

DELTA MOSQUITO & VECTOR CONTROL DISTRICT

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REPORT OF THE MANAGER OCTOBER 2021

I. Water and Weather

The temperature remained low throughout the month of October. The Delta Mosquito and Vector Control District (DMVCD) Weather Station reported an average high temperature of 76.6°F with an average low of 50.4°F and 1.49 inches of rainfall. The National Oceanic and Atmospheric Administration 1981-2010 seasonal averages for high and low temperatures in October were 78.2°F and 52.5°F respectively, with average rainfall of 0.61 inches.

Water storage at Pine Flat Reservoir increased slightly to 207,166 acre-feet by the end of the month. By October 31, 2021, Pine Flat Reservoir's inflow had increased to 726 cubic feet per second (CFS) and its release decreased to 151 CFS. The Lake Kaweah Reservoir ended the month with slightly more water than the previous month, with 22,606 acre-feet on October 31, 2021. Lake Kaweah's inflow fluctuated at the end of the month, with the reading from October 31, 2021, showing 124 CFS and its release was decreased dramatically to 5 CFS.

II. Narrative

Partial treatments of storm drains systems continued during October throughout the District's jurisdiction. Approximately 943 storm drains were treated with a 90-day residual Methoprene product (MetaLarv XRP). Sites included street drains, parking lots, parks, apartment complexes, and schools. During this period, the District focused on treatments of only problematic storm drains.

On October 2, 2021, Southern California Edison performed required maintenance which left the District without electricity for an extended period of time. Our Shop Foreman, Paul Harlien assisted with a private generator to maintain the District's laboratory materials in working conditions. This operation was completed after working hours. The District will be looking into the possibility of acquiring generators to support power outages, both expected and unexpected, moving forward.

Larviciding aerial treatment for the Kaweah River Rock Plant continued for the month of October, with the seventh treatment taking place on October 12, 2021. During the application, eight acres were treated with an insect growth hormone regulator, (Altosid XRG).

Due to high mosquito counts and viral activity, the District moved forward with an adult mosquito treatment in the northwestern section of Visalia. The treatment area covered roughly 929 acres which included rural and urban locations. The high trap count activity was due to the crop harvesting which dispersed mosquitoes into residential neighborhoods.

The full-time staff will continue to complete public service request and inspect potential winter breeding locations. Our District mechanics are currently preparing for winter maintenance to perform vehicle inspections and repairs on our vehicle fleet.

Routine mosquito surveillance ended on October 22, 2021. A total of 13,910 mosquitoes were collected across 370 trap nights. The District-wide average of 37.6 mosquitoes per trap night for October was 41.8% higher than the previous 5-year average of 26.5, but 7.9% lower than the 2020 average of 40.8 mosquitoes per trap night. The top 3 mosquito species collected in October were *Culex quinquefasciatus* at 88.4%, followed by *Aedes aegypti* at 9.5% and *Culex tarsalis* at 0.8%.

Mosquito-borne disease testing for West Nile virus (WNV), St. Louis Encephalitis virus (SLEV), and Western Equine Encephalitis virus (WEEV) also ended in October. Arbovirus activity in mosquitoes decreased dramatically compared to the previous month. The DMVCD tested 274 mosquito samples and 0 bird carcasses in October with three samples positive for WNV. In 2021, a total of 278 mosquito samples out of 3,052 samples tested positive for WNV, while four were positive for SLEV (Table 1). The WNV positive mosquito samples were collected from Dinuba, Exeter, Farmersville, Peral, Traver, Visalia, Woodlake, and along the Kings River (Table 2). The SLEV samples were collected from Dinuba, Peral, and Visalia.

Table 1. Detections of West Nile virus (WNV), St. Louis encephalitis virus (SLEV), and Western equine encephalitis virus (WEEV) within the District in 2021.

2021 Year to Date Arbovirus Detections					
SAMPLE	WNV	SLEV	WNV SLEV	& WEEV	TOTAL
Mosquitoes	278	4	0	0	282
Dead Birds	5	0	0	0	5
TOTAL	283	4	0	0	287

Table 2. Detections of West Nile virus (WNV), St. Louis encephalitis virus (SLEV), and Western equine encephalitis virus (WEEV) by city within the District in 2021.

2021 Year to Date Arbovirus Detections by City					
CITY	WNV	SLEV	WNV SLEV	& WEEV	TOTAL
Cutler	0	0	0	0	0
Dinuba	19	1	0	0	20
Exeter	5	0	0	0	5
Farmersville	3	0	0	0	3
Goshen	0	0	0	0	0
Ivanhoe	0	0	0	0	0
Kingsburg*	0	0	0	0	0
London	0	0	0	0	0
N Kings River	1	0	0	0	1
Orosi	0	0	0	0	0
Peral	33	1	0	0	34
Sequoia Fields	12	0	0	0	12
S Kings River	12	0	0	0	12
Traver	1	0	0	0	1
Visalia	196	2	0	0	198
Woodlake	1	0	0	0	1
TOTAL	283	4	0	0	287

* DMVCD only serves a small eastern, southeastern area of Kingsburg. Consolidated MAD serves the city of Kingsburg.

