



Coachella Valley Mosquito and Vector Control District

43420 Trader Place, Indio, CA 92201 | (760) 342-8287 | cvmosquito.org

Board of Trustees Meeting Via Zoom and In-Person

Tuesday, July 12, 2022

6:00 p.m.

AGENDA

The Board of Trustees will take action on all items on the agenda.

Materials related to an agenda item that are submitted to the Board of Trustees after distribution of the agenda packets are available for public inspection in the Clerk of the Board's office during normal business hours and on the District's website.

Pursuant to Assembly Bill 361, this meeting will be conducted by video and/or teleconference as well as in-person public access to the meeting location. To view/listen/participate in the meeting live, please join by calling 1-888-475-4499 (toll-free), meeting ID: [858 7029 5315](https://us02web.zoom.us/j/85870295315), or click this link to join: <https://us02web.zoom.us/j/85870295315>, or attend in person at the District office located at the address listed above. Written public comment may also be submitted to the Clerk of the Board by 1:30 p.m. on July 12, 2022, at mtallion@cvmosquito.org. Transmittal prior to the meeting is required. Any correspondence received during or after the meeting will be distributed to the Board as soon as practicable and retained for the official record.

Before entering the District's facilities, we request that you self-screen for COVID-19 symptoms. We want to work together to help limit the spread of COVID-19.

Assistance for those with disabilities: If you have a disability and need an accommodation to participate in the meeting, please call the Clerk of the Board at (760) 342-8287 for assistance so the necessary arrangements can be made.

1. **Call to Order** – Benjamin Guitron, President

2. **Pledge of Allegiance**

3. **Roll Call**

4. **Confirmation of Agenda**

5. **Public Hearing for Benefit Assessment**

A. Open Public Hearing– **Benjamin Guitron, President**

B. Public Comments – Public Hearing for Benefit Assessment

C. Approval of Resolution 2022-19 Approving Engineer’s Report, Confirming Diagram and Assessment, and Ordering the Levy of Assessments for the Fiscal Year 2022-23 for the Coachella Valley Mosquito and Vector Control District Mosquito, Fire Ant and Disease Control Assessment – **David l’Anson, MPA, MAcc, Administrative Finance Manager (Pg. 6)**

D. Close Public Hearing– **Benjamin Guitron, President**

6. **Public Comments**

Those wishing to address the Board should send an email to the Clerk of the Board by 1:30 p.m. on July 12, 2022, at mtallion@cvmosquito.org, or appear at the meeting to provide public comments. Please note that, as stated above, the meeting will be conducted remotely and in person.

A. **PUBLIC Comments — NON-AGENDA ITEMS:** This time is for members of the public to address the Board of Trustees on items of general interest (a non-agenda item) within the subject matter jurisdiction of the District. The District values your comments; however, pursuant to the Brown Act, the Board cannot take action on items not listed on the posted Agenda. **Comments are limited to a total of three (3) minutes per speaker for non-agenda items.**

B. **PUBLIC Comments — AGENDA ITEMS:** This time is for members of the public to address the Board of Trustees on agenda items (Open and Closed Sessions). **Comments are limited to three (3) minutes per speaker per agenda item.**

All comments are to be directed to the Board of Trustees and shall be devoid of any personal attacks. Members of the public are expected to maintain a professional, courteous decorum during public comments.

7. Board Reports

A. President's Report – **Benjamin Guitron, President**

Executive Committee oral report and Executive Committee minutes from June 30, 2022
(Pg. 13)

B. Finance Committee – **Doug Walker, Treasurer**

Finance Committee oral report and Finance Committee minutes from June 14, 2022
(Pg. 17)

8. Staff Informational Reports

A. Live Reports

- Arbovirus Surveillance and Response update (as necessary) – **Jennifer Henke, M.S., Laboratory Manager, Roberta Dieckmann, Operations Manager, and Tammy Gordon, M.A., APR, Public Information Manager**

Questions and/or comments from Trustees regarding the reports

9. Items of General Consent

The following items are routine in nature and may be approved by one blanket motion upon unanimous consent. The President or any member of the Board of Trustees may request an item be pulled from Items of General Consent for a separate discussion.

A. Approval of Resolution 2022-18 authorizing remote teleconferencing meetings for the period July 14, 2022 – August 12, 2022 – **Jeremy Wittie, M.S., General Manager (Pg. 19)**

B. General Manager's Report – **Jeremy Wittie, M.S., General Manager (Pg. 26)**

C. Minutes for June 14, Board Meeting **(Pg. 30)**

D. Approval of expenditures for June 9, 2022-July 7, 2022 **(Pg. 36)**

E. Approval of Resolution 2022-17 Adopting Employee Pay Schedule, in conformance with California Code of Regulations, Title 2, Sections 570.5 and 571– **Crystal Moreno, M.S., Human Resources Manager (Pg. 37)**

F. Approval of Resolution 2022-20 Biennial Adoption of a Conflict-of-Interest Code– **Melissa Tallion, Executive Assistant/Clerk of the Board (Pg. 42)**

G. Informational Items:

- Financials – **David I'Anson, MPA, MAcc, Administrative Finance Manager} (Pg. 50)**
- **Correspondence (Pg. 66)**
- Semi-annual research reports from the University of California, Davis, University of California, Riverside, Mount Sinai School of Medicine, and the USDA for 2022 – **Jennifer A. Henke, M.S., Laboratory Manager (Pg. 68)**
- National Conference on Urban Entomology and Invasive Pest Ant Conference – **Roberta Dieckmann, Operations Manager and Michael Martinez, Field Supervisor (Pg. 108)**

10. Old Business-None

11. New Business

- A. Discussion and/or approval to purchase chemical control products in an amount not to exceed \$558,116.00 from funds 7800.01.500.028, Field Chemical Control – **Budgeted, Funds Available – Greg Alvarado, Field Supervisor (Pg. 109)**
- B. Appointment of the District's ad hoc Abatement Hearing Committee – **Benjamin Guitron, President (Pg. 112)**

12. Closed Session (s)

Closed Session (s):

A. Conference with Legal Counsel – Existing Litigation pursuant to Government Code section 54956.9

Name of Case: DIR-CalOSHA: In Matter of Appeal of Coachella Valley Mosquito and Vector Control District (Ins. No. 1483049)

13. Comments by General Counsel

14. Trustee Comments, Requests for Future Agendas Items, Travel, and/ or Staff Actions

The Board may not legally take action on any item presented at this time other than to direct staff to investigate a complaint or place an item on a future agenda unless (1) by a majority vote, the Board determines that an emergency exists, as defined by Government Code Section 54956.5, or (2) by a two-thirds vote, the board determines that the need for action arose subsequent to the agenda being posted as required by

Government Code Section 54954.2(a). Each presentation is limited to no more than three minutes.

15. Adjournment

At the discretion of the Board, all items appearing on this agenda, whether or not expressly listed for action, may be deliberated and may be subject to action by the Board.



Certification of Posting

I certify that on July 8, 2022, I posted a copy of the foregoing agenda near the regular meeting place of the Board of Trustees of the Coachella Valley Mosquito & Vector Control District and on the District’s website, said time being at least 72 hours in advance of the meeting of the Board of Trustees (Government Code Section 54954.2)

Executed at Indio, California, on July 8, 2022.

Melissa Tallion, Clerk of the Board



PUBLIC HEARING



**Coachella Valley Mosquito and
Vector Control District
Staff Report**

July 12, 2022

Agenda Item: Public Hearing

Resolution 2022-19 approving Engineer's Report, Confirming Diagram and Assessment, and Ordering the Levy of Assessments for fiscal year 2022-23 for the Coachella Valley Mosquito and Vector Control District Mosquito, Fire Ant and Disease Control Assessment – **David I'Anson, MPA, MAcc, Administrative Finance Manager**

Background:

Resolution No. 2022-13, approved by the Board of Trustees on June 14, 2022, approved the intention to levy assessments for fiscal year 2022-2023, preliminarily approving the engineer's report, and providing for notice of hearing for the CVMVCD Mosquito, Fire Ant, and Disease Control Assessment.

Resolution No. 2022-19 approves the Engineer's Report and orders the levy of the assessment at the rate of \$14.39.

In 2005, Coachella Valley property owners approved a yearly fee of \$16.00 per residential unit for the Mosquito, Fire Ant, and Disease Control Assessment by 74.19%, the highest approval rating for a similar measure in the State of California that year. Included in the voter approval was an inflation escalator allowing for a 3% per year inflationary increase to the assessment. State law requires the District to renew the base assessment and any inflationary increase each year through a public hearing process.

The District's Board is now conducting a public hearing to consider the assessments for the 2022-2023 fiscal year to fund its programs and services. The District provides services and programs for disease and vector surveillance, disease prevention, control of vectors using integrated vector control management (IVM) methods, and quality assessment. The mosquito abatement, vector control, and disease prevention projects and programs include, but are not limited to, source reduction, ground and aerial surveillance and control applications, disease monitoring, public education, quality control and applied research as well as maintenance of buildings, grounds and equipment, and operating expenses. The District's services encompass approximately 2,400 square miles and are provided to properties accommodating over 400,000 permanent residents with a seasonal influx of over 100,000 people.

The majority of the District's funding is generated by a percentage of the 1% property tax collected from Coachella Valley property owners. Any property owner who feels that the assessment levied on the subject property is in error, may file a written appeal with the General Manager of the Coachella Valley Mosquito and Vector Control District or his or her designee.

In each subsequent year for which an assessment will be levied, the Board must;

- Preliminarily approve at a public meeting a budget for the upcoming fiscal year's costs and services;
- Preliminarily approve at a public meeting an updated annual Engineer's Report, and;
- Provide an updated assessment roll listing all parcels and their proposed assessments for the upcoming fiscal year and;
- Call for the publication in a local newspaper of a legal notice of the intent to continue the assessments for the next fiscal year and set the date for the noticed public hearing. At the annual public hearing, members of the public can provide input to the Board prior to the Board's decision on continuing the services and assessments for the next fiscal year.

The yearly assessment is subject to an annual adjustment tied to the Consumer Price Index-U for the Los Angeles-Riverside-Orange County Area as of December of each succeeding year (the "CPI"), with a maximum annual adjustment not to exceed 3%. The yearly assessment rate per single-family equivalent benefit unit for the Mosquito, Fire Ant and Disease Control Assessment may increase in future years by an amount equal to the annual change in the CPI, not to exceed 3% per year. In the event that the annual change in the CPI exceeds 3%, any percentage change in excess of 3% can be cumulatively reserved and can be added to the annual change in the CPI for years in which the CPI change is less than 3%.

The fiscal year 2022-2023 assessment budget includes:

- Outlays for West Nile Virus
- Surveillance and mosquito control
- RIFA control
- Capital equipment
- Supplies
- Disease testing programs
- Other vector programs

The annual CPI change for the Riverside-San Bernardino - Ontario Area from January 2021 to January 2022 is 8.592%, which exceeds 3%, so 3% will be used as the inflator for FY 2022/2023

The maximum authorized assessment rate for fiscal year 2022-2023 is \$24.85 per single-family equivalent benefit unit. The proposed fiscal year 2022-2023 assessment rate per single-family equivalent benefit unit for the Mosquito, Fire Ant, and Disease Control Assessment is \$14.39 which is less than the maximum allowable rate.

Since property owners in the assessment ballot proceeding conducted in 2005 approved the initial assessment including the CPI adjustment schedule, the assessment may be levied annually and may be adjusted by up to the maximum annual CPI adjustment without any additional assessment ballot proceeding.

OPTIONS TO CONSIDER:

1. To accept and adopt Resolution 2022-19, setting the annual benefit assessment amount to \$14.39 per single-family equivalent family unit, to properly finalize and adopt the assessment proceedings accordingly defined in Proposition 218.

Staff Recommendation:

- That the Board of Trustees take whatever action it deems necessary.

Fiscal Impact:

The financial impact of setting the rate to \$14.39 per parcel in Benefit Assessment revenue for FY 2022-2023 is \$2,343,602.34

Attachments:

- Resolution 2022-19
- Engineer's Report:
https://www.cvmosquito.org/sites/g/files/vyhlf4551/f/uploads/fy2223_cvmvcd_engineers_report_ph_final.pdf

RESOLUTION NO. 2022-19

**A RESOLUTION OF THE BOARD OF TRUSTEES OF THE
COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT**

**A RESOLUTION
APPROVING ENGINEER'S REPORT, CONFIRMING DIAGRAM AND ASSESSMENT, AND
ORDERING THE LEVY OF ASSESSMENTS
FOR FISCAL YEAR 2022-23
FOR THE COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT
MOSQUITO, FIRE ANT AND DISEASE CONTROL ASSESSMENT**

WHEREAS, the Coachella Valley Mosquito and Vector Control District ("District") was established in 1928 as an independent special district by the Riverside County Board of Supervisors; and

WHEREAS, the mission of the District is to reduce the risk of disease transmission by mosquitoes and other vectors for the residents and visitors of the Coachella Valley; and

WHEREAS, the Coachella Valley Mosquito and Vector Control District is authorized, pursuant to the authority provided in Health and Safety Code Section 2082 and Article XIII D of the California Constitution, to levy assessments for mosquito, vector and disease control services; and

WHEREAS, the District provides vector control services which includes a system of public improvements and services intended to provide for the surveillance, prevention, abatement and control of vectors as provided under Proposition 228 ("Services"); and such vector surveillance and control services provide tangible public health benefits, reduced nuisance benefits and other special benefits to the public and properties with the areas of service; and

WHEREAS, an assessment for mosquito, fire ant, vector and disease control projects and services has been given the distinctive designation of the "Mosquito, Fire Ant, and Disease Control Assessment" ("Assessment"), and is primarily described as encompassing the District jurisdictional boundaries, which covers nine incorporated cities along the I-10 Freeway (Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage), and the unincorporated areas in the greater Coachella Valley from the San Bernardino County line to the north to the Imperial and San Diego County lines to the south; and

WHEREAS, the Assessment was authorized by an assessment ballot proceeding conducted in 2005 and approved by 74.19% of the weighted ballots returned by property owners, and such assessments were levied by the Board of Trustees of the Coachella Valley Mosquito and Vector Control District by Resolution No. 2005-04 passed on July 26, 2005;

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the Coachella Valley Mosquito and Vector Control District that:

SECTION 1. Willdan Financial Services, the Engineer of Work, prepared an engineer's report (the "Report") in accordance with Article XIII D of the California Constitution and Section 2082, et seq.,

of the Health and Safety Code for the Assessment. The Report have been made, filed with the secretary of the board and duly considered by the Board and are hereby deemed sufficient and preliminarily approved. The Report shall stand as the Engineer's Report for all subsequent proceedings under and pursuant to the foregoing resolution.

SECTION 2. On June 14, 2022, this Board adopted Resolution No. 2022-13 to continue to levy and collect Assessments for fiscal year 2022-23, preliminarily approving the Engineer's Report, and providing for notice of hearing on July 12, 2022, at the hour of six o'clock (6:00) p.m. at the meeting chamber of the Coachella Valley Mosquito and Vector Control District headquarters located at 43-420 Trader Place, Indio, California, 92201.

SECTION 3. At the appointed time and place the hearing was duly and regularly held, and all persons interested and desiring to be heard were given an opportunity to be heard, and all matters and things pertaining to the levy of Assessment were fully heard and considered by this Board, and all oral statements and all written protests or communications were duly heard, considered and overruled, and this Board thereby acquired jurisdiction to order the levy of assessment prepared by and made a part of the Engineer's Report to pay the costs and expenses thereof.

SECTION 4. The above recitals are true and correct

SECTION 5. The public interest, convenience and necessity require that the levy be made.

SECTION 6. The Engineer's Report for the Assessment together with the proposed assessment roll for fiscal year 2022-23 is hereby confirmed and approved.

SECTION 7. That based on the oral and documentary evidence, including the Engineer's Report offered and received at the public hearing, the Board expressly finds and determines that: (a) each of the several lots and parcels of land subject to the Assessment will be specially benefited by the services to be financed by the assessment proceeds in at least the amount of the assessment apportioned against such lots and parcels of land, respectively; (b) that the Assessment is levied without regard to property valuation; and (c) that there is substantial evidence to support , and the weight of the evidence preponderates in favor of, said finding and determination as to special benefit to property from the mosquito, fire ant, vector and disease control services to be financed with assessment proceeds.

SECTION 8. That assessments for fiscal year 2022-23 shall be levied at the rate of fourteen dollars and thirty-nine cents (\$14.39) per single-family equivalent benefit unit in Zone A and seven dollars and nineteen cents (\$7.19) per single-family equivalent benefit unit in Zone B per single-family equivalent benefit unit as specified in the Engineer's Report for fiscal year 2022-23 with estimated total annual assessment revenues as set forth in the Engineer's Report; and

SECTION 9. That the mosquito, fire ant and disease control services to be financed with assessment proceeds described in the Engineer's Report are hereby ordered.

SECTION 10. No later than August 10th following such adoption, assessments and a copy of this resolution will be uploaded to the Auditor Controller's of the County of Riverside ("County Auditor"). Upon such upload, the County Auditor shall enter on the County assessment roll opposite each lot

or parcel of land the amount of assessment thereupon as shown in the assessment. The assessments shall be collected at the same time and in the same manner as County taxes are collected and all the laws providing for collection and enforcement shall apply to the collection and enforcement of the assessments. After collection by the County, the net amount of the assessments, after deduction of any compensation due the County for collection, shall be paid to the Mosquito, Fire Ant and Disease Control Assessment.

SECTION 11. All revenues from Assessments shall be deposited in a separate fund established under the distinctive designation of the Coachella Valley Mosquito and Vector Control District, Mosquito, Fire Ant and Disease Control Assessment.

SECTION 12. The Assessment, as it applies to any parcel, may be corrected, cancelled or a refund granted as appropriate, by order of the Board of Trustees of the District. Any such corrections, cancellations or refunds shall be limited to the current fiscal year.

The foregoing Resolution was PASSED and ADOPTED by the Board of Trustees of the Coachella Valley Mosquito and Vector Control District at a regular meeting thereof held on July 12, 2022, at the Coachella Valley Mosquito and Vector Control District headquarters located at 43-420 Trader Place, Indio, California, 92201.

AYES:

NOES:

ABSTAINED:

ABSENT:

President, Board of Trustees
Coachella Valley Mosquito & Vector Control District

ATTEST:

Secretary/Treasurer, Board of Trustees
Coachella Valley Mosquito & Vector Control District



BOARD REPORTS

Coachella Valley Mosquito and Vector Control District

Executive Committee Meeting Via Zoom

DRAFT - Minutes

TIME AND DATE: 1:30 p.m., Thursday, June 30, 2022

LOCATION: 43420 Trader Place, Indio, CA 92201-Via Zoom

TRUSTEES PRESENT:

Indio	Benjamin Guitron, President
Indian Wells	Clive Weightman, Vice President
Palm Springs	Dr. Doug Kunz, Secretary
Palm Desert	Doug Walker, Treasurer

ABSENT:

None

Members of the Public present:

No

OTHERS PRESENT:

Jeremy Wittie, M.S., General Manger
Melissa Tallion, Clerk of the Board

1. Call to Order

President Guitron called the meeting to order at 1:38 p.m.

2. Roll Call

Roll call indicated all four (4) Committee members were present.

3. Confirmation of Agenda

There was a consensus to approve the agenda as presented.

4. Public Comments

One (1) written comment was received from Mr. Brad Anderson regarding Non-Agenda items. The written comment was distributed to the Board of Trustees and Legal Counsel and is attached for the record.

5. Review of July 12, 2022, draft Board meeting agenda

The draft July Board meeting agenda was reviewed by the Committee. Changes to the agenda and discussions included asking Jeremy Wittie, General Manager to add a summary of the research reports to his GM report.

6. Old Business

A. LAFCO MSR Update

The LAFCO Board is holding their meeting to discuss the Municipal Service Review will be held on July 28. Jeremy will attend the meeting. The MSR suggested adding the CVMVCD Board of Trustees email address to the website. The staff is working on this.

B. 2022 Strategic Business Plan Update

Jeremy mentioned that the document is with staff for one last review before it is published on the website and sent to the Board. Jeremy will review the document with each manager monthly during their monthly meeting. Staff is also working on adding the goals to banners to be displayed in the Board room.

7. New Business

A. None

8. Trustee/staff comments

Trustee Walker thanked staff for preparing the agenda and the Executive Committee for moving through the agenda smoothly. Jeremy announced that the District had a retirement party for Charles Rodriguez, Laboratory Technician who spent 14 years at the District.

9. Confirmation of next meeting

The next meeting was scheduled for Friday, September 2, 2022, at 1:30 p.m.

10. Adjournment

The meeting was adjourned by President Guitron at 2:02 p.m.

Melissa Tallion

From: [REDACTED]
Sent: Thursday, June 30, 2022 11:03 AM
To: Melissa Tallion; Edward Prendez
Subject: Written Public Comment - June 30, 2022 CVMVCD Executive committee meeting (scheduled 1:30PM remotely performed meeting)

June 30, 2022

Coachella Valley Mosquito and Vector Control District (CVMVCD)
43420 Trader Pl.
Indio, CA. 92201
(760) 342-8287
Attn: Clerk of the Board/Trustees/General Public

Re: Public Comment

Dear CVMVCD Executive committee members,

Please consider allowing citizens the opportunity to listen to and possibly addressing this unique and unusual panel of appointed Trustees with In-Person Public meeting capabilities. As this organization is aware, the CVMVCD deliberate action of selecting to restrict people's rights to access this Public meeting and by placing unlawful requirements over aspects of participation continues to be documented and shared.

