A COURT OF LAW BEFORE A JUDGE OR JURY AND INSTEAD WE ARE ACCEPTING THE USE OF ARBITRATION FOR RESOLUTION.

If information becomes known that would make our continued involvement in this engagement inappropriate, or parties involved change, we reserve the right to withdraw from this engagement. In addition, we will refuse to perform



any requested act that we deem a violation of law, public policy, or our professional ethical standards, and may, as a result, withdraw from the engagement without penalty.

In no event will our firm be liable for incidental or consequential damages resulting from our performance on this engagement, even if we have been advised of the possibility of such damages.

If these terms are in accordance with your understanding and meet with your approval, please return a signed copy via email or regular mail at your earliest convenience. This agreement will become effective when you return the signed copy to us.

If the need for additional services arises, our agreement with you will need to be revised. It is customary for us to describe these revisions in an addendum to this letter.

Sincerely,



Joshua Giosa, CPA  
Price Paige & Company

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RESPONSE:

This letter correctly sets forth the understanding of **Delta Mosquito and Vector Control District**.

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*Management Signature* *Title* *Date*

## **8. Holiday Gift**



## **9. January Meeting**

## **10. Board of Trustees Member Comments**

## **11. Future Agenda Items**

## **12. Adjournment**