In October 2021, 39 larval mosquito samples were collected from the field for species identification and larvicide resistance monitoring. No larvicide resistance was observed. The CDC Bio-Bottle Assay tests are ongoing to identify areas with adulticide resistance and the mechanism of resistance throughout the District.

Mosquitofish requests decreased during October. A total of 232 mosquitofish were distributed through one technician and six homeowner requests. The production of F-fry or mosquitofish young decreased to 322 fry in October. Fish tanks were in the process of transitioning to overwinter settings.

The release of seasonal employees started in October due to the decrease of mosquito, virus activity, and cooler fall temperatures. The Operations Section released most of the urban seasonal employees, and the Laboratory released most of the trap seasonal employees on October 8, 2021. On October 15, 2021, the dairy, oil, and storm drain seasonal inspectors were released for 2021 season. The Laboratory and Operations released the remaining trap and urban seasonal employees, respectively, on October 22, 2021. The remaining rural inspectors were released on October 28, 2021.

The 2021 Budget Act appropriated \$100 million one-time General Fund to provide fiscal relief to independent special districts for revenue loss or unanticipated costs incurred due to the COVID-19 public health emergency. The Delta MVCD applied for \$312,100 and the requested allocated amount will be known in mid-December for January 2022 distribution.

The MVCD staff submitted six abstracts for both the Mosquito and Vector Control Association of California (MVCAC) and the American Mosquito Control Association (AMCA) Annual conferences.

The fall quarterly meeting of MVCAC took place in person in Costa Mesa, and virtually online, on October 26 and 27, 2021. Dr. Mustapha Debboun, Mir Bear-Johnson, Crystal Grippin, and Mark Nakata as committee members attended the meeting in person, with other staff participating virtually.

Dr. Debboun attended the Governing Board, presented, and led two Symposia during the 2021 Annual Entomological Society of America (ESA) Meeting from October 30 to November 4, 2021.

We installed a new time clock software and onboarding which started on November 1, 2021.

The Auditors from Price Paige and Company visited the MVCD on October 21, 2021 to conduct the yearly audited financial statements which ended on June 30, 2021.

In October, efforts were made to begin creating a communication strategy with vendors and other districts to create new educational materials to reach the younger and elder populations within the District.

A new van design for the community and education outreach vehicle (Figure 1) was finalized within the District to be used for 2022 mosquito and vector season.



Figure 1. A new community education and outreach Delta Mosquito and Vector Control District van.

There were 44 service requests in October 2021:

2021 Service Request Summary

2021	Fish	Inspection	Mosquito	Source	Other	Total
January	0	0	1	2	0	3
February	0	0	0	2	0	2
March	0	0	7	17	3	27
April	19	9	11	26	3	68
May	31	51	4	27	2	115
June	23	88	36	34	1	182
July	14	33	64	46	2	159
August	10	14	94	56	0	174
September	14	1	64	31	0	110
October	1	1	27	15	0	44
Total	112	197	308	256	11	884

III. Vector and Disease Surveillance

Delta MVCD Summaries

Humans: There were no human cases of an arbovirus reported in October. So far in 2021, there were two WNV human cases and one WNV/SLEV human case reported to the District by the local public health department.

Birds: A total of four dead birds were reported to the District in October, however, none of them were testable. In 2021, a total of five dead birds were positive for WNV out of 12 dead birds tested.

Mosquitoes: A total of 274 mosquito samples were tested in October of which three were positive for WNV. In 2021, a total of 278 mosquito samples were positive for WNV and four for SLEV out of 3,052 tested.

State Surveillance:

Humans: A total of 30 new human cases have been reported since the previous report. So far in 2021, 92 human cases of WNV were reported in 23 counties including eight from Tulare County.

Birds: A total of 17 dead birds have tested positive for WNV since the last report. So far in 2021, 209 WNV positive dead birds have been reported from 19 counties.

Mosquitoes: Since the last report, 472 mosquito samples tested positive for WNV and 10 tested positive for SLEV. In 2021, a total of 37,113 mosquito samples were tested for WNV with 2,256 samples positive from 25 counties. A total of 34,224 samples were also tested for SLEV with 44 SLEV positive samples from eight counties.

IV. Expenditures & Revenues – 2021/22

TOTAL BUDGET \$3,974,072.78

EXPENDITURES – July 1, 2021 – October 31, 2021

Salaries	\$1,094,529.79
Services & Supplies	\$423,865.29
Tax Admin Fee	Fi\$0.00
Capital	\$118,102.16
Long Term Debt	\$58,914.03
TOTAL EXPENDITURES	\$1,695,411.27

REVENUE RECEIVED – July 1, 2021 – October 31, 2021

July	\$137.48
August	\$0
September	\$12,309.21
October	\$35,667.25
TOTAL REVENUE TO DATE	\$48,113.94

V. Time Sheet Summary

Month	Available Work Hours	Sick Hours Used	Total Hours Available for Work	Percent of Hours Available for Work
July	5,376	119.25	5,256.75	97.79
August	5,808	210.00	5,598.00	96.40
September	5,712	134.50	5,577.50	97.65
October	4,200	105.50	4,094.50	97.49

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.