The Coachella Valley Mosquito and Vector Control District (CVMVCD) Board of Trustees and current administration have been made aware of its continue violations of Californias AB361.

CVMVCD continues to demonstrate reckless activities surrounding it's Vector Control strategies within its control boundaries and other locations.

Be advised that prior actions of the CVMVCD organization to Intimidate and perform actions of trespass on private property will be reported to local/State agencies. Discontinue all CVMVCD potential reprisal actions that have been targeting myself and my private property within the Coachella Valley (please see letter mailed to the CVMVCD on the date of: April 13, 2022 in regards to precived harassment that was administered from CVMVCD - No clear response to date have been received from the CVMVCD)

CVMVCD priorities have been compromised by progressive elements of it's Internal management. Currently the CVMVCD Board of Trustees have been Ineffective to curve the continued degradation of that once great organization.

Sincerely,

Brad Anderson | [REDACTED]
[REDACTED]

Cc:

COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT

**Finance Committee Meeting Via Zoom and In-Person
DRAFT-Minutes**

TIME 4:30 p.m. **DATE:** June 14, 2022

LOCATION: 43420 Trader Place Indio, CA 92201 via zoom

COMMITTEE MEMBERS PRESENT:

Palm Desert	Doug Walker
Indian Wells	Clive Weightman
County at Large	Bito Larson

COMMITTEE MEMBERS ABSENT:

None

OTHER TRUSTEES PRESENT:

None

STAFF PRESENT:

Jeremy Wittie, General Manager
David l'Anson, Administrative Finance Manager
Melissa Tallion, Executive Assistant/Clerk of the Board

MEMBERS OF THE PUBLIC PRESENT:

No

- 1. Call to Order** - *Treasurer Walker called the meeting to order at 4:30 p.m.*
- 2. Roll Call** - *Roll call indicated all three (3) Committee members were present.*
- 3. Confirmation of Agenda** - *The agenda was confirmed as presented.*
- 4. Public Comments** - *None.*
- 5. Items of General Consent**
Approval of Minutes from May 10, 2022, Finance Committee Meeting

On a motion from Trustee Weightman seconded by Trustee Larson, and passed by the following roll call votes, the Committee approved the minutes as presented.

Ayes: Treasurer Walker, Trustees Larson, and Weightman

Noes: None.

Abstained: None.

Absent: None

6. Discussion, Review, and or/update

- A. Review of Check Report from Abila MIP for the period of May 11, 2022, to June 8, 2022

A discussion ensued regarding a few checks that needed further explanation.

- B. CalCard Charges – Statement dated May 23, 2022

The CalCard monthly statement was reviewed by Committee members and staff.

Questions regarding specific charges were brought forward by Trustees. Staff provided more information.

- C. Review of May 2022 Financials and Treasurers Report

The documents were reviewed.

7. Old Business - None.

8. New Business

- A. Review of finance related items on Board agenda

The Board agenda was reviewed.

9. Schedule Next Meeting - *The next Finance Committee meeting was scheduled for July 12, 2022, at 4:30 p.m.*

10. Trustee and/or Staff Comments/Future Agenda Items - None

11. Adjournment - *Treasurer Walker adjourned the meeting at 5:15. p.m.*



ITEMS OF GENERAL CONSENT



**Coachella Valley Mosquito and
Vector Control District**

July 12, 2022

Staff Report

Agenda Item: Informational Item

Discussion and approval of Resolution 2022-18 authorizing remote teleconferencing meetings for the period July 14, 2022 – August 12, 2022 – **Jeremy Wittie, M.S., General Manager**

Background:

The Board of Trustees met on June 14, 2022, and adopted Resolution 2022-14 proclaiming a local emergency, ratifying the proclamation of a state of emergency by Executive Order N-09-21, and authorizing remote teleconferencing meetings of the Legislative bodies of the Coachella Valley Mosquito and Vector Control District for the period of June 14, 2022, to July 13, 2022, pursuant to the provisions of the Ralph M. Brown act.

If a local agency passes a resolution by majority vote that meeting in person during the state of emergency would present imminent risks to the health or safety of attendees, the resolution will permit meeting under the provisions of AB 361 for a maximum period of 30 days. After 30 days, the local agency would need to renew its resolution, consistent with the requirements of AB 361, if the agency desires to continue meeting under the modified Brown Act requirements or allow the resolution to lapse.

This Resolution will cover all meetings of the Legislative Bodies.

- Board of Trustees Meetings
- Executive Committee Meetings
- Finance Committee Meetings

AB 361 provides that it will sunset on January 1, 2024.

Staff Recommendation:

Approve of Resolution 2022-18 authorizing remote teleconferencing meetings for the period July 14, 2022 – August 12, 2022.

Continue to pass AB 361 resolutions to authorize remote teleconference meetings for all Board of Trustee meetings (Monthly, Executive, Finance, Ad hoc) until Governor Newsom rescinds his state of emergency addressing the COVID-19 pandemic.

Doing so will continue to allow Trustees, staff, and the public to attend and participate in meetings both in person or virtually which will enhance access to public meetings and maintain a safer meeting environment as we continue to conduct District business and navigate COVID-19 in the coming months.

Exhibits:

- Resolution 2022-18

RESOLUTION NO. 2022-18

**A RESOLUTION OF THE BOARD OF TRUSTEES OF THE
COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT
PROCLAIMING A LOCAL EMERGENCY, RATIFYING THE PROCLAMATION OF A
STATE OF EMERGENCY BY EXECUTIVE ORDER N-09-21,
AND AUTHORIZING REMOTE TELECONFERENCE MEETINGS OF
THE LEGISLATIVE BODIES OF THE
COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT
FOR THE PERIOD JULY 14, 2022 – AUGUST 12, 2022, PURSUANT TO PROVISIONS
OF THE RALPH M. BROWN ACT**

WHEREAS, the Coachella Valley Mosquito and Vector Control District (the “District”) is committed to preserving and nurturing public access and participation in meetings of the Board of Trustees; and

WHEREAS, all meetings of the District’s legislative bodies are open and public, as required by the Ralph M. Brown Act (Cal. Gov. Code §§ 54950 – 54963) (the “Brown Act”), so that any member of the public may attend, participate, and watch the District’s legislative bodies conduct their business; and

WHEREAS, the Brown Act, Government Code section 54953(e), makes provisions for remote teleconferencing participation in meetings by members of a legislative body, without compliance with the requirements of Government Code section 54953(b)(3), subject to the existence of certain conditions; and

WHEREAS, a required condition is that a state of emergency is declared by the Governor pursuant to Government Code section 8625, proclaiming the existence of conditions of disaster or of extreme peril to the safety of persons and property within the state caused by conditions as described in Government Code section 8558; and

WHEREAS, a proclamation is made when there is an actual incident, threat of disaster, or extreme peril to the safety of persons and property within the jurisdictions that are within the District’s boundaries, caused by natural, technological, or human-caused disasters; and

WHEREAS, it is further required that state or local officials have imposed or recommended measures to promote social distancing or the legislative body meeting in person would present imminent risks to the health and safety of attendees; and

WHEREAS, such conditions now exist in the District, specifically, on March 4, 2020, the Governor of the State of California proclaimed a State of Emergency to exist in California as a result of the threat of COVID-19; despite sustained efforts, the virus continues to spread and is impacting nearly all sectors of California; and

WHEREAS, on February 28, 2022, the California Department of Public Health website was updated and strongly recommends that all persons, regardless of vaccine status, continue indoor masking; and

WHEREAS, given the continued heightened risks of the predominant variant of COVID-19 in the community, holding meetings with all members of the legislative body, staff, and the public in attendance in person in a shared indoor meeting space would pose an unnecessary and immediate risk to the attendees; and

WHEREAS, the Board of Trustees does hereby find that the ongoing risk posed by the highly transmissible COVID-19 virus will continue to cause conditions of peril to the safety of persons within the District which are likely to be beyond the control of services, personnel, equipment, and facilities of the District, and the Board of Trustees desires to proclaim a local emergency and ratify the proclamation of a state of emergency by the Governor of the State of California; and

WHEREAS, as a consequence of the local emergency, the Board of Trustees does hereby find that the legislative bodies of the District shall conduct the District's meetings without compliance with Government Code section 54953(b)(3), as authorized by Government Code section 54953(e), and that such legislative bodies shall comply with the requirements to provide the public with access to the meetings as prescribed in Government Code section 54953(e)(2); and

WHEREAS, the Board of Trustees previously adopted Resolution No. 2022-14 on June 14, 2022, finding that the requisite conditions exist for the legislative bodies of the District to conduct remote teleconference meetings without compliance with Government Code section 54953(b)(3); and

WHEREAS, all meeting agendas stating meeting dates, times, and the manner in which the public may attend and offer public comment by call-in option or internet-based service option shall be posted, at a minimum, on the District's website, and at the District's main office.

NOW, THEREFORE, THE BOARD OF TRUSTEES OF THE COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. Recitals.

The recitals set forth above are true and correct and are incorporated into this Resolution by this reference.

Section 2. Proclamation of Local Emergency.

The Board of Trustees hereby proclaims that a local emergency now exists throughout the District, and the ongoing risk posed by the highly transmissible COVID-19 virus has caused and will continue to cause, conditions of peril to the safety of persons within the District; furthermore, the guidance of Riverside County Public Health recommends physical distancing and face coverings.

Section 3. Ratification of Governor's Proclamation of a State of Emergency.

The Board of Trustees hereby ratifies the Governor of the State of California's Proclamation of a State of Emergency, effective as of its issuance date of March 4, 2020.

Section 4. Remote Teleconference Meetings.

The President of the Board of Trustees, the District's General Manager, and legislative bodies of the District are hereby authorized and directed to take all actions necessary to carry out the intent and purpose of this Resolution including conducting open and public meetings in accordance with Government Code section 54953(e) and other applicable provisions of the Brown Act.

Section 5. Effective Date.

This Resolution shall take effect immediately upon its adoption and shall be effective until the earlier of (i) August 12, 2022, or such time the Board of Trustees adopts a subsequent resolution in accordance with Government Code section 54953(e)(3) to extend the time during which the legislative bodies of the District may continue to teleconference without compliance with Government Code section 54953(b)(3).

Section 6. Certification.

The Clerk of the Board of Trustees shall certify as to the adoption of this Resolution and shall cause the same to be processed in the manner required by law.

PASSED, ADOPTED, AND APPROVED, this 12th day of July 2022, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

**Benjamin Guitron, President
Board of Trustees**

ATTEST:

Melissa Tallion, Clerk of the Board

APPROVED AS TO FORM:

Lena D. Wade, General Counsel

REVIEWED:

Jeremy Wittie, M.S., General Manager



Coachella Valley Mosquito & Vector Control District

43-420 Trader Place, Indio, CA 92201 (760) 342-8287 (760) 342-8110
www.cvmosquito.org CVmosquito@cvmosquito.org @cvmosquito

General Manager Report – July 12, 2022

Integrated Vector Management (IVM) Program

West Nile Virus positive samples of *Culex tarsalis* mosquitoes continue to be detected in the eastern Valley. This type and level of activity is expected this time of year and is currently at levels below the District’s 5-year average. Staff is working in the affected area, increasing larval surveillance and controlling public awareness. Staff is also exploring potential options for adult mosquito treatments to continue to lower the risk for residents in the area and slow the spread of the virus. The IVM team will provide a brief update during the Board meeting.

Virus Activity [Sign Up For Notification](#)

The map below displays within a quarter mile the locations where mosquitoes have tested positive for virus this year in the Coachella Valley.

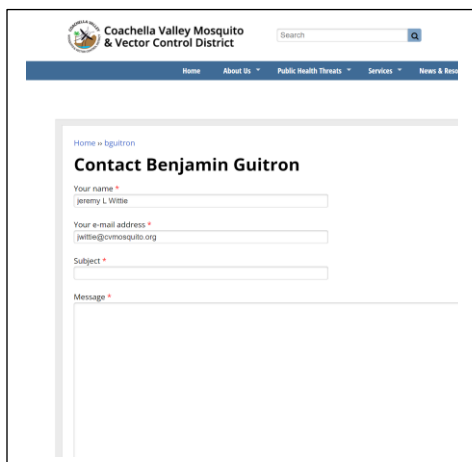
Year	WNV	WNV	Year-to-date Reports
2022	11	0	Current Report - Week of 07/10-2022
Human cases in Coachella Valley			
Mosquito samples			

<https://www.cvmosquito.org/virusactivity>

The District is currently updating its CEQA compliance and has been working with a consultant to update the District Mitigated Negative Declaration that was last adopted in 2011. Several aspects of the District IVM program have changed since then necessitating a supplemental update. These documents are currently out for a 30-day public comment period and supporting documentation can be found for review on the District website at <https://www.cvmosquito.org/vector-control-publications/pages/california-environmental-quality-act-ceqa-mitigated-negative>

Riverside Local Agency Formation Commission (LAFCO) Update

Riverside LAFCO will be holding a meeting on July 28th, 2022, to consider the final Municipal Service Review of Riverside County Vector Control Agencies. There are two Vector Control Districts in the county, CVMVCD, and [Northwest Mosquito and Vector Control District](#). Riverside County Environmental Health also has a vector control program. LAFCO staff recommendations regarding the District’s Sphere of Influence remain status quo and suggest no changes to programs or services; the [report](#) can be found on the LAFCO website. The most significant recommendation was to add District Trustee and Management email addresses to the District’s website. This has been addressed by staff and now the public can email [Trustees](#) or [Management](#) staff directly through a form found on our website.



BOARD OF TRUSTEES

President BENJAMIN GUITRON IV Indio | **Vice President** CLIVE WEIGHTMAN Indian Wells

Secretary DR. DOUGLAS KUNZ Palm Springs | **Treasurer** DOUGLAS WALKER Palm Desert

RITA LAMB Cathedral City | DENISE DELGADO Coachella | GARY GARDNER Desert Hot Springs | JOHN PENA La Quinta

STEVE DOWNS Rancho Mirage | BITO LARSON County at Large | JANEL PERCY County at Large | JEREMY WITTIE General Manager

Administration/HR

Charles Rodriguez, a 14-year District employee retired at the end of June. Charles was a vital part of the District Team and for most of those 14 years was responsible for raising millions of mosquitofish that were deployed as part of the District Bio-Control program. Congratulations to him and wishing him the best in his retirement! Special Thanks to Jennifer Henke, Lab Manager, and Charles's Supervisor, who organized the event, and to all the staff who pitched in to decorate, create a custom photo album with staff well wishes, and served up some pizza and ice cream to make the event a special send-off for Charles. Staff also donated gifts and some cash that went to providing Charles with a retirement care package including a couple of rounds of golf!



Special Congratulations to Greg Alvarado, Operations Field Supervisor. On April 13, 2022, Greg received his Bachelor of Business Administration from California Southern University. Greg started at the District in 2005 as a RIFA program seasonal. He soon thereafter was offered a full-time job as a Vector Control Technician. In 2014, he was promoted to Lead Vector Control Technician, and, in 2018, he was again promoted to his current position as a Field Supervisor. Aside from Greg's strong work ethic and rapport with his Team members, Greg's continued pursuit of

furthering his education has helped with his success here at the District. Greg has taken advantage of the District's Tuition Reimbursement program which is a great benefit for staff in supporting their continued professional growth here at the District.

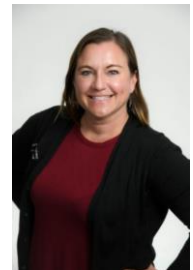
The District has slowly begun to have Team events outside as we continue to emerge from the pandemic. Oscar Guerrero, Facilities Maintenance Technician I, is quite the artist and craftsman. Oscar came up with an idea to create an ice cream cart to be used for Team building events and public outreach events. Oscar's idea and effort have made these Team events extra special and sure to catch the public's attention at upcoming outreach events.



Board Packet Overview

Please review the Board packet in its entirety, however, here are a few things of note:

- **Public Hearing** – The purpose of the hearing is to allow for public comment and for Board to review and set the benefit assessment for FY 22-23 as discussed during the budget process. ***The proposed benefit assessment will not increase over last FY and is proposed to be \$14.39 per single-family equivalent benefit unit.*** The current maximum rate is authorized is \$24.85 (p. 7)
- **Finance** – ***Preliminary*** financials for June 30th, show a surplus. This is due to an increase in revenue from property tax and expenditures in Administration and Operations being under budget. This was forecasted during the budget process for FY 2022-23 and much of the surplus revenue was designated to the District’s facility, Vehicle, and equipment reserves to ensure they are strongly funded for future needs and the new Capital project Sterile Mosquito Insectary fund. (p. 51)
- **Human Resources** – Annual adoption of employee pay schedule. This is required by law any time changes are made, this current update reflects the Cost-of-Living increase as per the current California School Employee Association (CSEA) and Teamster MOUs. The pay scale lists the employee position, pay rate, and time base for the pay rate. (p. 41)
- **Administration/Governance** – Congratulations to Tammy Gordon, former District Public Information Officer. As of July 1, Tammy has been reclassified as the District’s Public Information Manager. I am glad to have her in this new and expanded role as a vital member of the District’s Management Team. The District is amending our Conflict-of-Interest Code due to this change in title as required by the Political Reform Act. (p. 43)
- **Applied Funded Research** – The district requires mid-year reports from our funded research. Some key takeaways from the current reports (p. 68)
 - **Dr. Coffey (UC Davis)** – This research is aimed at using the deposition of mosquito saliva and excreta to monitor for mosquito viruses. This could improve the sensitivity of the District’s virus surveillance program furthering our ability to reduce risk to public health. Dr. Coffey found that using the cards that collect mosquito saliva and excreta will work at our temperatures in the laboratory. The traps using this type of card and virus assay were sent to the District for use this season and Lab staff will be setting them out in July and monitoring for the remainder of virus season.
 - **Dr. Oi (USDA)** – Red imported fire ant baits that are used to control them per label are to be applied to relatively dry turf. With the amount and frequency of irrigation in Coachella Valley, this label requirement can cause a challenge to the scheduling of control treatments. Dr. Oi’s preliminary analysis of field data is that the irrigation is not impacting the fire ant activity with bait acceptance, confirming what was seen in the lab. Further analysis is ongoing. If applications could be effectively made on irrigated turf it would increase the ease of scheduling properties for treatment and reduce staff work.



- **Operations** – Each year, Operations staff request approval for the annual pesticide purchase in July as budgeted for in the newly adopted budget. Then distributors make quarterly deliveries as prescribed by staff and program needs throughout the FY. (p. 110)

Future Events

- The [Mosquito and Vector Control Association \(MVCAC\)](#) Summer Board meeting will be held meeting via zoom on July 28th from 9 AM to 12 PM. Melissa will supply the meeting information to Trustees interested in attending.
- [California Special District Association \(CSDA\) Annual Conference](#) is August 22 – 25 at our very own JW Marriott Desert Springs Resort in Palm Desert. ***Any Trustees interested in attending, please let Melissa know as soon as possible. The deadline for registration is July 22.***
- **What's happening with Mosquito Surveillance and Control in your Neighborhood?** - Melissa continues to reach out to Trustees to schedule a ride-along with the GM before year's end. This will involve setting a mosquito trap at your house, identifying what mosquitoes (if any) you have in your trap, and meeting up with the District's Vector Control Technician assigned to your neighborhood to give you a better feel of mosquito control issues and activities in your community.

Thank you for taking the time to review the Board packet any questions about the contents of the Board packet, feel free to reach out to me directly either at the District office, 760-342-8287 or via email at jwittie@cvmosquito.org

Respectfully,

Jeremy Wittie, MS
General Manager

COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT

Board of Trustees Meeting Via Zoom Summary of Action Items June 14, 2022

- ❖ The Board of Trustees approved Resolution 2022-14 authorizing remote teleconferencing meetings for the period June 14, 2022 – July 13, 2022.
- ❖ The Board of Trustees approved Resolution 2022-11 authorizing attendance of professional development conferences and meetings by members of the Board of Trustees and Employees of the District for the Fiscal Year 2022-2023.
- ❖ The Board of Trustees approved Resolution 2022-16 adopting the 2022-2025 Strategic Business Plan.
- ❖ The Board of Trustees appointed the ad hoc land/building committee:
 - Trustee Walker, chair
 - Trustee Gardner
 - President Guitron, alternate
- ❖ The Board of Trustees approved Resolution 2022-12 adopting the Fiscal Year 2022-23 budget.
- ❖ The Board of Trustees approved Resolution 2022-13 intention to levy assessments for Fiscal Year 2022-23, preliminary approval of engineer's report, and providing for notice of hearing for the CVMVCD mosquito, fire ant, and disease surveillance and vector control assessment.

COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT

Board of Trustees Meeting Via Zoom and In-Person
DRAFT-Minutes

MEETING TIME: 6:00 p.m. Tuesday, June 14, 2022

LOCATION: 43420 Trader Place, Indio, CA 92201- ***Via Zoom and In-Person***

TRUSTEES PRESENT

PRESIDENT: Benjamin Guitron	Indio
VICE PRESIDENT: Clive Weightman	Indian Wells
SECRETARY: Dr. Doug Kunz	Palm Springs
TREASURER: Doug Walker	Palm Desert
Steve Downs	Rancho Mirage
Gary Gardner	Desert Hot Springs
Rita Lamb	Cathedral City
Bito Larson	County at Large
John Peña	La Quinta
Janell Percy	County at Large

TRUSTEES ABSENT

Denise Delgado	Coachella
Bito Larson	County at Large

STAFF AND GENERAL COUNSEL PRESENT

Jeremy Wittie, General Manager
Lena Wade, Legal Counsel, SBEMP
Crystal Moreno, Human Resources Manager
David l'Anson, Administrative Finance Manager
Jennifer Henke, Laboratory Manager
Roberta (Bobbye) Dieckmann, Operations Manager
Edward Prendez, Information Technology Manager
Tammy Gordon, Public Information Officer
Kim Hung, Vector Ecologist
Melissa Tallion, Executive Assistant/Clerk of the Board

Other staff members joined the meeting as well

MEMBERS OF THE PUBLIC PRESENT

No

- 1. Call to Order** – *President Guitron called the meeting to order at 6:01 p.m.*
- 2. Pledge of Allegiance** – *Trustee Walker lead the Pledge of Allegiance.*

3. Roll Call – *At roll call nine (9) Trustees out of eleven (11) were present.*

4. Confirmation of Agenda – *President Guitron inquired if there were any agenda items to be shifted. Upon no objections by the Board of Trustees, the agenda was confirmed.*

5. Public Comments – *None*

6. Board Reports

A. President's Report:

President Guitron stated that the Executive Committee held its meeting on May 26, 2022, and reviewed the Board agenda for June 2022. President Guitron and the Board of Trustees recognized Isaiah Hagerman, a former Trustee for his service to the District.

B. Finance Committee:

Treasurer Walker reported that the Finance Committee held its meeting before the Board meeting to review the check report, CalCard Charges, and financials for the period ending May 2022. As per normal, there were some questions regarding charges. All questions were answered to the Committee's satisfaction.

7. Staff Informational Reports

A. Live Reports

- Operations Department Introduction

Roberta (Bobbye) Dieckmann introduced the Operations department. The department has one Operations Manager, four Field Supervisors, one Administrative Clerk, three Lead Vector Control Technicians, eight Vector Control Technicians II, fourteen Vector Control Technicians I, and five Seasonal Vector Control Technicians.

- Arbovirus Surveillance and Response update

Jennifer Henke, Bobbye Dieckmann, and Jeremy Wittie gave a presentation on Integrated Vector Management (IVM) and how Surveillance and Quality Control, Operations, and Public Outreach work together to ensure public safety by reducing the risk of virus transmission. The District uses IVM to control mosquitoes and other vectors and to prevent or reduce the risk of mosquito-borne virus transmission.

8. Items of General Consent

The following items are routine in nature and may be approved by one blanket motion upon unanimous consent. The President or any member of the Board of Trustees may request an item be pulled from Items of General Consent for a separate discussion.

A. General Manager's Report

B. Minutes for May 10, 2022, Budget Workshop and Board Meeting, June 6, 2022, Special Board meeting and Strategic Planning Workshop

C. Approval of expenditures for May 3, 2022-June 8, 2022

D. Informational Items:

- Approval of Resolution 2022-14 authorizing remote teleconferencing meetings for the period June 14, 2022 – July 13, 2022
- Financials
- Important Budget Meeting Dates
- Correspondence
- Trustee Travel
- Departmental Reports: Human Resources; Information Technology; Surveillance and Quality Control; Operations; and Public Outreach
- Government Social Media Conference
- National Association of Government Communicators
- Professionals in Human Resources Association (PIHRA) – California HR Annual Conference, Anaheim, CA
- The Employment Risk Management Authority (ERMA) Board of Directors meeting, Sacramento, CA
- Western Region - International Public Management Association for Human Resources (IPMA-HR) Annual Conference, May 1-4, 2022, in Anaheim, CA
- Approval of Resolution 2022-11 Authorizing Attendance of Professional Development Conferences and Meetings by Members of the Board of Trustees and Employees of the District for the Fiscal Year 2022-2023

On a motion by Trustee Kunz, seconded by Trustee Lamb and passed by the following roll call votes, the Board of Trustees approved all items of General Consent.

Ayes: President Guitron, Trustees Downs, Gardner, Kunz, Lamb, Peña, Percy, Walker, Weightman

Noes: None

Abstained: None

Absent: Trustees Delgado, Larson

9. Old Business

- A. Discussion and/or approval of Resolution 2022-16 adopting the 2022-2025 Strategic Business Plan

On a motion by Trustee Walker, seconded by Trustee Downs, and passed by the following roll call votes, the Board of Trustees approved Resolution 2022-16 adopting the 2022-2025 Strategic Business Plan.

Ayes: President Guitron, Trustees Downs, Gardner, Kunz, Lamb, Peña, Percy, Walker, Weightman

Noes: None

Abstained: None

Absent: Trustees Delgado, Larson

B. Appointment of ad hoc Land/Building Committee

President Guitron is reactivating the Land/Building committee and was seeking additional Board member who has an interest in working to help guide and review the scope of work on the Boardroom renovation project. Hearing no objections the Committee will include Trustees Walker, Gardner, and President Guitron as the alternate.

10. New Business

A. Discussion and/or approval of Resolution 2022-12 Adopting FY 2022-23 Budget

On a motion by Trustee Weightman, seconded by Trustee Kunz and passed by the following roll call votes, the Board of Trustees approved Resolution 2022-12 adopting the FY 2022-23 budget.

Ayes: President Guitron, Trustees Downs, Gardner, Kunz, Lamb, Peña, Percy, Walker, Weightman

Noes: None

Abstained: None

Absent: Trustees Delgado, Larson

B. Discussion and/or approval of Resolution 2022-13 intention to levy assessments for fiscal year 2022-13, preliminary approval of engineer's report, and providing for notice of hearing for the CVMVCD mosquito, fire ant, and disease surveillance and vector control assessment.

On a motion by Trustee Weightman, seconded by Trustee Walker and passed by the following roll call votes, the Board of Trustees approved Resolution 2022-13 intention to levy assessments for fiscal year 2022-23, preliminary approval of engineer's report, and providing for notice of hearing for the CVMVCD mosquito, fire ant, and disease surveillance and vector control assessment.

Ayes: President Guitron, Trustees Downs, Gardner, Kunz, Lamb, Peña, Percy, Walker, Weightman

Noes: None

Abstained: None

Absent: Trustees Delgado, Larson

11. Closed Session (s)

Closed Session (s):

A. Conference with Legal Counsel – Existing Litigation pursuant to Government Code section 54956.9

Name of Case: DIR-CalOSHA: In Matter of Appeal of Coachella Valley Mosquito and Vector Control District (Ins. No. 1483049)

No reportable action

B. Conference with Legal Counsel – Existing Litigation pursuant to Government Code section 54956.9

Name of Case: DIR-Labor Commissioner: Anderson v. Coachella Valley Mosquito and Vector Control District (Case No. RCI-601454 (2018))

No reportable action

12. Comments by General Counsel

13. Trustee Comments, Requests for Future Agendas Items, Travel, and/ or Staff Actions

Trustee Walker commented that it was nice to see the Trustees who came in person.

14. Adjournment– *President Guitron adjourned the meeting at 7:28 p.m.*

Benjamin Guitron
President

Dr. Doug Kunz
Secretary

Coachella Valley Mosquito and Vector Control District


Checks Issued for the Period of:

June 9 -July 7, 2022

Check No	Payable To	Description	Check Amount	Total Amount
	Payroll Disbursement	June 10, 2022	255,203.32	
	Payroll Disbursement	June 24, 2022	213,013.47	
				468,216.79
Pre-Approved Expenditures Utilities/Benefits:				
44051	CalPERS Healthcare Acct	Healthcare July 2022	90,961.09	
44052	CalPERS - Retirement Acct	Retirement Contributions: 06/10/2022PP	32,331.32	
44053	ICMA Retirement Trust	Deferred Compensation: 06/10/2022PP	11,380.03	
44054	Principal Life Insurance Co.	Cafeteria Plan	13,024.91	
				147,697.35
Pre-Approved Expenditures less than \$10,000.00:				
44049	Petty Cash Chkng Account Custodian	Petty Cash Replenishment	451.19	
44055	Abila	Cloud Computing Services	873.87	
44056	Advance Imaging Systems	Contract Services	249.49	
44057	Advanced Inverter Services Inc.	Repair & Maintenance	300.00	
44058	Alfredo Anistro	Dues & Memberships	7.60	
44059	Coachella Valley Compost Facility	Repair & Maintenance	70.18	
44060	CleanExcel	Janitorial Services	6,751.00	
44061	C&R Wellness Works	Employee Assistance Services	310.50	
44062	CSI Ceja Security International	Capital Outlay	7,572.50	
44063	Desert Air Conditioning	Repair & Maintenance	216.00	
44064	Roberta Dieckmann	Professional Development	522.96	
44065	Equipment Direct, Inc.	Safety Expense	348.00	
44066	Ferguson Enterprises	Repair & Maintenance	308.84	
44067	Jernigan's Sporting Goods, Inc.	Field Supplies	97.86	
44068	Kwik Kleen Of The Desert	Offsite Vehicle Maintenance & Repair	235.00	
44069	Liebert Cassidy Whitmore	HR Risk Managment	5,615.00	
44070	Linde Gas & Equipment Inc.	Cylinder Rentals	60.99	
44072	NAPA Auto & Truck Parts	Vehicle Parts & Supplies	1,335.74	
44073	Diana Reyes	Tuition Reimbursement	249.25	
44074	SC Commercial LLC dba SC Fuels	Motor,Fuel, Oil	8,454.05	
44075	Rafael Solorzano	Dues & Memberships	10.23	
44076	Veolia ES Technical Solutions, LLC	Operating Supplies	426.84	
44077	Tops N Barricades, Inc.	Repair & Maintenance	210.92	
44078	Vector-Borne Disease Account	CDPH Annual Recertification Fees	346.00	
44081	WESCO, Western Scientific Company, Inc.	Maintenance and Calibration	770.00	
	Cash - California Bank & Trust Checking			35,794.01
	Cash - California Bank & Trust Checking			
44048	Ocean Air Helicopters Inc.	Aerial Application Urban	28,600.00	
44050	U.S. Bank	June CalCard Statement	89,160.71	
44071	Meridian Consultants	Professional Fees	10,578.75	
44079	Vector Control Joint Powers Agency	Property & Liability Insurance	488,977.00	
44080	Verizon Wireless	Capital Equipment Replacement	11,661.48	
	Cash - California Bank & Trust Check Run Total to be Approved			628,977.94
Total Expenditures: June 9 - July 7, 2022				1,280,686.09

Benjamin Guitron IV, President

Douglas Walker, Treasurer

	<p>Coachella Valley Mosquito and Vector Control District</p> <p>Staff Report</p>	<p>July 12, 2022</p>
<p>Agenda Item: General Consent Approval of Resolution 2022-17 Adopting Employee Pay Schedule, in conformance with California Code of Regulations, Title 2, Sections 570.5 and 571. Crystal Moreno, M.S., Human Resources Manager</p>		
<p>Background:</p> <p>On August 10, 2011, CalPERS adopted the <i>California Code of Regulations (CCR) Title 2, Sections 570.5, and 571(b)</i>, which set specific requirements for making pay schedules publicly available. The stated purpose was to ensure consistency and enhance disclosure and transparency of public employee compensation.</p> <p>To fully meet the requirements of these regulations, the pay schedule must list a position title for every employee position, show a pay rate for each position, and indicate the time base for the pay rate (hourly, monthly, annually, etc.). The pay schedule shown on Exhibit "A" reflects the following updates:</p> <ul style="list-style-type: none"> • 3% Districtwide COLA • 5% Management Pay Scale Increase • Addition of Operations Project Coordinator position 		
<p>Staff Recommendation: Staff recommends that the Board of Trustees approve Resolution 2022-17</p>		
<p>Exhibits:</p> <ul style="list-style-type: none"> • Resolution 2022-17 • Pay Schedule (Exhibit "A") 		

RESOLUTION NO. 2022-17

**A RESOLUTION OF THE BOARD OF TRUSTEES OF THE
COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL
DISTRICT APPROVING THE DISTRICT'S PAY SCHEDULE TO
CONFORM WITH THE CALIFORNIA CODE OF REGULATIONS
(CCR) TITLE 2, SECTION 570.5 AND AMENDMENTS TO CCR
SECTION 571, SUBDIVISION (b)**

WHEREAS, the Coachella Valley Mosquito and Vector Control District ("District") is a political subdivision and a "local agency" of the State of California, created and operating under the authority and provisions of California Health and Safety Code Section 2000 et. seq., and is also a "local agency" within the meaning of Section 53600 of the California Government Code; and

WHEREAS, California Code of Regulations, Title 2, Section 570.5 requires governing bodies of local agencies contracting with CalPERS to approve and adopt a publicly available pay schedule in accordance with public meeting laws; and

WHEREAS, the Board of Trustees wishes to meet the requirements of these regulations by adopting a Pay Schedule which sets forth the pay ranges for all District employee classifications in one single document;

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of the Coachella Valley Mosquito and Vector Control District that:

Section 1. Recitals.

The true and correct recitals above are incorporated by this reference herein as the basis and foundation for the District's adoption of this Resolution.

Section 2. Approval of Pay Schedule

That the Board of Trustees hereby approves the pay schedule shown on Exhibit "A," which is incorporated herein by this reference, for classifications as designated on said schedule, a copy of which is attached hereto and incorporated herein by this reference.

Section 3. Effective Date.

This Resolution shall take effect upon its adoption.

Section 4. Certification.

The Clerk of the Board shall certify as to the adoption of this Resolution and shall cause the same to be processed in the manner required by law.

PASSED, ADOPTED, AND APPROVED, this 12th day of July 2022, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Benjamin Guitron, President
Board of Trustees

ATTEST:

Melissa Tallion, Clerk of the Board

APPROVED AS TO FORM:

Lena D. Wade, General Counsel

REVIEWED:

Jeremy Wittie, M.S., General Manager

Exhibit "A"

Pay Scale

(behind this page)

COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT

Monthly Pay Schedule - FY 2022-23

	<u>Step 1</u>	<u>Step 2</u>	<u>Step 3</u>	<u>Step 4</u>	<u>Step 5</u>	<u>Step 6</u>
VCT I, Laboratory Technician	4,258.29	4,471.20	4,694.76	4,929.50	5,175.97	5,434.77
VCT II, Laboratory Assistant I	5,175.99	5,434.79	5,706.53	5,991.85	6,291.44	6,606.02
Mechanic I, Facilities Maintenance Technician I	5,434.79	5,706.53	5,991.85	6,291.44	6,606.02	6,936.32
Lead VCT, Lab Assistant II, Mechanic II, Facilities Maintenance Technician II	5,706.53	5,991.85	6,291.45	6,606.02	6,936.32	7,283.14
Administrative Clerk	4,803.52	5,043.70	5,295.88	5,560.68	5,838.71	6,130.65
Accounting Technician I	4,922.55	5,168.68	5,427.12	5,698.47	5,983.40	6,282.57
Accounting Technician II	5,502.57	5,777.70	6,066.58	6,369.91	6,688.41	7,022.83
Community Liaison	5,667.65	5,951.03	6,248.58	6,561.01	6,889.06	7,233.51
Public Outreach Coord, IT/GIS Assist	6,392.07	6,711.67	7,047.26	7,399.62	7,769.60	8,158.08
Biologist	6,719.95	7,055.95	7,408.75	7,779.19	8,168.14	8,576.55
Field Supervisor, Public Info. Officer	7,792.33	8,181.95	8,591.05	9,020.60	9,471.63	9,945.21
Environmental Biologist, Vector Ecologist, IT/GIS Analyst, Lead Supervisor, Operations Program Coordinator	8,181.89	8,590.99	9,020.54	9,471.57	9,945.14	10,442.40
Exec. Assist./Clerk of Board, HR Specialist, Payroll Coordinator	6,556.64	6,884.47	7,228.69	7,590.13	7,969.63	8,368.12
Admin/Finance Manager, Human Resources Manager, IT Manager, Public Information Manager, Operations Manager, Lab Manager	9,105.22	9,560.48	10,038.50	10,540.43	11,067.45	11,620.82
General Manager	13,816.23					

Educational Incentive Pay

Certificate	1%	Master's Degree	4%
Associate Degree	2%	Doctorate Degree	5%
Bachelor's Degree	3%		

Temporary - Out of Class

5%

Additional Duties

5%

	<p>Coachella Valley Mosquito and Vector Control District</p> <p>Staff Report</p>	<p>July 12, 2022</p>
<p>Agenda Item: Items of General Consent</p> <p>Approval of Resolution 2022-20 Biennial Adoption of a Conflict-of-Interest Code– Melissa Tallion, Executive Assistant/Clerk of the Board</p>		
<p>Background:</p> <p>The Political Reform Act requires every local government agency to review its Conflict of Interest Code biennially each even-numbered year. Local government agencies are required to submit to the County Board of Supervisors a Notice indicating whether or not an amendment is necessary.</p> <p>The District submitted the Notice to the County of Riverside Board of Supervisors on May 18, 2022, with the intention of not making an amendment. However, upon further review it was discovered we shall eliminate a former position title and add a position title. Thus, the amendments are 1) removing the title of Public Information Officer position and 2) adding the title of the Public Information Manager position.</p> <p>With the approval of this Resolution by the County Board of Supervisors, all previously adopted District Conflict of Interest Codes are rescinded. The District’s amended Code is not effective until it has been approved by the Board of Supervisors.</p>		
<p>Staff Recommendation:</p> <p>Staff recommends approval of Resolution 2022-20 adopting a Conflict of Interest Code for the District.</p>		
<p>Attachments:</p> <ul style="list-style-type: none"> • Resolution 2022-20 • Appendix “A” 		

RESOLUTION NO. 2022-20

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT BIENNIAL ADOPTION OF CONFLICT OF INTEREST CODE

WHEREAS, the Coachella Valley Mosquito and Vector Control District ("District") is a special district and local government agency required by Government Code Section 87300 to promulgate a Conflict of Interest Code; and

WHEREAS, the Political Reform Act (Government Code Section 81000, et seq.) requires the District to adopt and promulgate a conflict of interest code; and

WHEREAS, the Fair Political Practices Commission ("FPPC") has adopted a provision at Title 2, section 18730 of the California Code of Regulations which sets forth the terms of a standard model conflict of interest code which may be incorporated by reference so as to constitute the adoption of a Conflict of Interest Code by the District; and

WHEREAS, the FPPC requires that every local agency review its Conflict of Interest Code every even-numbered year to determine whether amendment of its code is necessitated by changed circumstances; and

WHEREAS, the District's Board of Trustees desires to amend the District's Conflict of Interest Code by removing from the list of positions designated as being subject to the Code, the position of the Public Information Officer and adding the position of Public Information Manager.

NOW, THEREFORE, THE BOARD OF TRUSTEES OF THE COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. Recitals.

The recitals set forth above are true and correct.

Section 2. Rescission.

That all previously adopted resolutions approving the District's Conflict of Interest Code are hereby rescinded.

Section 3. Code Adoption.

The District hereby adopts, by this reference, the model conflict of interest code promulgated by the FPPC as Regulation 18730 of Title 2 of the California Code of Regulations ("FPPC Model Conflict of Interest Code") as the Conflict of Interest Code for the Coachella Valley Mosquito and Vector Control District ("District Conflict of Interest Code"). A copy of the FPPC Model Conflict of Interest Code effective as of the date of adoption of this resolution is attached as Exhibit A. Future amendments to the FPPC Model Conflict of Interest Code approved by the Fair Political Practices Commission are hereby incorporated into the District Conflict of Interest Code.

Section 4. Disclosure Categories and Designated Positions.

(a) Those officials, employees and consultants designated in the attached Appendix A - Disclosure Categories and Designated Positions ("Appendix A"), incorporated herein by this reference as though fully set forth, shall be subject to the provisions of the District Conflict of Interest Code pursuant to the applicable disclosure categories.

(b) Any consultant who performs the ongoing duties of any of the designated positions shall be assigned the same disclosure categories as that position, subject to the following limitation: The District General Manager may determine in writing that a particular consultant, although a designated position, is hired to perform a range of duties that is limited in scope and thus is not required to fully comply with the disclosure requirements in this section. Such written determination shall include a description of the consultant's duties and, based upon that description, a statement of the extent of disclosure requirements. The District General Manager's determination shall be filed with the District's Clerk of the Board and is a public record and shall be retained for public inspection in the same manner and location as the District Conflict of Interest Code.

Section 5. Filing.

Pursuant to Title 2, section 18730(b)(4) of the California Code of Regulations, those officials, employees and consultants designated in Appendix A shall file statements of economic interest with the Clerk of the Board to whom the Board of Trustees of the Coachella Valley Mosquito and Vector Control District hereby delegates the authority to carry out the duties of filing officer. The annual statement of economic interests shall be duly filed no later than April 1 of each calendar year.

Section 6. Prohibition Concerning Prospective Employment.

No District employee who is designated in Appendix A shall make, participate in making, or otherwise use their official position to influence any governmental decision directly relating to any person with whom they are negotiating or has any arrangement concerning, prospective employment. For purposes of the District Conflict of Interest Code, the term "person" includes any natural person, corporation or other form of business entity and extends to any of its agents.

Section 7. Ethics Training.

Those employees designated in Appendix A shall be required to attend ethics training as set forth at Government Code section 53235.

Section 8. Violations.

Violations of the District Conflict of Interest Code by any employee designated in Appendix A may result in discipline up to and including termination. Alleged violations of this Code by an employee shall be processed as otherwise provided in the District's personnel policies and procedures.

Section 9. Transmission to the County.

The Board of Trustees hereby authorizes the Clerk of the Board to transmit a copy of this Resolution to the Board of Supervisors of the County of Riverside ("Board of Supervisors") for their approval as the code reviewing body for the District.

Section 10. Effective Date.

This Resolution shall take effect upon its approval by the Board of Supervisors.

[REMAINDER OF PAGE WAS INTENTIONALLY LEFT BLANK]

Section 11. Certification.

The Clerk of the Board shall certify as to the adoption of this Resolution and shall cause the same to be processed in the manner required by law.

PASSED, ADOPTED, AND APPROVED, this 12th day of July 2022, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Benjamin Guitron, President
Board of Trustees

ATTEST:

Melissa Tallion Clerk of the Board

APPROVED AS TO FORM:

Lena D. Wade, General Counsel

REVIEWED:

Jeremy Wittie, M.S., General Manager

EXHIBIT "A"
FPPC MODEL CONFLICT OF INTEREST CODE
Effective as of July 1, 2022

[Attached]

APPENDIX A

APPENDIX TO THE CONFLICT OF INTEREST CODE FOR THE COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT

II. Disclosure Categories

The following categories of reportable economic interests are established:

Category 1: Persons in this category shall disclose on FPPC Form 700, Schedule B, all reportable interests in real property located within the jurisdictional boundaries of the District, or within two miles of the District's jurisdictional boundaries, or within two miles of land located outside the District's jurisdictional boundaries which is owned or used by the District..

Category 2: Persons in this category shall disclose on FPPC Form 700, Schedules C and D, all reportable income, loans and business positions.

Category 3: Persons in this category shall disclose on FPPC Form 700, Schedules A-1 and A-2, all reportable investments.

Category 4: Persons in this category shall disclose on FPPC Form 700, Schedules E and F, all reportable gifts and travel payments.

II. Designated Positions

A "Designated Position" is an officer, employee, member or consultant of the District whose position is designated in the District Conflict of Interest Code because the position entails the making or participation in the making of governmental decisions that may foreseeably have a material effect on any financial interest as set forth at Government Code section 82019.

Any Designated Employee whose position is listed in the following table shall be required to file a Statement of Economic Interest with the Board of Supervisors of the County of Riverside, the District's code reviewing body.

DESIGNATED POSITION	DISCLOSURE CATEGORY(IES)
General Manager	1, 2, 3, 4
Administrative Finance Manager	1, 2, 3, 4
Information Technology Manager	1, 2, 3, 4
Human Resources Manager	1, 2, 3, 4

Public Information Manager	1, 2, 3, 4
Laboratory Manager	1, 2, 3, 4
Operations Manager	1, 2, 3, 4
Clerk of the Board	1, 2, 3, 4
Consultants who perform the ongoing duties of any Designated Position	To be determined by the General Manager per the District Conflict of Interest Code



FINANCE REPORTS

FINANCE

The financial reports show the preliminary balance sheet, receipts, and revenue and expenditure reports for the month ending June 30, 2022. The revenue and expenditure report shows that the operating budget expenditure for July 1, 2021, to June 30, 2022, is \$12,465,512; total revenue is \$13,057,442 resulting in excess revenue over (under) expenditure for the year to June 30, 2022, of \$591,930

THREE YEAR FINANCIALS

	Actual	Budget	Actual	Actual
	6/30/2022	Budget	6/30/2021	6/30/2020
Revenue	13,057,442	12,203,146	12,239,924	10,803,204
Expenses				
Payroll	9,346,147	9,567,740	7,601,123	7,782,681
Administrative Expense	802,546	948,329	645,290	667,430
Utility	105,220	107,824	97,626	129,961
Operating Expense	1,730,267	2,130,046	1,518,248	1,852,235
Contribution to Capital Reserves	481,332	481,300	473,481	503,547
Total Expenses	12,465,512	13,235,239	10,335,768	10,935,854
Profit (Loss)	591,930	(1,032,093)	1,904,156	(132,650)

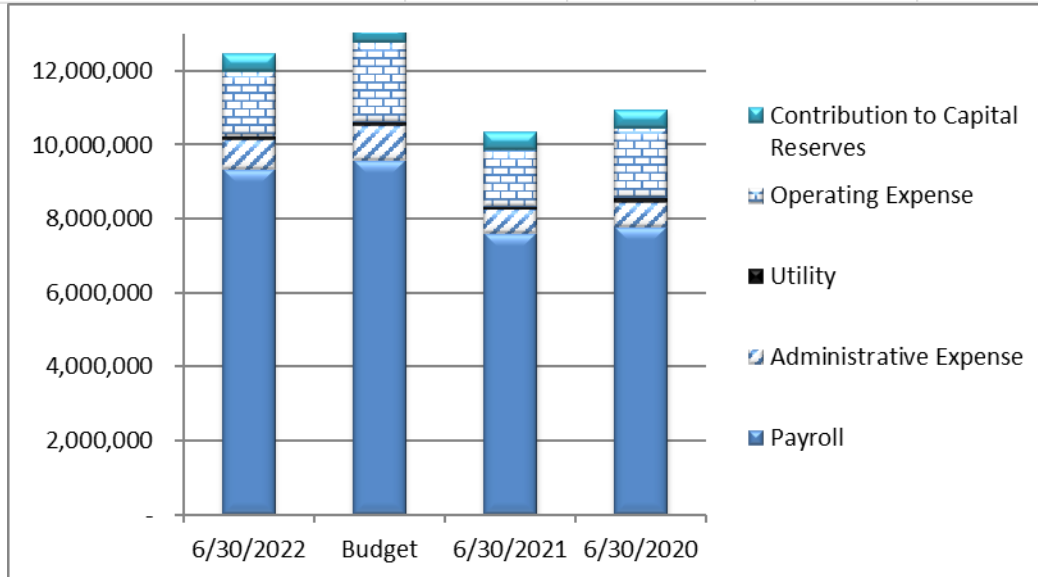


Figure 1 - Three Year Expenditure

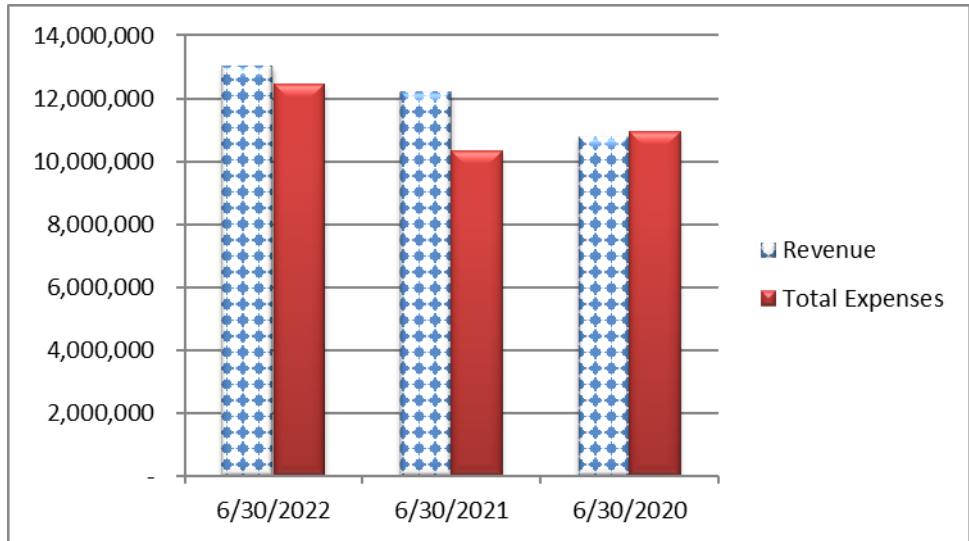


Figure 2 - Three Year Revenue & Expenditure

THREE YEAR CASH BALANCE

Cash Balances	6/30/2022	6/30/2021	6/30/2020
Investment Balance	15,553,077	15,311,673	13,301,867
Checking Account	92,364	2,711	84,023
Payroll Account	122,590	143,650	9,119
Petty Cash	2,000	2,000	2,000
Total Cash Balances	15,770,031	15,460,033	13,397,009

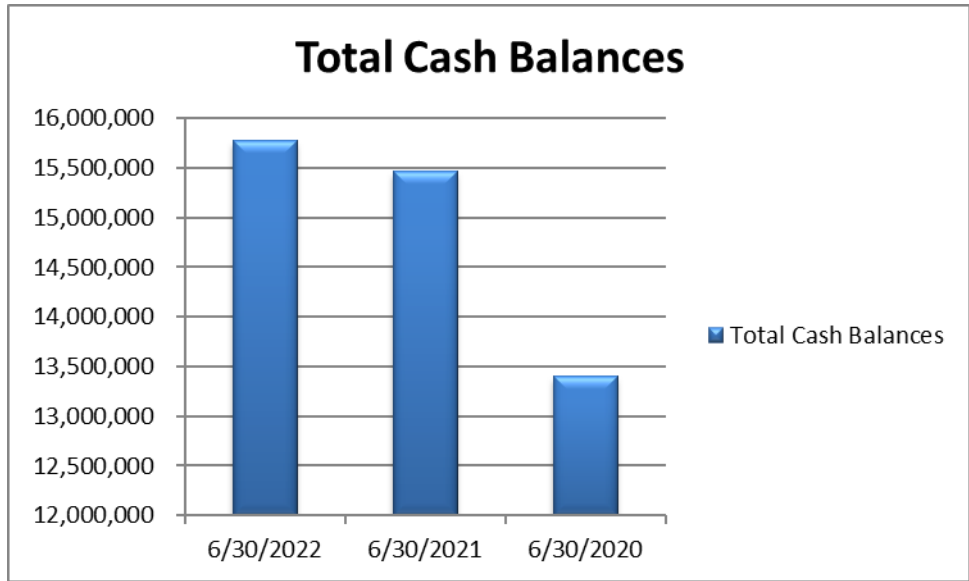


Figure 3 - Cash Balances

DISTRICT INVESTMENT PORTFOLIO 5/31/2022

The District's investment fund balance for the period ending June 30, 2022 is \$15,553,077. The portfolio composition is shown in the pie chart. Local Agency Investment Fund (LAIF) accounts for 18% of the District's investments; the Riverside County Pooled Investment Fund is 52% of the

total. The LAIF yield for the end of June was 0.86% and the Riverside County Pooled Investment Fund was 0.86% this gives an overall weighted yield for District investments of 0.72%.

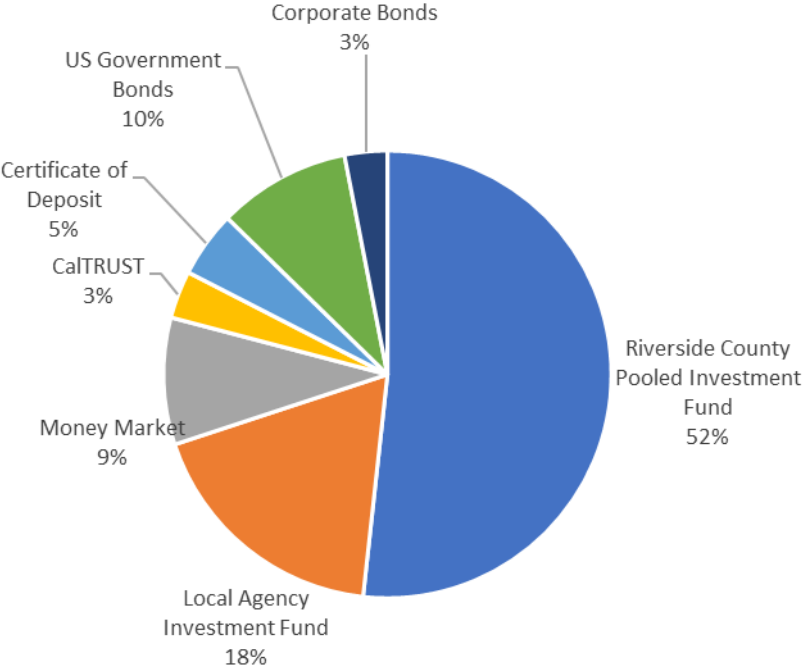


Figure 4 - Investment Portfolio 6/30/22

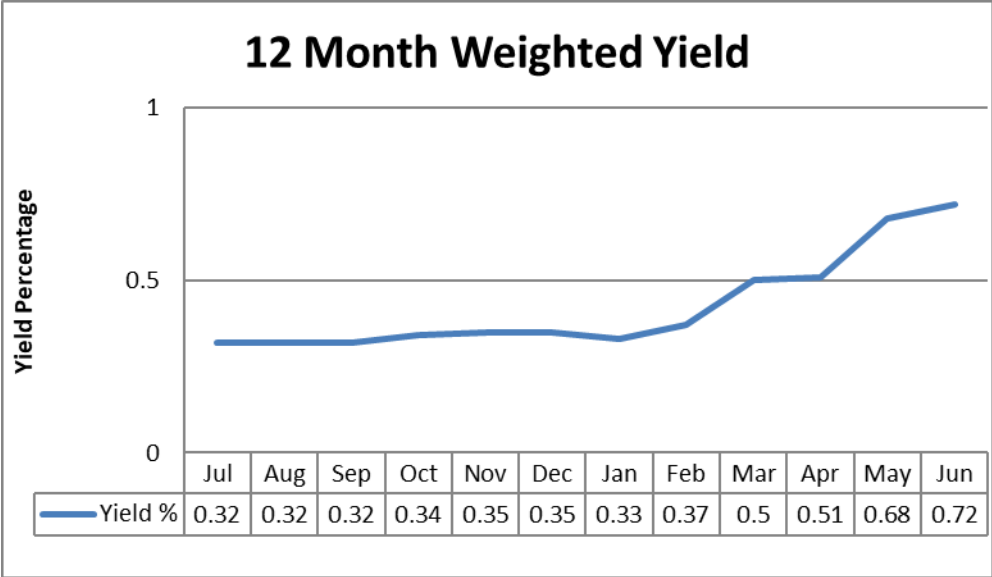


Figure 5 - District Investments Weighted Yield

Coachella Valley Mosquito and Vector Control District
FINANCES AT A GLANCE
ALL FUNDS COMBINED
For the Month Ended June 30, 2022

	Beginning of the Month	Change During the Month	End of the Month
INVESTMENTS	15,873,495	(320,418)	15,553,077
CASH	160,149	56,805	216,954
INVESTMENTS & CASH	16,033,644	(263,613)	15,770,030
CURRENT ASSETS	2,676,458	(1,085,775)	1,590,683
FIXED ASSETS	9,632,595	-	9,632,595
OTHER ASSETS	4,995,513	-	4,995,513
TOTAL ASSETS	33,338,211	(1,349,388)	31,988,822
TOTAL LIABILITIES	5,746,967	(601,769)	5,145,198
TOTAL DISTRICT EQUITY	27,591,244	(747,620)	26,843,624
TOTAL LIABILITIES & EQUITY	33,338,211	(1,349,388)	31,988,822
RECEIPTS			
		\$ 1,089,575	
CASH DISBURSEMENTS			
Payroll	\$ 468,217		
General Admin	\$ 884,971		
Total Cash Disbursements		\$ (1,353,188)	
NON-CASH ENTRIES:			
Accrual Modifications - Changes in A/P, A/R & Pre-paid insurance		\$ (1,085,775)	
Change during Month - Excess of Cash over Receipts & Non-Cash Adjustments		\$ (1,349,388)	

CVMVCD
Cash Journal - deposits
From 6/1/2022 Through 6/30/2022

<u>Effective ...</u>	<u>Transaction Description</u>	<u>Deposits</u>	<u>Payee/Recipient Name</u>
6/2/2022	Benefit Assessment	1,035,477.78	Riverside County
6/30/2022	June Receipts - Homeowners exemption	5,651.70	Riverside County
6/30/2022	June Receipts - Interest	35.83	California Bank & Trust
6/30/2022	June Receipts - RDV Asset Distribution	10,654.74	Riverside County
6/30/2022	June Receipts - RDV Asst Distribution	14,438.62	Riverside County
6/30/2022	June Receipts CY Supp	<u>23,316.17</u>	Riverside County
Report Total		<u><u>1,089,574.84</u></u>	

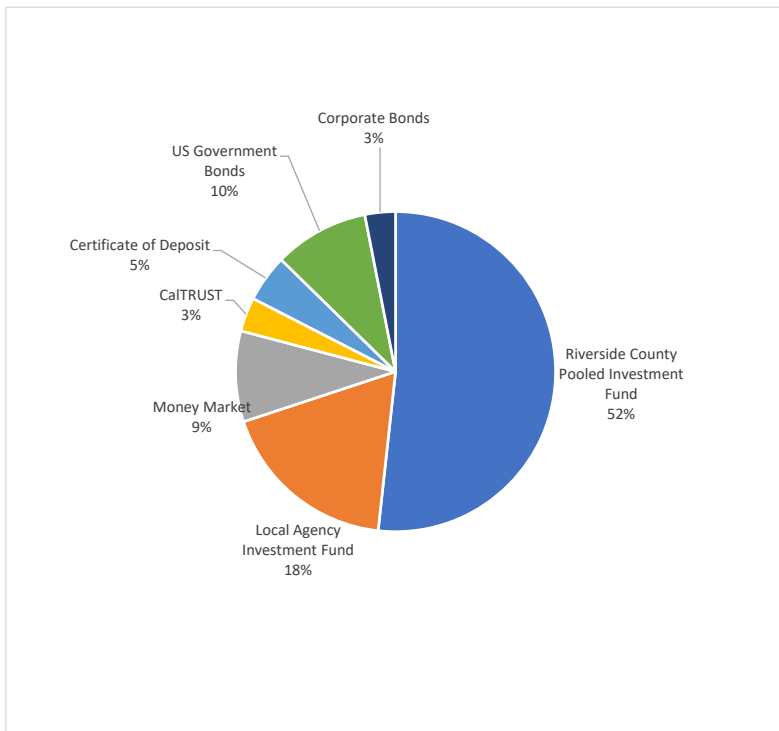
**COACHELLA VALLEY MOSQUITO AND VECTOR CONTROL DISTRICT
INVESTMENT FUND BALANCES AS OF JUNE 30, 2022**

PRELIMINARY 1

INSTITUTION	IDENTIFICATION	Issue Date	Maturity Date	YIELD	General Fund	Thermal Capital Fund	Capital Equipment Replacement Fund	Capital Facility Replacement Fund	BALANCE
LAIF	Common Investments			0.86%	2,594,066	23,361	18,050	193,829	\$ 2,829,306
Riverside County	Funds 51105 & 51115			0.86%	7,378,228	66,444	51,339	551,302	\$ 8,047,313
CalTRUST	Medium Term Fund			0.21%	490,490	4,417	3,413	36,649	\$ 534,970
CA Bank & Trust	Market Rate			0.02%	1,286,078	11,582	8,949	96,096	\$ 1,402,704
Pershing	Market Rate			0.00%	22,133	199	154	1,654	\$ 24,140
BMW Bank	Certificate of Deposit	11/20/2020	11/20/2025	0.50%			59,440	188,226	\$ 247,665
State BK of India	Certificate of Deposit	11/23/2020	11/24/2025	0.55%			59,557	188,597	\$ 248,153
Goldman Sachs	Certificate of Deposit	9/21/2021	9/22/2026	1.05%		37,736	50,474	159,833	\$ 248,043
Federal Home Ln	US Government Bonds	11/24/2020	11/24/2025	0.63%			179,402	568,108	\$ 747,510
Federal Natl Mtg Assn	US Government Bonds	11/25/2020	11/25/2025	0.63%			178,461	565,127	\$ 743,588
Bank Amer Corp	Corporate Bonds	11/25/2020	11/25/2025	0.65%			115,124	364,561	\$ 479,685
Total Investments					11,770,995	143,739	724,363	2,913,979	\$ 15,553,077

PORTFOLIO COMPOSITION AS OF JUNE 30, 2022

WEIGHTED YIELD 0.72%



In compliance with the California Code Section 53646; the Finance Administrator of the Coachella Valley Mosquito and Vector Control District hereby certifies that sufficient liquidity and anticipated revenue are available to meet the District's budgeted expenditure requirements for the next six months.

Investments in the report meet the requirements of the Coachella Valley Mosquito and Vector Control District's adopted investment policy

Respectfully submitted

NOTED AND APPROVED

CVMVCD
Statement of Revenue and Expenditures
June 30, 2022
PRELIMINARY

	Annual Budget	YTD Budget	YTD Actual	YTD Budget Variance	Current Period Budget	Current Period Actual	Current Period Variance	Annual Budget Variance	Percent Annual Budget	
Revenues										
4000	Property Tax - Current Secured	4,121,655	4,121,655	4,101,481	(20,174)	181,216	0	(181,216)	(20,174)	(0)%
4010	Property Tax - Curr. Supplmntl	30,561	30,561	23,316	(7,245)	30,561	23,316	(7,245)	(7,245)	(24)%
4020	Property Tax - Curr. Unsecured	170,821	170,821	196,264	25,443	5,041	0	(5,041)	25,443	15 %
4030	Homeowners Tax Relief	36,430	36,430	37,679	1,249	0	5,652	5,652	1,249	3 %
4070	Property Tax - Prior Supp.	23,736	23,736	60,757	37,021	23,736	0	(23,736)	37,021	156 %
4080	Property Tax - Prior Unsecured	9,069	9,069	0	(9,069)	9,069	0	(9,069)	(9,069)	(100)%
4090	Redevelopment Pass-Thru	5,406,064	5,406,064	6,339,112	933,048	2,703,032	25,093	(2,677,939)	933,048	17 %
4520	Interest Income - LAIF/CDs	42,000	42,000	27,620	(14,380)	10,500	36	(10,464)	(14,380)	(34)%
4530	Other Miscellaneous Receipts	63,000	63,000	34,672	(28,328)	5,250	0	(5,250)	(28,328)	(45)%
4551	Benefit Assessment Income	2,299,810	2,299,810	2,236,541	(63,269)	103,320	0	(103,320)	(63,269)	(3)%
	Total Revenues	12,203,146	12,203,146	13,057,442	854,296	3,071,725	54,097	(3,017,628)	854,296	7 %

Expenditures

Payroll Expenses

5101	Payroll - FT	5,373,288	5,373,288	5,240,169	133,119	459,060	448,126	10,934	133,119	2 %
5102	Payroll Seasonal	203,400	203,400	216,429	(13,029)	16,950	12,349	4,601	(13,029)	(6)%
5103	Temporary Services	6,900	6,900	0	6,900	0	0	0	6,900	100 %
5105	Payroll - Overtime Expense	45,120	45,120	5,400	39,720	3,760	268	3,492	39,720	88 %
5150	CalPERS State Retirement	1,873,120	1,873,120	1,875,572	(2,452)	156,922	9,684	147,238	(2,452)	(0)%
5155	Social Security Expense	331,680	331,680	343,440	(11,760)	28,317	29,269	(952)	(11,760)	(4)%
5165	Medicare Expense	77,570	77,570	81,487	(3,917)	6,623	6,845	(223)	(3,917)	(5)%
5170	Cafeteria Plan	1,141,827	1,141,827	1,072,365	69,462	97,993	4,015	93,979	69,462	6 %
5172	Retiree Healthcare	372,588	372,588	385,346	(12,758)	31,049	26,035	5,014	(12,758)	(3)%
5180	Deferred Compensation	108,010	108,010	92,665	15,346	9,105	(2,520)	11,625	15,346	14 %
5195	Unemployment Insurance	34,236	34,236	33,274	962	2,980	698	2,283	962	3 %
	Total Payroll Expenses	9,567,740	9,567,740	9,346,147	221,593	812,759	534,769	277,990	221,593	2 %

CVMVCD
Statement of Revenue and Expenditures
June 30, 2022

		PRELIMINARY	YTD	Current	Current	Current	Current	Annual	Percent	
		Annual Budget	YTD Budget	YTD Actual	Budget	Period	Current	Budget	Annual	
					Variance	Budget	Period Actual	Variance	Budget	
Administrative Expenses										
5250	Tuition Reimbursement	20,000	20,000	9,074	10,926	1,667	249	1,417	10,926	55 %
5300	Employee Incentive	15,500	15,500	7,845	7,655	1,292	755	536	7,655	49 %
5301	Employee Support	0	0	1,172	(1,172)	0	0	0	(1,172)	0 %
5302	Wellness	5,600	5,600	5,265	335	467	418	49	335	6 %
5305	Employee Assistance Program	3,200	3,200	3,461	(261)	267	0	267	(261)	(8)%
6000	Property & Liability Insurance	156,406	156,406	187,957	(31,551)	14,701	17,526	(2,825)	(31,551)	(20)%
6001	Workers' Compensation Insurance	181,607	181,607	112,177	69,430	21,384	21,345	39	69,430	38 %
6050	Dues & Memberships	42,816	42,816	41,255	1,561	3,654	7,052	(3,398)	1,561	4 %
6060	Reproduction & Printing	7,950	7,950	5,532	2,418	246	20	226	2,418	30 %
6065	Recruitment/Advertising	7,500	7,500	4,661	2,839	625	380	245	2,839	38 %
6070	Office Supplies	17,111	17,111	10,355	6,756	1,426	908	518	6,756	39 %
6075	Postage	5,750	5,750	2,717	3,033	479	33	446	3,033	53 %
6080	Computer & Network Systems	8,199	8,199	7,148	1,051	683	(958)	1,641	1,051	13 %
6085	Bank Service Charges	200	200	(15)	215	17	0	17	215	107 %
6090	Local Agency Formation Comm.	2,400	2,400	2,243	157	0	0	0	157	7 %
6095	Professional Fees	192,000	192,000	170,911	21,089	6,750	21,090	(14,340)	21,089	11 %
6100	Attorney Fees	68,000	68,000	62,532	5,468	5,667	3,850	1,817	5,468	8 %
6105	Legal Services / Filing Fees	1,000	1,000	0	1,000	83	0	83	1,000	100 %
6106	HR Risk Management	6,000	6,000	1,500	4,500	500	0	500	4,500	75 %
6110	Conference Expense	44,400	44,400	22,812	21,588	1,483	0	1,483	21,588	49 %
6115	In-Lieu	13,200	13,200	13,212	(12)	1,100	1,912	(812)	(12)	(0)%
6120	Trustee Support	7,600	7,600	1,161	6,439	633	81	552	6,439	85 %
6200	Meetings Expense	4,890	4,890	2,998	1,892	408	164	243	1,892	39 %
6210	Promotion & Education	5,000	5,000	5,002	(2)	0	2,013	(2,013)	(2)	(0)%
6220	Public Outreach Advertising	46,000	46,000	42,907	3,093	0	2,216	(2,216)	3,093	7 %
6500	Benefit Assessment Expenses	86,000	86,000	78,666	7,334	0	0	0	7,334	9 %
Total Administrative Expenses		948,329	948,329	802,546	145,782	63,530	79,054	(15,524)	145,782	15 %
Utilities										
	6- Utilities	106,000	106,000	103,528	2,472	8,833	167	8,667	2,472	2 %
	6- Telecommunications	1,824	1,824	1,692	132	152	0	152	132	7 %
Total Utilities		107,824	107,824	105,220	2,604	8,985	167	8,819	2,604	2 %

CVMVCD
Statement of Revenue and Expenditures
June 30, 2022

		PRELIMINARY	YTD	Current	Current	Current	Current	Annual	Percent	
			Budget	Period	Current	Period	Period	Budget	Annual	
Annual Budget	YTD Budget	YTD Actual	Variance	Budget	Period Actual	Variance	Variance	Variance	Budget	
Operating										
7000	Uniform Expense	44,727	44,727	45,697	(970)	3,689	1,270	2,418	(970)	(2)%
7050	Safety Expense	32,375	32,375	34,895	(2,520)	2,669	7,725	(5,056)	(2,520)	(8)%
7100	Physican Fees	5,000	5,000	3,755	1,245	417	490	(73)	1,245	25 %
7150	IT Communications	56,860	56,860	45,140	11,720	4,738	0	4,738	11,720	21 %
7200	Household Supplies	3,000	3,000	3,037	(37)	250	130	120	(37)	(1)%
7300	Repair & Maintenance	42,000	42,000	58,096	(16,096)	3,500	2,561	939	(16,096)	(38)%
7310	Maintenance & Calibration	6,170	6,170	5,601	569	0	770	(770)	569	9 %
7350	Permits, Licenses & Fees	8,273	8,273	7,959	315	426	0	426	315	4 %
7360	Software Licensing	22,305	22,305	21,327	978	0	0	0	978	4 %
7400	Vehicle Parts & Supplies	44,720	44,720	41,160	3,560	3,727	2,109	1,618	3,560	8 %
7420	Offsite Vehicle Maint & Repair	17,343	17,343	11,289	6,054	1,445	1,668	(222)	6,054	35 %
7450	Equipment Parts & Supplies	28,620	28,620	21,151	7,469	2,225	3,145	(920)	7,469	26 %
7500	Small Tools Furniture & Equip	4,400	4,400	3,465	935	367	249	118	935	21 %
7550	Lab Supplies & Expense	36,700	36,700	20,588	16,112	3,208	1,268	1,940	16,112	44 %
7570	Aerial Pool Surveillance	26,000	26,000	2,400	23,600	0	0	0	23,600	91 %
7575	Surveillance	60,360	60,360	70,429	(10,069)	1,759	451	1,308	(10,069)	(17)%
7600	Staff Training	85,824	85,824	52,672	33,152	5,685	2,102	3,583	33,152	39 %
7650	Equipment Rental	1,000	1,000	297	703	83	0	83	703	70 %
7675	Contract Services	109,720	109,720	131,496	(21,776)	7,938	12,689	(4,750)	(21,776)	(20)%
7680	Cloud Computing Services	101,370	101,370	98,706	2,664	17,586	7,782	9,804	2,664	3 %
7700	Motor Fuel & Oils	80,000	80,000	109,270	(29,270)	6,667	8,908	(2,242)	(29,270)	(37)%
7750	Field Supplies	14,600	14,600	11,579	3,021	1,217	3,975	(2,758)	3,021	21 %
7800	Control Products	711,280	711,280	489,937	221,343	21,887	0	21,887	221,343	31 %
7850	Aerial Applications	209,213	209,213	227,622	(18,409)	17,434	28,600	(11,166)	(18,409)	(9)%
7860	Unmanned Aircraft Application Services	40,000	40,000	26,318	13,682	3,333	0	3,333	13,682	34 %
8415	Capital Outlay	46,343	46,343	30,646	15,697	2,712	3,945	(1,233)	15,697	34 %
8510	Research Projects	182,093	182,093	155,734	26,359	10,467	11,427	(960)	26,359	14 %
9000	Contingency Expense	109,750	109,750	0	109,750	9,146	0	9,146	109,750	100 %
Total Operating		2,130,046	2,130,046	1,730,267	399,779	132,575	101,264	31,311	399,779	19 %

CVMVCD
Statement of Revenue and Expenditures
June 30, 2022

		PRELIMINARY	YTD	Current		Current	Annual	Percent		
			Budget	Period	Current	Period	Budget	Annual		
Annual Budget	YTD Budget	YTD Actual	Variance	Budget	Period Actual	Variance	Variance	Budget		
Contribution to Capital Reserves										
8900	Transfer to other funds	481,300	481,300	481,332	(32)	40,108	40,108	0	(32)	(0)%
Total Contribution to Capital Reserves		481,300	481,300	481,332	(32)	40,108	40,108	0	(32)	(0)%
Total Expenditures		13,235,239	13,235,239	12,465,513	769,726	1,057,958	755,362	302,596	769,726	6 %
Net revenue over/(under) expenditures		(1,032,093)	(1,032,093)	591,929	1,624,022	2,013,767	(701,265)			

CVMVCD
Balance Sheet
As of 6/30/2022

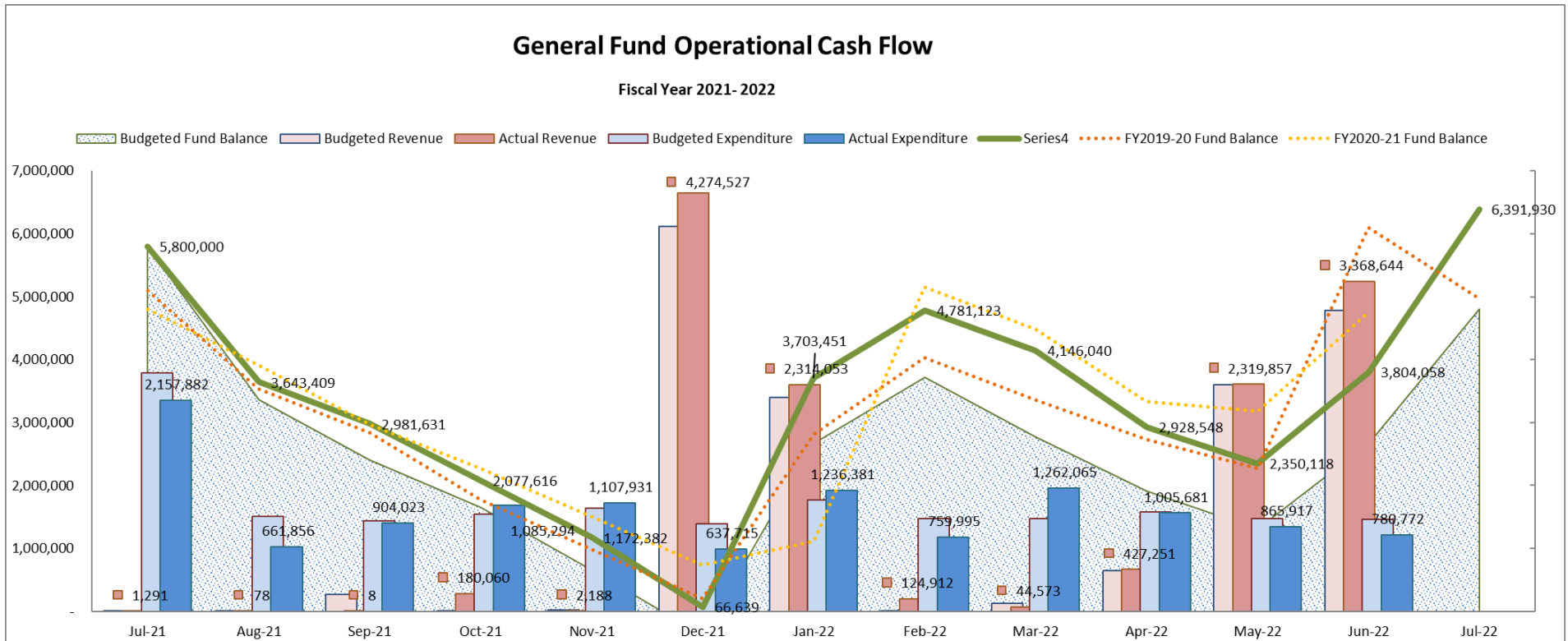
		Current Year
Assets		
Cash and Investments		
1000	Cash - Investments	15,553,076.55
1016	Petty Cash	500.00
1017	Petty Cash Checking	1,500.00
1035	CB&T General Checking	92,364.01
1036	CB&T Payroll Checking	122,589.78
	Total Cash and Investments	15,770,030.34
Current Assets		
1080	Interest Receivable	719.63
1085	Inventory	633,981.76
1167	Prepaid Research Proposals	68,560.24
1168	Prepaid Insurance	2,559.63
1169	Deposits	884,862.00
	Total Current Assets	1,590,683.26
Fixed Assets		
1170	Construction in Progress	4,925.00
1300	Equipment/Vehicles	2,055,955.14
1310	Computer Equipment	488,713.68
1311	GIS Computer Systems	301,597.91
1320	Office Furniture & Equipment	1,300,099.10
1330	Land	417,873.30
1335	Oleander Building	5,665,861.83
1336	Signage	23,651.39
1340	Structures & Improvements	3,026,125.52
1341	Bio Control Building	6,849,603.74
1342	Bio Control Equip/Furn	43,986.77
1399	Accumulated Depreciation	(10,545,798.38)
	Total Fixed Assets	9,632,595.00
Other Assets		
1520	Resources to Be Provided	3,514,102.32

CVMVCD
Balance Sheet
As of 6/30/2022

		Current Year
1525	Deferred Outflows of Resources	1,068,928.00
1530	Deferred Outflows of Resources - OPEB	412,483.00
1900	Due to/from	0.12
	Total Other Assets	4,995,513.44
	Total Assets	31,988,822.04
Liabilities		
Short-term Liabilities		
Accounts Payable		
2015	Credit Card Payable	44,489.68
2020	Accounts Payable	26,831.58
2030	Accrued Payroll	0.03
2040	Payroll Taxes Payable	84.54
2175	Claims/Judgements Payable	(426.30)
2185	Employee Dues	426.30
	Total Accounts Payable	71,405.83
Deferred Revenue		
2025	Deferred Revenue	11,250.00
	Total Deferred Revenue	11,250.00
	Total Short-term Liabilities	82,655.83
Long-term Liabilities		
2100	Pollution Remediation Obligation	2,100,000.00
2200	Net Pension Liability	1,612,919.00
2210	Deferred Inflows of Resources	85,158.00
2230	Deferred Inflows - OPEB	16,118.00
2300	Net OPEB Liability	453,746.00
2500	Compensated Absences Payable	794,601.32
	Total Long-term Liabilities	5,062,542.32
	Total Liabilities	5,145,198.15
Fund Balance		

CVMVCD
Balance Sheet
As of 6/30/2022

		Current Year
	Non Spendable Fund Balance	
3920	Investment in Fixed Assets	10,698,793.35
3945	Reserve for Prepaids & Deposit	1,041,259.68
3960	Reserve for Inventory	459,270.86
	Total Non Spendable Fund Balance	12,199,323.89
	Committed Fund Balance	
3965	Public Health Emergency	4,851,276.00
	Total Committed Fund Balance	4,851,276.00
	Assigned Fund Balance	
3910	Reserve for Operations	5,800,000.00
3925	Reserve for Future Healthcare Liabilities	453,746.00
3955	Thermal Remediation Fund	63,688.00
3970	Reserve for Equipment	726,018.00
3971	Reserve for Facility & Vehicle Replacement	2,659,312.00
	Total Assigned Fund Balance	9,702,764.00
	Unassigned Fund Balance	
3900	Fund Equity	(568,650.76)
	Total Unassigned Fund Balance	(568,650.76)
	Current YTD Net Income	658,910.76
	Total Current YTD Net Income	658,910.76
	Total Fund Balance	26,843,623.89
	Total Liabilities and Net Assets	31,988,822.04



The **General Fund Operational Cash Flow** graph outlines the District's working capital for the fiscal year July 1, 2021, to June 30, 2022. The beginning fund balance is \$5.8 million and the ending fund balance is \$4.8 million. Expenditure is approximately divided by 12 equal months, with some differences accounting for the seasonality of the program for example control products and seasonal employment which are greater in the mosquito breeding season. July expenditure is higher than average because of the prefunding lump sum of \$1.3 million for CalPERS unfunded liability. The budget also accounts for prepayments. The revenue follows a different pattern, Riverside County distributes the property tax revenue in January and May with advancements in December and April. The *shaded area* represents the **Budgeted Fund Balance** which has a formula of (beginning) **Fund Balance** plus **Revenue** minus **Expenditure**. The *green line* represents the **Actual Fund Balance** and is graphed against the *shaded area Budgeted Fund Balance*. FY2019-2020 Fund Balance is the orange dash line. FY2020-21 Fund Balance is the yellow dash line.

The graph shows for June 1 the \$5.8 million **Fund Balance** plus total Revenue for July 1 to June 30, 2022, of \$13,057,442 minus total Expenses of \$12,465,512 is \$6,391,930 Revenue shows a \$854,296 favorable year to date budget variance, which includes \$933,048 favorable variance in Pass Thru revenue, there are more receipts expected for current secured property taxes and a Benefit Assessment revenue, giving an estimated overall favorable variance of \$1million. Payroll expenses show a favorable variance of \$221,593, this will end the year zero. Administrative expenses have a favorable variance of \$145,783 this is due to the high retrospective adjustment for workers compensation, also in May the County of Riverside refunded benefit benefit expenses that were overcharged in January. Operating expenses have a favorable variance of \$399,779, expenses for Contingency budget are variable depending on mosquito abundance and virus prevalence, favorable variance for control products is because less aerial larvicide applications occurred this fiscal year and there was a change in RIFA protocol that brought about cost savings. Overall, the District is showing a favorable variance of \$1.6 million mainly due to increase in revenue and operating and admin expenses under budget. For planning purposes, the District is under budget. As long as the green line stays out of the shaded area the District is within budget, as of June 30, 2022, the line is outside the shaded area.

	Budget	Actual	Variance	June 30 2022	
	6/30/2022	6/30/2022		Latest Estimate	
Revenue	12,203,146	13,057,442	(854,296)	13,241,802	favorable variance - pass thru revenue higher than anticipated
Expenses					
Payroll	9,567,740	9,346,147	221,593	9,567,740	favorable variance - timing payroll June 30 payroll still to be expensed
Administrative Expense	948,329	802,546	145,783	858,329	favorable variance - workers comp expenses lower than budgeted
Utility	107,824	105,220	2,604	114,824	
Operating Expense	2,130,046	1,730,267	399,779	1,790,296	favorable variance - contingency expense not used, pesticide budget not fully expensed
Contribution to Capital Reserves	481,300	481,332	(32)	481,300	
Total Expenses	13,235,239	12,465,512	769,727	12,812,489	
Profit (Loss)	(1,032,093)	591,930	(1,624,023)	429,313	

Melissa Tallion

From: Gregorio Alvarado
Sent: Friday, June 17, 2022 8:29 AM
To: District Wide Group
Subject: Osiel S Kudos!

Good morning,

Received a call from Mrs. Johnson [REDACTED] who also happens to be part of the community association board. Mrs. Johnson expressed that Osiel Salinas “provided information for her and for the community as a whole and that he was very nice, very professional, and an absolute quintessential perfect employee.” She wanted to make sure that he was recognized for his exemplary work done addressing Aedes mosquitoes.

Osiel Salinas joined our Aedes team as a seasonal mid-May and has done a great job representing the District.

Thank you, Osiel, for all the work you do and your dedication to the District.



Greg Alvarado
Field Supervisor
Office (760) 342-8287
Cell (760) 541-2021
www.cvmosquito.org
Coachella Valley MVCD

Melissa Tallion

From: Diana Reyes
Sent: Thursday, July 7, 2022 2:49 PM
To: District Wide Group
Cc: Osiel Salinas
Subject: Complement Call

Hi,

I received a call from a Mrs. McCormick [REDACTED] today wanting to say that she was very happy with her mosquito inspection/treatment done by Osiel. She is seeing a difference already with less mosquitoes. She also wanted to say she enjoyed speaking with Erica when she called in for service as well.

Great job, Osiel, and Erica!!



Diana Reyes
Administration Clerk
Call Center/Public Outreach
(760) 342-8287 Ext. 325

www.cvmosquito.org

Coachella Valley MVCD





Coachella Valley Mosquito and Vector Control District

July 12, 2022

Staff Report

Agenda Item: Informational Item

Semi-annual research reports from the University of California, Davis, University of California, Riverside, Mount Sinai School of Medicine, and the USDA for 2022 – **Jennifer A. Henke, M.S., Laboratory Manager**

Background:

The Research Department (Department 600) supports cooperative work with the University of California system and other research institutions for conducting mosquito-borne disease and vector research, optimizing control measures for vectors, and understanding of vector biology. The proposals include examining control interventions to predict when to better time future applications; using mosquito excreta as another method of virus testing for remote locations; using biological control organisms to target adult mosquitoes in storm water systems; examining control strategies for house flies; and examining impacts of irrigation on fire ant control methods. Each of the proposals was approved by the Research Committee and later approved by the full Board of Trustees at a November Board Meeting. The work is part of the 2018 Strategic Plan goal 5.3.0.

As described in District’s Research Funding Policy and Procedure, researchers are to provide semiannual progress reports. Some researchers were prevented from completing work that was funded in 2020 and 2021 due to COVID-19, and extensions were granted to those researchers. That work is now underway. The reports are from the following proposals:

1. **Icahn School of Medicine at Mount Sinai (Dr. N. DeFelice)** – funded in 2022
 - Adaptive policy pathways for West Nile virus management
2. **UC Davis (Dr. L. Coffey and Dr. A. Ramírez)** – funded in 2021
 - Evaluate mosquito excreta as an early warning system for arbovirus surveillance in remote locations
3. **UC Riverside (Dr. A. Gerry)** – funded in 2020
 - Examine the use of attractive toxic sugar bait stations for house flies associated with melons and peppers
4. **UC Riverside (Dr. A. Gerry and Mr. D. Popko)** – funded in 2022
 - Examine the use of attractive toxic sugar bait stations with fungi and pyriproxifen as the toxic agents in storm drains
5. **USDA (Dr. D. Oi)** – funded in 2020, 2021, and 2022
 - Examine the impacts of irrigation on fire ant baits and monitor fire ant mating flight activity and biological control agents

Attachments:

- Reports from Dr. DeFelice, Dr. Coffey, Dr. Gerry, Mr. Popko, and Dr. Oi

Adaptive policy pathways for West Nile virus management

Nicholas DeFelice, Meytar Sorek-Hamer, Mathew J. Ward, Krishna Vemuri

Narrative

West Nile Virus (WNV) is the leading domestically acquired arbovirus, and ecologically informed forecast applications hold promise to help improve management decisions for abatement and public health. Here, we expand our current research of developing a WNV forecast system by integrating meteorological indicators to identify the key environmental conditions that facilitate and accelerate this cycle. Ideally this information can be used to inform effective vector control early in the transmission cycle reducing the likelihood of a spillover event. We hypothesize that integrating different spatial scale environmental data from 13 km² grids down to the micro-ecology at the watershed level (i.e., hydrology and temperature indicators) will provide new insight into vector development and potential risk of WNV spillover, allowing vector abatement districts to enhance their current monitoring network. We have constructed an environmental database and have begun generating statistical models.

Aim 1. Create a geographic database of remote sensing, land use and environmental variables that influence mosquito life cycle. This environmental database will be linked to mosquito monitoring data and adulticide and pesticide use.

Aim 2. Develop a probabilistic model using the environmental database and mosquito monitoring data to quantify risk and identify environmental drivers of WNV transmission in the Coachella Valley.

Aim 3. Develop high-resolution risk maps of the probability of WNV infected mosquitoes, to help guide the timing of two key mosquito control interventions: larviciding—insecticide applications targeting mosquito larvae—and adulticiding— insecticide applications targeting adult mosquitoes.

Status

Aim 1. We will create a geographic database of remote sensing, land use and environmental variables that influence mosquito life cycle. This environmental database will be linked to mosquito monitoring data and adulticide and pesticide use. Additionally, we have downloaded a suite of environmental variables to be used in an environmentally forced forecast model. The two major data sets are ECOSTRESS (70m resolution), and NLDAS (13km resolutions).

Obtaining Data: Our primary data source for environmental data was ECOSTRESS. We obtained ECOSTRESS data for trap abatement areas in Coachella Valley, CA, for the period between July 18th, 2018 and April 30th, 2022. We obtained approximately 15,500 ECOSTRESS raster files of data over these trap sites from the AppEEARS LPDAAC data repository in the GeoTIFF format. This included Cloudmask data, Land Surface Temperature (LST) data, Evapotranspiration (ET) data, Evaporative Stress Index (ESI) data, Water Use Efficiency data and Emissivity data, and the associated error files and quality control files for levels 2 and 3. For this period, ECOSTRESS had 787 overpasses over Coachella Valley, CA. These two data sets have been used to develop and identify environmental drivers of WNV transmission in the Coachella Valley.

Aim 2. Develop a probabilistic model using the environmental database and mosquito monitoring data to quantify risk and identify environmental drivers of WNV transmission in the Coachella Valley.

Building on Aim 1, we have generated environmental groupings from a combination of hydrology and meteorological conditions to identify the most relevant combination of environmental conditions for viral amplification. Furthermore, we have developed a robust inference system able to improve our current understanding of how meteorological and hydrological conditions over time influence WNV activity. Ideally this will improve the effectiveness of public health interventions. Mosquito trapping data was used to calculate the

WNV infection rate at the annual time step using the maximum likelihood estimate (MLE) and different remote sensing platform scales (NLDAS 13km², Figure 1). Model testing is currently underway using remote sensing variables including surface temperature and evapotranspiration which are from ECOSTRESS platforms (70m resolution) to develop an high resolution risk prediction of when a trap 1st tests positive. Here we have results for the larger spatial scales NLDAS (13km²) using evapotranspiration and atmospheric temperature. *Culex* species are currently aggregated. Historically, we see *Cx. tarsalis* is of greater abundance than *Cx. quinquefasciatus* Figure 2. We have employed a multi-model averaged predictions of different combinations of meteorological and hydrological data (i.e., temperature and evapotranspiration). By developing a multimodel inference system we are providing formal probabilistic interpretation across the disparate individual model predictions, determining which models align; with the ensemble indicating an association between environmental conditions and the increased risk of WNV infection rates. Figures 3 and 4 show the environmental conditions that are associated with the increased risk of WNV infection rates. The model results show that a dry winter followed by a warm spring followed by a cooler than normal summer increase the risk of WNV.

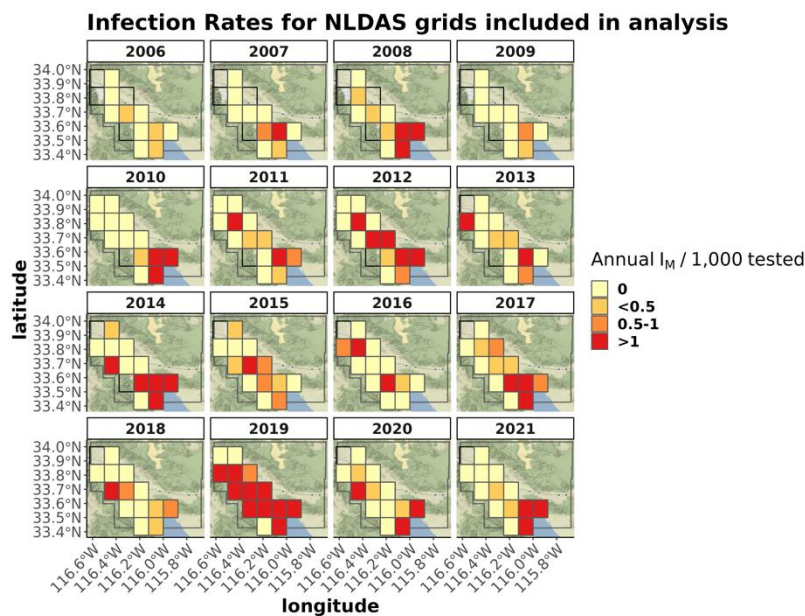


Figure 1. Annual WNV infection rate (per 1,000 *Culex* mosquitoes tested) at the NLDAS scale (13 km² grid) in the Coachella Valley, CA.

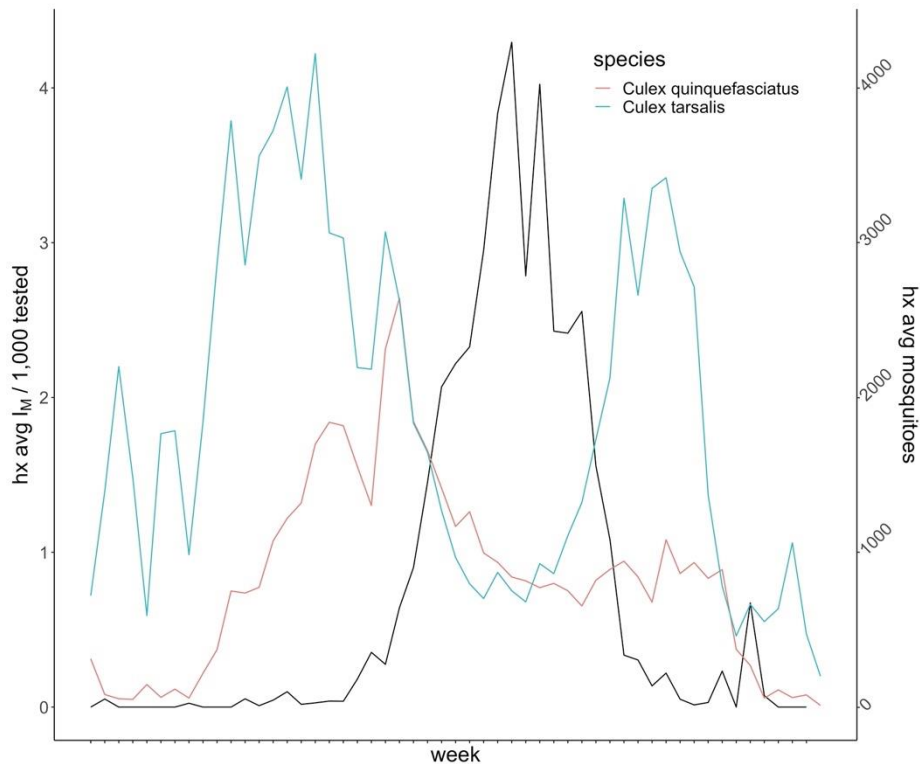


Figure 2. Weekly infections per 1,000 of *Culex* mosquitoes tested (black) and the number of female *Culex quinquefasciatus* (red) and *Culex tarsalis* (green) mosquitoes trapped in the Coachella Valley, CA; 2006 - 2021. *Cx. quinquefasciatus* and *Cx. tarsalis* are combined for the infection rate (black).

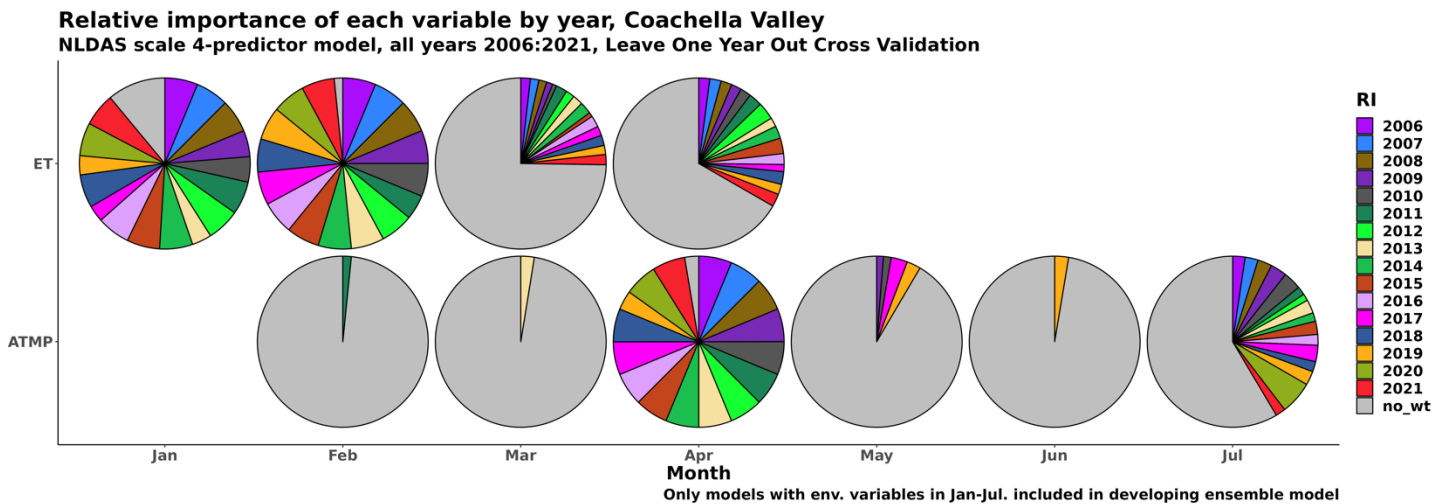


Figure 3. Scatter-pie of four predictor model ensemble indicating the relative importance of each variable of evapotranspiration (ET) and atmospheric temperature (ATMP) per month at the NLDAS scale in the Coachella Valley, CA; 2006 – 2021 when an outbreak year is removed. Here we see the early season hydrology and April and July ATMP temperature plays a large role in transmission.

**Variable relative weights by month, Coachella Valley
NLDAS scale 4-predictor model, all years 2006:2018**

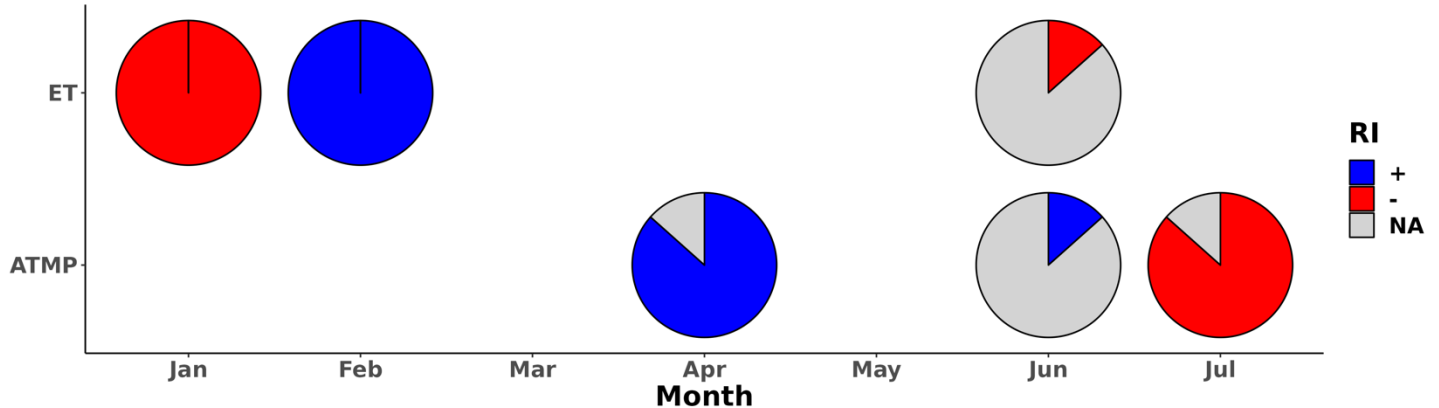


Figure 4. Scatter-pie of four predictor model ensemble indicating proportion and effect (positive or negative) of evapotranspiration (ET) and atmospheric temperature (ATMP) per month at the NLDAS scale in the Coachella Valley, CA; 2006 - 2018.

Aim 3. Develop high-resolution risk maps of the probability of WNV infected mosquitoes, to help guide the timing and location of two key mosquito control interventions: larviciding—insecticide applications targeting mosquito larvae—and adulticiding—insecticide applications targeting adult mosquitoes.

Building on Aims 1 & 2 we have used our ensemble model results to estimate the both seasonal and geographical (NLDAS) scales to map the infection risk of WNV in which contribution of our climate and hydrological variables to WNV risk in the CV (Figures 5 and 6 were seasonal spatial forecasts). Generally, these models indicate that a dry winter followed by a wetting period and a warm spring followed by a cooler than normal summer increase the risk of WNV and are the best predictors of WNV rates in CV. Furthermore, we have mapped these forecasts and their prediction rates for NLDAS and evaluated the forecast accuracy by grid cell and year for 2019 to 2021 (Figure 5). Forecasts were deemed accurate if a prediction was above or below 1 infected misquotes per 1,000 tested in each grid cell. One infected mosquito per 1,000 tested annually represents around the 80th percentile and where we defined high risk for transmission.

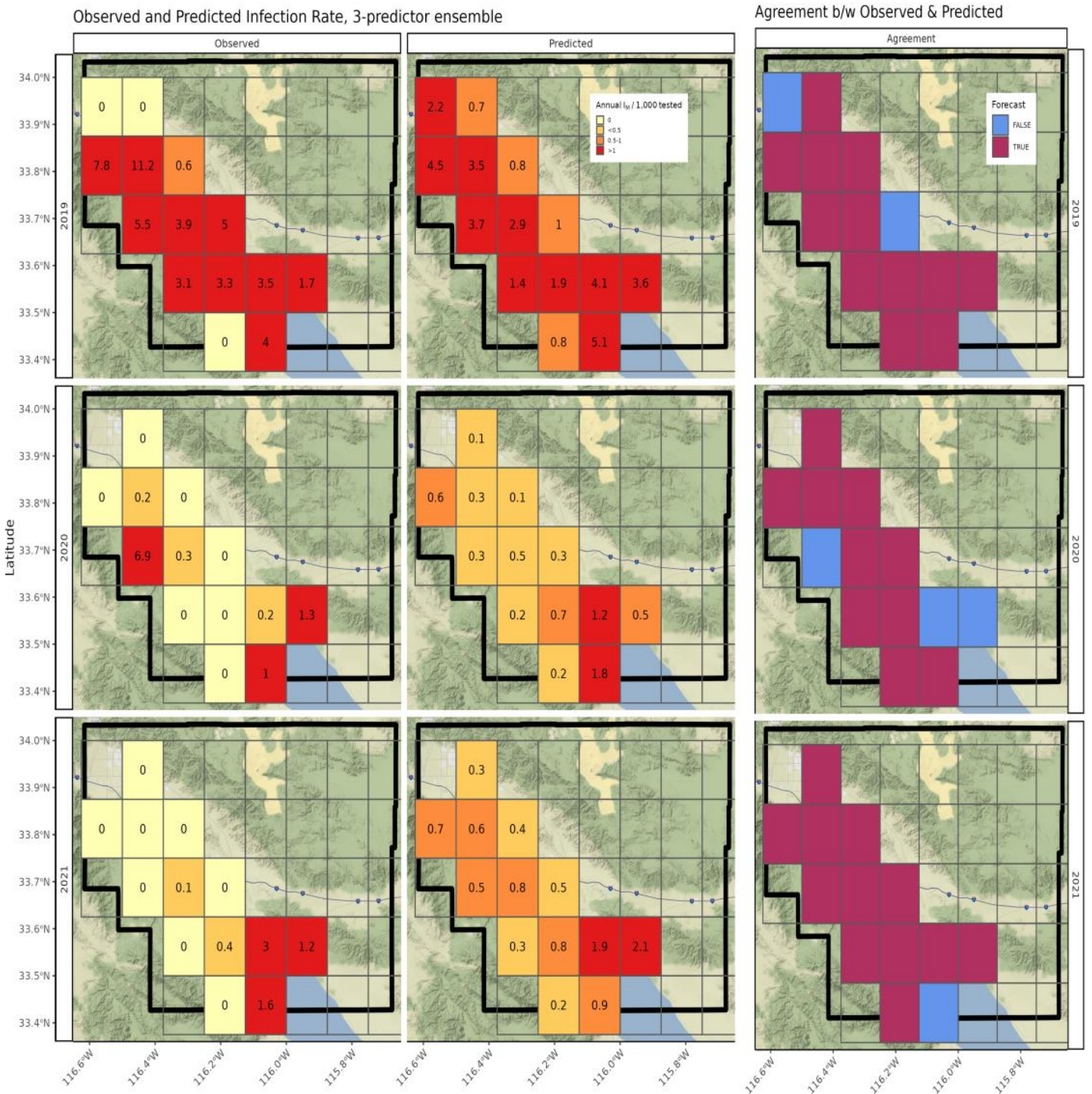


Figure 5. Left; observed infection rate (infected mosquitoes/1,000 mosquitoes) in 2019 - 2021. Center; predicted infection rate of mosquitoes in 2019 - 2021 using four predictor model. Right; proportion of cells agreeing with model using a ≤ 1 mosquito/1000 tested cutoff at the NLDAS spatial scale for the Coachella Valley, CA. Maroon represents an accurate forecast (greater than 1 infected misquotes), blue is a false prediction either predicted to high or to low.

Real-Time Forecast for the 2022

Here we present an environmentally informed ensemble forecast of the annual *Culex* mosquito West Nile virus (WNV) annual infection rates at a 13 km² resolution for 2022 generated in May of 2022. This forecast was generated for Coachella Valley, CA using a multi-model inference system that was calibrated using data from 2006 to 2018.

The multimodal inference system was generated using a 3-parameter model, which accounted for all monthly combinations of evapotranspiration and atmospheric temperature from January to July. We used a combination of the best fitting models based on their goodness of fit (Akaike Information Criteria [AICc]), where all models with all parameters statistically significant were included. The Akaike weights are calculated to include the top 95% of models. Two models were identified to provide a combination of environmental events to help explain the environmental factors that are associated with WNV mosquito infection rate amplification. These factors were a drier than normal January, flowed by a wetter than normal February or march with a warm April. This inference system was calibrated using data from 2006 to 2018, then forecasts were generated to identify areas of concern in 2019, 2020 and 2021. Areas of concern were defined as an annual infection rate greater than 1 infectious mosquito per 1,000 tested. Retrospectively this 3-predictor ensemble forecast was able to correctly predict if the area was above or below the annual infection rate greater than 1 infectious mosquito per 1,000 tested 85% of the time from 2019 to 2021. Here we generated an environmentally informed forecasts using environmental data through April 2022, Figure 8, where 4 NLDAS grids are above 1 and 10 are below.

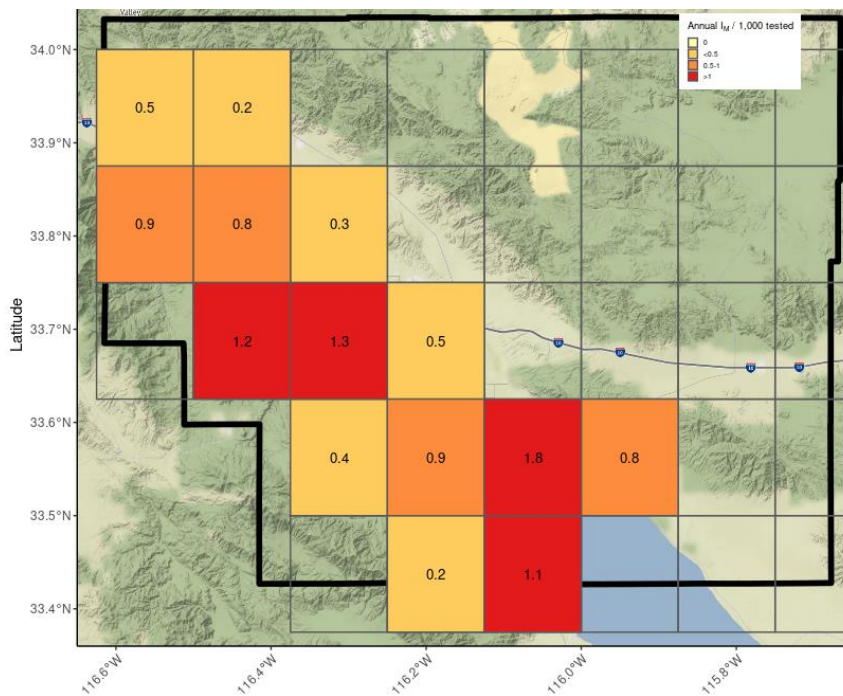


Figure 6. A 13km² forecast of annual infectious mosquitoes for 2022, using NLDAS data from January through April.

Here we present the June 18, 2022, CDC week 24, real-time ensemble forecast of *Culex* mosquito West Nile virus (WNV) infection rates and human cases of West Nile illness. This forecast was generated for Coachella Valley, CA using mosquito infection and human case observations during 2022. Two forecasting systems are presented: 1) a baseline model-inference forecasting system; and 2) a temperature-forced model-inference forecasting system. Both systems assimilate all reported observations to date prior to generating a forecast.

Due to the often-large reporting lag between the onset of illness and health department confirmation of a human case of WNV, we advise users that the current forecast system is a *beta* version under development. More work is being done to understand the impact associated with and how to account this reporting lag. Historically confirming human cases of WNV has taken from 2 to 14 weeks. This delay in data provision appears to degrade the real time forecasting accuracy of human WNV cases; however, the system still provides robust forecasts for infectious mosquitoes. In this report we will present a prediction range for human cases and an expected probability for infected mosquitoes.

The baseline forecast model predicts that mosquito infection rates will peak the week of 06-Aug-2022 (week 31, 7 weeks in the future), and during this peak week 16 mosquitoes per 1,000 tested will be infected. The model also forecasts 8 human cases (50 % PI: 0 - 9) in total during all of 2022 in Coachella Valley. The prediction interval over the next 4 weeks indicates a 50% likelihood there will be between 0 and 1 human cases. There is a 36% chance mosquito infection rates will peak within 1 week of 06-Aug-2022, week 31, and a 7% chance peak infection rates will be within $\pm 25\%$ of 16 mosquitoes per 1,000 tested. These low probabilities indicate high uncertainty in the current forecast, Figure 7.

The temperature forced forecast model predicts a 39% chance that mosquito infections rates will peak within ± 1 week of 30-Jul-2022 (week 30, 6 weeks in the future) and an 6% chance that peak mosquito infection rates will fall within $\pm 25\%$ of 165 infected mosquitoes per 1,000 tested. The model also predicts 66 human cases (50% PI: 31 - 102) will be reported during 2021 and in the next 4 weeks a 50% chance of between 1 and 7 human WNV cases, Figure 8.

The two forecasting systems show considerable discrepancies in their ensemble mean forecasts, as well as low expected likelihood for those mean forecasts, Figure 9. As the season progresses and more observations recording activity become available, it is expected that the ensemble forecasts will converge and provide greater certainty.

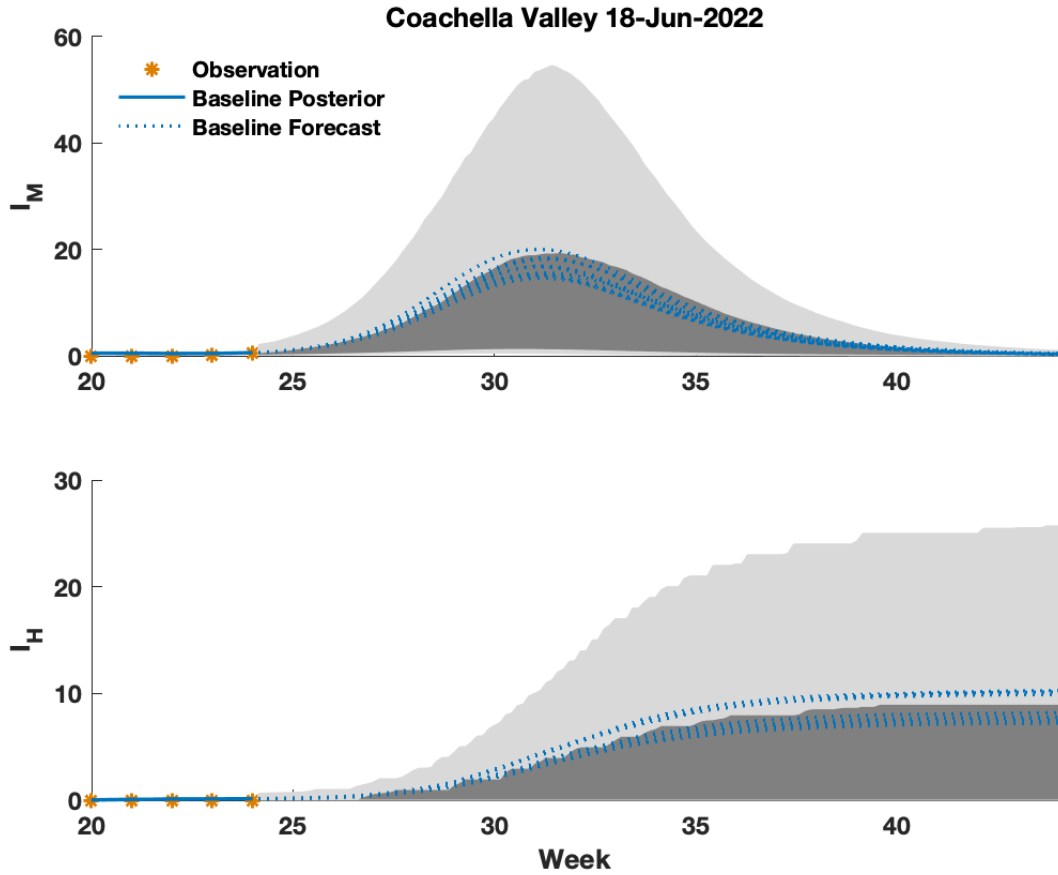


Figure 7. Baseline model forecasts of mosquito infection rates, I_M , and human WNV cases, I_H . The solid blue lines are the ensemble mean posterior distribution and the dotted blue lines are the ensemble mean forecasts. The grey area is the spread of the ensemble forecast (light grey represents the area between the 10th and 90th percentiles and the darker grey area represents the spread between the 25th and 75th percentiles, i.e. the 50% prediction interval); gold *'s are data points assimilated into the model.

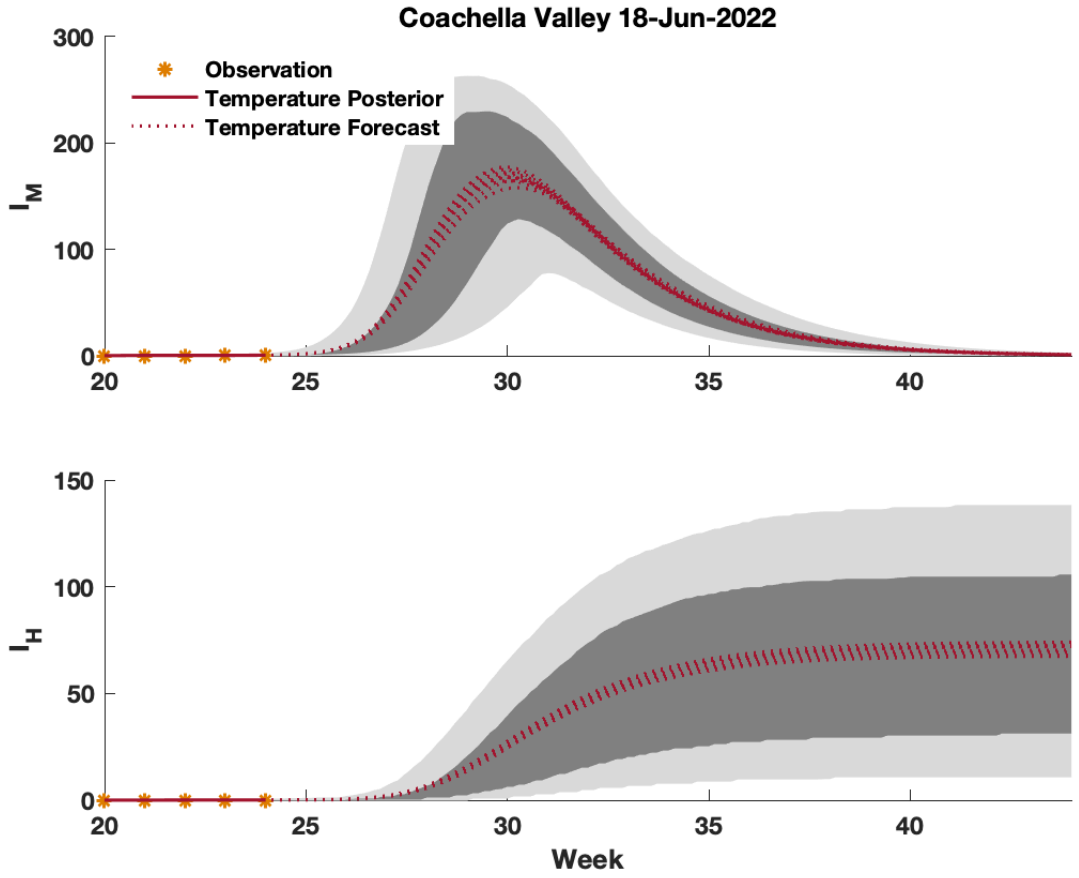


Figure 8. Temperature-forced forecasts of mosquito infection rates, I_M , and human WNV cases, I_H . The solid red lines are the ensemble mean posterior distribution and the dotted red lines are the ensemble mean forecasts. The grey area is the spread of the ensemble forecast (light grey represents the area between the 10th and 90th percentiles and the darker grey area represents the spread between the 25th and 75th percentiles, i.e. the 50% prediction interval); gold *'s are data points assimilated into the model.

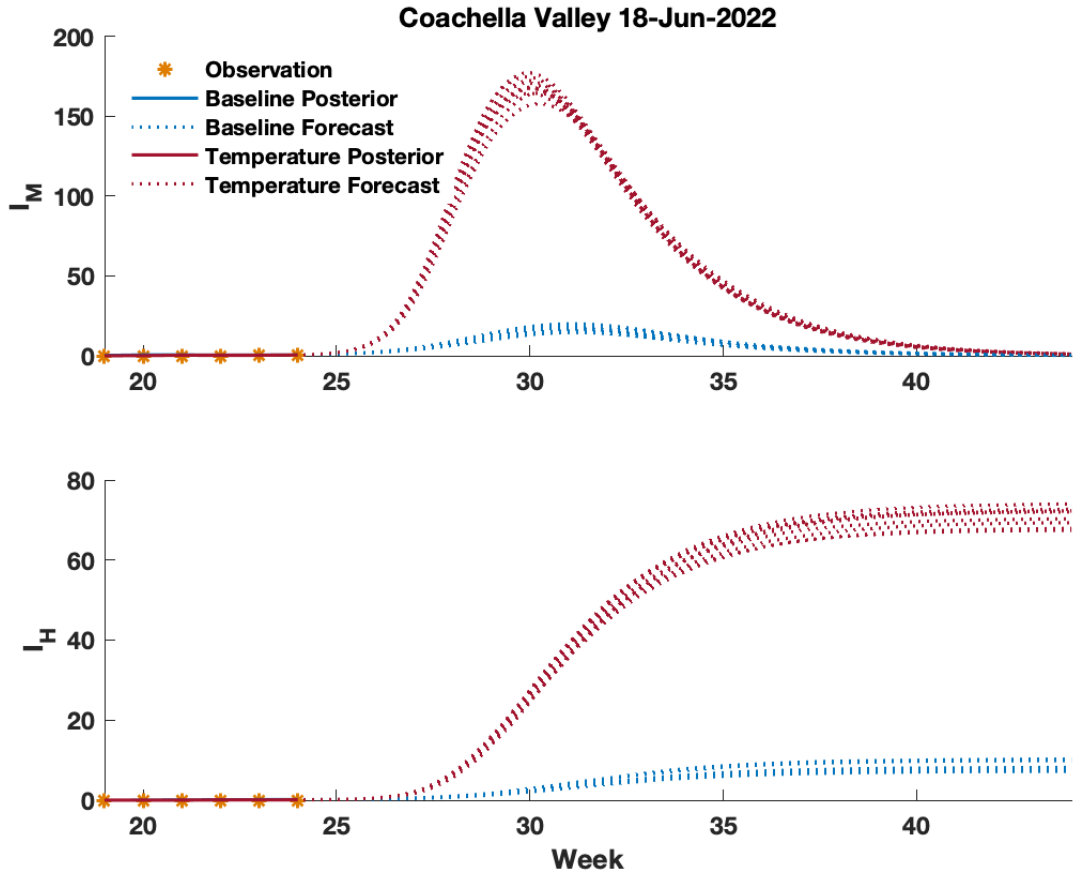


Figure 9. Forecasts generated for June 18th 2022. Both the temperature-forced forecast (red) and a baseline model forecast (blue) are shown. The solid red lines are ensemble mean posterior distribution and the dotted red lines are the ensemble mean forecasts for the temperature-forced model. The solid blue lines are ensemble mean posterior distribution and the dotted blue lines are the ensemble mean forecasts for the non-temperature forced model. The gold *'s are data points assimilated into the model.

General Outcomes

This work has resulted in six conference presentations, one co-authorship PNTD paper, a published preceding's paper, and a manuscript that we intend to submit in the next month.

Deliverables and accomplishments

Year 2:

- Downloaded and processed 702 overpasses (through December 2021) for Coachella Valley, CA
- Downloaded and processed 460 best observations for Coachella Valley, CA during the West Nile virus outbreak season

- Processed mosquito trapping and pesticide data
- Presented research at AGU
- Presenting research at the Ecological Society of America
- Presented research at AMCA meetings
- Awarded the PacVec COE training award
- Accepted for presentation at annual MVCAC & AMCA meetings
- Weekly forecasts were generated for Coachella Valley for 2021 and started 2022
- Final phase of running models to develop downscaled observations on WNV and understanding how meteorological and hydrological conditions influence WNV transmission and trap positivity

Publications, Submitted Manuscripts, Manuscripts in Preparation, Presentations

- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *Developing high-resolution risk maps of West Nile virus in Coachella Valley using ECOSTRESS data.* AMCA Annual meeting. March 5, 2021.
- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *Developing high-resolution risk maps of West Nile virus in Coachella Valley using ECOSTRESS data.* AMCA Annual meeting. March 5, 2021.
- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *Developing high-resolution risk maps of West Nile virus in Coachella Valley using ECOSTRESS data.* PacVec Annual meeting. February 17, 2021.
- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *Developing high-resolution risk maps of West Nile virus in Coachella Valley using ECOSTRESS data.* MVCAC Annual meeting. February 1, 2021.
- Keyel, Alexander C., Morgan E. Gorris, Ilia Rochlin, Johnny A. Uelmen, Luis F. Chaves, Gabriel L. Hamer, Imelda K. Moise, Marta Shocket, A. Marm Kilpatrick, Nicholas B. DeFelice, Justin K. Davis, Eliza Little, Patrick Irwin, Andrew J. Tyre, Kelly Helm Smith, Chris L. Fredregill, Oliver Elison Timm, Karen M. Holcomb, Michael C. Wimberly, Matthew J. Ward, and Rebecca L. Smith. *A qualitative evaluation of West Nile virus models and their application to local public health decision-making.* Accepted, PNTD. August 2021.
- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *Using space based high resolution remote sensing data to forecast WNV in Coachella Valley, CA.* PacVec Fall seminar series. November 9, 2021.
- DeFelice N.B., 2021 Forecasting West Nile Virus AMCA Annual meeting. March 3, 2021.
- DeFelice, N; Sorek-Hamer, M; Ward, M; Vemuri, K; Henke, J; Campbell, S; Romano, C; Santoriello M. An environmentally informed statistical model and forecast system for West Nile virus infection rates among mosquitoes in the Coachella Valley, CA. AGU Fall Meeting 12/15/2021.
- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *Developing high-resolution risk maps of West Nile virus in Coachella Valley using ECOSTRESS data.* Proceedings and Papers of the Mosquito and Vector Control Association of California, 89(1):000–000.
- Ward, Matthew J., Meytar Sorek-Hamer, Jennifer Henke, Krishna Vemuri, Nicholas DeFelice. *A spatially resolved ensemble forecast model of West Nile virus transmission in the Coachella Valley, CA.* In preparation.

Prospects

We are in the final phase of running models to developing an environmentally forced forecasts system for WNV that maximizes our understanding how meteorological conditions are most appropriate for WNV amplification

in Coachella Valley. Over the next year (Table 1) we finalized our probabilistic models using environmental indicators; then, we generated an environmentally informed spatial risk map forecasting early in the WNV season our understanding of the temporal role climatic and hydrological parameters influence disease transmission.

We are in the initial stages of developing a tool allowing for real time visualization of risk.

Table 1. Proposed timeline, years 1 – 2 (Jan 1, 2021 – December 31, 2022).

	Year 1				Year 2			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Task #1								
Download and process environmental data								
Task #2								
Develop downscaled observations of WNV								
Feasibility study								
Feasibility study Complete								
Task #3								
Forecast at fine spatial scale								
Verify decision support system								
Verify decision support system Complete								
implement in real time								

Evaluating mosquito excreta as an early warning system for arbovirus surveillance in remote locations

CVMVCD mid-year research report / June 2022

A. Ramírez and L. Coffey

Aim 1: Develop a robust protocol for the collection of mosquito excreta and saliva on nucleic-acid preservation cards using passive box traps suitable for long term deployment in remote and arid locations

The evaluation of detection of viral RNA in mosquito excreta deposited on FTA® nucleic-acid preservation cards stored in arid conditions of high heat and low humidity will inform 1) if using the method for remote surveillance in the Coachella Valley is feasible and 2) the optimum deployment schedule of the traps to avoid RNA degradation. Following some set-backs due to high *Cx. tarsalis* mortality in our insectary, we designed an experiment mimicking excreta deposited on FTA® cards under field conditions.

For this, cards were inoculated with 10 µL serially diluted SLEV (10-1000 PFU) in triplicate and assigned to 3 treatment groups: no incubation (baseline), incubation for 7 days or incubation for 14 days. Cards were stored in the incubator at 40°C and 50% humidity to simulate field conditions. Samples were then eluted in ddH₂O, RNA was extracted and tested for SLEV RNA by RT-rtPCR. Our results indicate that viral RNA deposited on FTA® cards can be detected for up to 2 weeks under field conditions at all tested inoculum titers (Figure 1). Although there is a significant difference in SLEV RNA titers detected from higher inoculum samples at baseline (stored for 24 h) vs samples incubated to simulate field deployment, no significant decrease was observed between samples that were incubated for 1 or 2 weeks. These results are similar to what has been observed for West Nile Virus by us and others. Anecdotally, our results indicate that the viral RNA is detectable in FTA® cards that have been stored in the lab at room temperature for up to 4 months, however we recommend immediate processing to provide timely data of public health relevance. Based on these results, we recommend that the traps are deployed for up to 2 weeks intervals (or less depending on CO₂ cylinder and water reservoir usage).

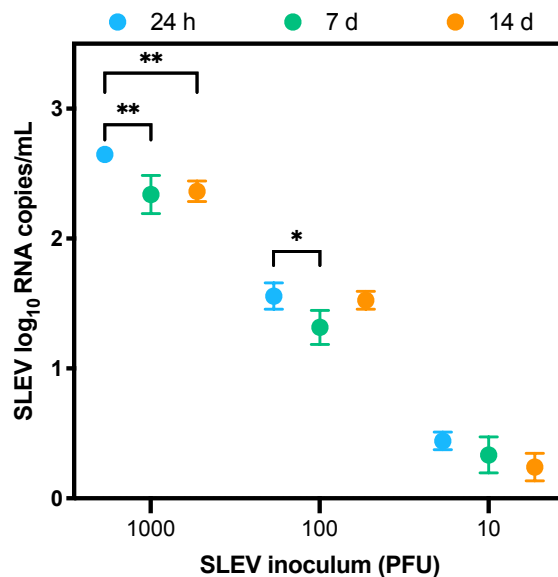


Fig 1. SLEV RNA stability in FTA® cards stored for 24, 7 and 14 d at 40°C and 50% humidity to simulate field conditions. Asterisks indicate significant differences between groups (two-way ANOVA with post hoc Tukey test, * $p \leq 0.05$, ** $p \leq 0.01$).

Aim 2: Deploy the traps developed in Aim 1 in remote locations around the Salton Sea in COAV for arbovirus surveillance and perform a cost benefit analysis.

After encountering some setbacks with suppliers due to the current situation, we have shipped the excreta collection kits to CVMVCD for deployment containing:

- 4 modified PBT traps for excreta collection
- 5 Biogents CO₂ regulators
- 5 Biogents timers
- 4 humidity chambers
- Pre-cut FTA® cards for excreta collection
- Pre-cut FTA® cards for feeding substrate
- Green honey
- Ziploc bags for transport
- Labels
- Extra supplies: sponges, containers, rope, tubing.

Additionally, we have prepared a trap manual with instructions to facilitate trap deployment by CVMVCD personnel (also included in the kit). We are expecting to start collecting samples in 4 locations around the Salton Sea starting from July, with most of our activity conducted in the second semester of 2022.

Progress Report (June 2022): Attractive Toxic Sugar Bait (ATSB) to Control House Flies near Crop Fields

Alec Gerry¹, Caleb Hubbard¹, Kim Hung²

¹Department of Entomology, University of California, Riverside CA 92521

²Coachella Valley Mosquito and Vector Control District, Indio, CA 92201

Project Aims: Develop attractive toxic bait stations (ATSB) for targeted control of house flies associated with agricultural crop fields. Use of ATSBs can reduce dispersal of flies from field crops or other fly-producing sites to neighboring properties including residential areas, schools, hospitals, or other sensitive sites.

Background: Attractive Toxic Sugar Bait (ATSB) stations rely on use of volatile compounds (attractive odors) to draw pest flies to a food source containing sugar (bait) and an insecticide (or toxicant) to kill flies feeding on the bait. ATSB methods have been explored primarily for control of blood-feeding insects such as mosquitoes and sandflies but may be applicable for control of a range of pest insects, including the house fly (*Musca domestica*). Sugar baits containing an insecticide have been commercially available and used to manage flies for over 40 years. These “fly baits” are typically dry granular formulations comprised of sucrose, an insecticide, and often a putative fly sex pheromone.

Following many years of using fly baits, it is evident that these dry granular baits are not particularly attractive to house flies. Flies do not appear make directed movements toward fly baits even over short distances of a few feet. Rather, flies appear to simply encounter the bait as they move about foraging for food. Once encountered, the bait is usually fed upon by flies due to the presence of sucrose with fly death due to ingestion of the insecticide also formulated into the fly bait. Fly bait efficacy could therefore be improved by 1) increasing the distance of volatile attraction [the distance over which flies will detect and move toward the fly bait], and 2) increasing the feeding rate

Methods - Lab:

Attractants Tested:

Mango Juice (21% juice) (Jumex Brand, Vilore Foods Company, San Antonio, TX)

Guava Juice (21% juice) (Jumex Brand, Vilore Foods Company, San Antonio, TX)

Peach Juice (21% juice) (Jumex Brand, Vilore Foods Company, San Antonio, TX)

Blackstrap Molasses (25% solution)

To make attractant solutions, 500 ml of fruit juice (mango, guava, or peach) or blackstrap molasses (products listed above) was heated until warm (37- 44°C) and then brown sugar (10% w/v; C&H Brown Cane Sugar) and Active Dry Yeast (0.4% w/v; Fleishmann’s) were added and the solution was stirred until homogenous. The solution was transferred into clean 540 mL clear

deli containers (First Street), covered with mesh lids, and placed outdoors to ferment for 96 hours.

Selection of Attractant:

Adult female house flies (3–5 d old, BS Field colony) were starved in a colony cage for 14–18 h, then sorted on a chill table into groups of 30 female flies and placed into 120 × 25 mm Petri dishes. Flies were allowed 15 minutes to recover in the covered Petri dish and then were placed into Side A of a BugDorm-1 insect rearing cage (30 x 30 x 30 cm) which was fitted with a screen partition dividing the cage in two (Figure 1). The screen partition allowed flies to pass by crawling through the mesh openings but not by flight, thereby limiting fly movement through the screen. Thus the rate at which flies moved through the screen was related to their attraction to a potentially attractive test material (treatment) placed on Side B of the rearing cage.

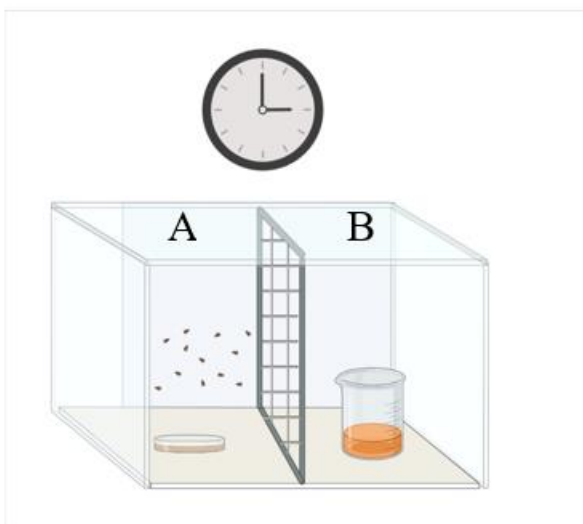


Figure 1: An experimental cage fitted with a screen partition dividing the cage in two was utilized to examine the attractiveness of each fruit juice solution. Flies were placed into Side A of the cage, and the test liquid was placed into Side B. The number of flies on Side B at each time point was used as a proxy for the attractiveness of each solution.

Treatments were fermented fruit juice (Mango, Guava, Peach), Blackstrap Molasses, or DI water [negative control]. For each trial, 60 ml of the attractant solution was placed into a 118 mL plastic souffle cup covered with mesh to prevent physical contact by flies with the attractant solution. To start each trial, the Petri dish lid was removed releasing the 30 flies into Side A of the experimental cage. For 60 min, flies were allowed to move freely throughout the cage, including moving to Side B by landing on the mesh partition and crawling from Side A to Side B. The number of flies on Side B of the experimental cage was counted at discrete time points (1, 10, 20, 30, 40, 50, and 60 minutes) as a measure of the relative attractiveness of each attractive solution.

Results:

The mean number of flies moving to the side of the experimental cage (Side B) at each time points observed for each treatment is given in Table 1. Grey shading indicates the observed time when the greatest # of flies had moved to Side B. For all attractants the number of flies on Side A and Side B appears to have reached an equilibrium by 40-50 minutes after the trial was initiated whereas fly numbers were continuing to slowly increase on Side B through the end of the trial (60 minutes).

Table 1: Mean # of flies on Side B of the test cage containing the indicated treatment by time post fly release on Side A of the test cage. At the start of the test (time = 0) there were 30 flies released on Side A. Flies attracted to odors from the indicated treatments could move from Side A to Side B by crawling through a mesh partition.

Minutes	Mean \pm SE Flies attracted				
	Mango	Guava	Molasses	Peach	Water
1	2.857 \pm 1.01	4.143 \pm 1.335	2.714 \pm 0.778	1.286 \pm 0.184	1.714 \pm 0.522
10	7.714 \pm 2.607	12 \pm 3.572	5.429 \pm 1.251	2.857 \pm 1.405	5.571 \pm 1.986
20	8.286 \pm 2.74	16 \pm 2.76	11 \pm 1.877	4.143 \pm 0.705	6.429 \pm 1.913
30	9.286 \pm 1.973	19.571 \pm 1.587	12.714 \pm 1.017	6.857 \pm 1.262	6.714 \pm 1.248
40	11.286 \pm 2.101	20.571 \pm 1.541	13.571 \pm 1.616	9.571 \pm 1.288	10.286 \pm 1.874
50	10.429 \pm 1.986	17.714 \pm 1.643	12.714 \pm 1.426	12 \pm 1.558	10.143 \pm 1.668
60	9.286 \pm 1.861	19.286 \pm 1.248	13.286 \pm 1.286	11.286 \pm 1.475	11.857 \pm 1.595

It is clear from Table 1 that flies were responding most rapidly and most strongly to the fermented guava juice which by 10 minutes after start of the trial was already attracting a higher number of flies to Side B of the experimental cage. It is also notable that only the fermented guava juice treatment resulted in >50% of flies moving to Side B while all other putative attractants were either not different in the proportion of flies moving to Side B relative to the water control or had only a slight numerical increase in flies moving to Side B relative to the water control.

A treatment was deemed attractive by significant difference in the number (or percent) of house flies that had moved to the side of the experimental cage containing the attractant (Side B) at an observed time point relative to the DI water [negative control]. While a difference in number of flies moving to Side B was already suggested within 1 minute of the trial start time for the fermented guava juice relative to other treatments (Table 1) this difference in attraction was not significant until later time periods. Fermented guava juice was significantly more attractive to flies than all other putative attractants (and also to water) by 30 and 60 minutes following the trial start time (Figure 2).

Based on these results, fermented guava juice was selected for use in field trials to control flies in a commercial pepper field in the Coachella Valley.

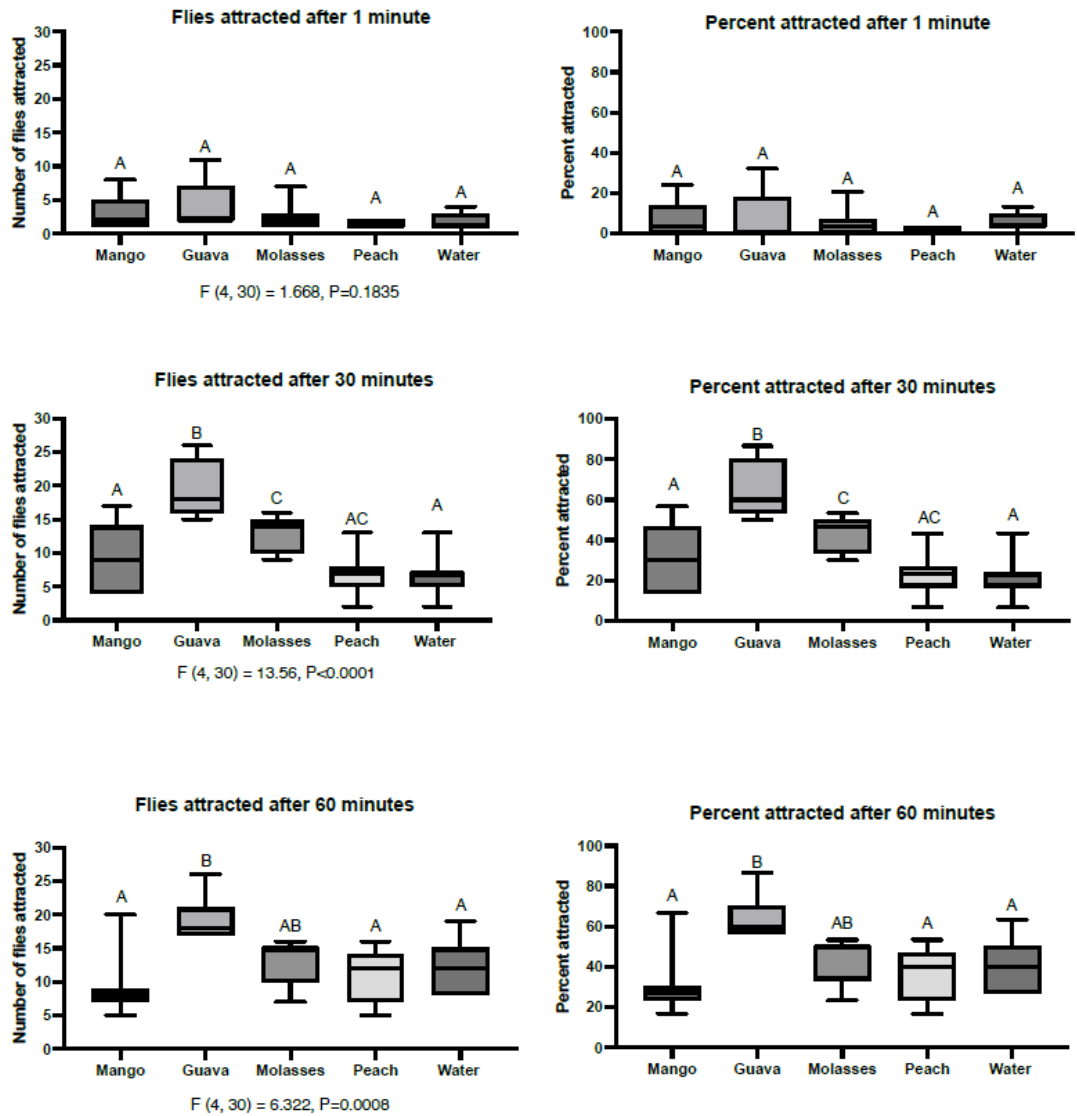


Figure 2. Number (or percent) of house flies on Side B of the test cage by time post-release (1, 30, 60 min) according to tested material fermented fruit juice (mango, guava, peach), molasses, or water control.

Methods - Field:

In consultation with staff at the Coachella Valley Mosquito and Vector Control District (CVMVCD), a pepper field just north of the Salton Sea was selected as a suitable research site. An initial site evaluation along with the field managers indicated that this field site would be suitable for evaluating ATSB for control of flies in crop fields. At the time of this site visit (April) it was anticipated that peppers would be harvested starting in June 2022 and would continue for approx. six weeks (into July). Control and treatment plots are positioned at the SE and SW corners of the pepper field and set back from the field edge approx. 10 m to eliminate field edge effects. (Figure 3). Each plot is 12 rows of pepper plants (20m) by 50m in row length.

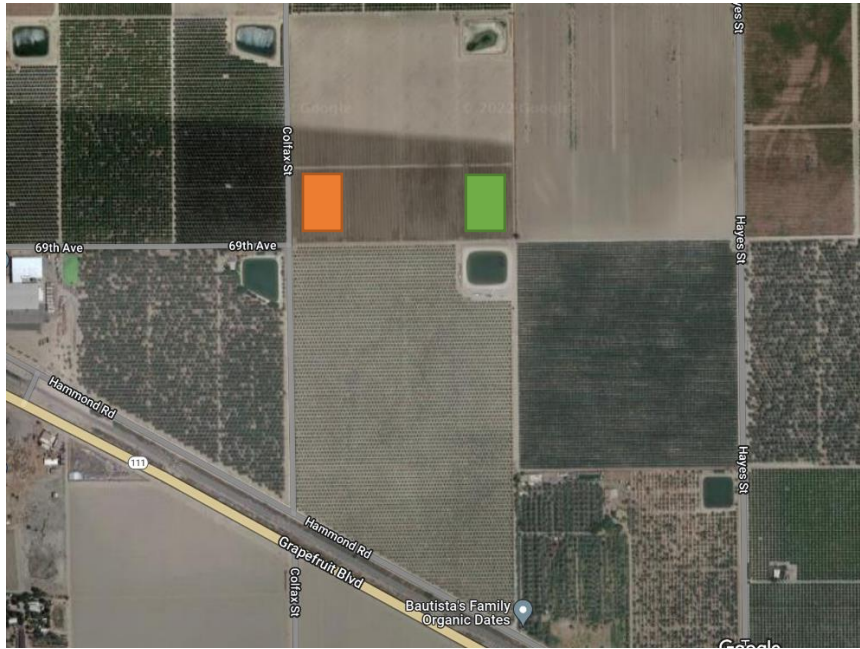


Figure 3. Commercial pepper field. Treatment (orange) and Control (green) plots are 12 planted rows wide (20 m) x 50 m in row length.

To ensure sufficient fly activity for a robust test of fly control using ATSB, the field test was scheduled to occur during pepper harvesting and after field managers reported sufficient fly activity. Harvesting began in mid-June after pepper plants had reached maturity (Figure 4).



Figure 4. Mature pepper plants at commercial field in the Coachella Valley. Flies were found developing in the old fruit that was discarded on the ground within the rows of pepper plants.

Initial fly trapping began on June 28th, with four fly traps (RESCUE! TrapStik for Flies) placed within both the treatment and control plots (8 traps total). Fly traps are placed in each plot within rows 4 & 8 thereby placing traps near the center of the field plot. ATSB stations will be placed on July 5th. During treatment weeks, ATSB stations (n=32) will be placed in the treatment plot at 5m intervals in rows 1, 4, 8, and 12.

Study Plan:

Pre-treatment (June 28 – July 5)

June 28 - place sticky fly traps (control and treatment plots)
July 1 - check and record trap counts
July 5 - check and record trap counts

Treatment week #1 (July 5-12)

July 5 - place ATSB stations (treatment plot); replace fly traps
July 8 - check and record trap counts
July 12 - check and record trap counts

Treatment week #2 (July 12-19)

July 12 - replace attractant in ATSB stations (treatment plot); replace fly traps
July 15 - check and record trap counts
July 19 - check and record trap counts

Post-treatment (July 19-26)

July 19 - remove ATSB (treatment plot); replace fly traps
July 22 - check and record trap counts
July 26 - check and record trap counts

Data Analysis:

We anticipate combining fly trap counts into a single count per study date for the treatment and control plots. Thus, two counts per week per field plot. Counts will be log transformed to normalize data or will be rank transformed if data cannot be normalized. Analysis will be performed using ANOVA with field plot (treatment or control) and week as main factors.

Progress Report, June 2022: Attractive Toxic Bait Station for Mosquito Control in Underground Storm Drain Systems of the Coachella Valley

Alec C. Gerry, Ph.D. and David A. Popko, M.S.
Department of Entomology, University of California, Riverside, CA 92521

Objectives:

The goals of this project are to investigate the efficacy of attractive toxic sugar bait (ATSB) stations to transmit and promote mosquito-propagated (autodissemination) transmission of chemical and biological control agents against mosquitoes inhabiting underground storm drain systems (USDS). We proposed (i) to develop an ATSB design that effectively attracts adult *Culex quinquefasciatus* mosquitoes and exposes them to control agents via contact and/or ingestion under laboratory conditions, (ii) to assess lethal and sublethal effects on mosquito life stages in laboratory exposure assays with an ATSB-based entomopathogenic fungus, biocidal/reproductive sterilizing agent, or insect growth regulator (IGR), and (iii) to determine the efficacy of multiple ATSB-based control agents against mosquito adults and immature stages at developmental sites under laboratory and field conditions.

USDS Field Trial: Spring 2022

Methods

ATSB Deployment and Design

A total of fourteen ATSB were deployed simultaneously and distributed among 14 separate USDS chambers located within two Homeowner Association sites in Palm Desert during spring 2022 (Figure 1). The low-density bait station treatment was two ATSB per hectare (4/12 USDS with ATSB over a 2-hectare area) with each ATSB containing green dye so that mosquitoes feeding on the bait could be readily identified. USDS in this treatment area were separated from each other by an average of 100 meters. The high-density treatment was ten ATSB per hectare (10/11 USDS with ATSB over 1-hectare) with each ATSB containing red dye. USDS in this treatment area were separated by an average of 50 meters. The control treatment area lacked ATSBs (0/10 USDS with ATSB over a 2-hectare area) with USDS separated by an average of 100 meters. All ATSB treatment areas were separated from each other by at least 200 meters (from midpoint to midpoint). Two duplicate ATSB trials, one in April followed by a second in May, each contained a full complement of 14 fresh ATSBs distributed among the same HOA sites. Pre-treatment, inter-treatment, and post-treatment periods provided baseline mosquito activity levels to compare to each ATSB deployment period.

ATSB Density Treatments

- **HIGH** = ~100% of USDS (red bait)
(10 of 11 chambers)
- **LOW** = ~ 1/3 of USDS (green bait)
(4 of 12 chambers)
- **Control** = No bait (0 of 10 USDS)

USDS Sampling

- CDC trap, Dipper, 6 x treat
- Ovitub, 4 x treatment
- H HOBO sensor

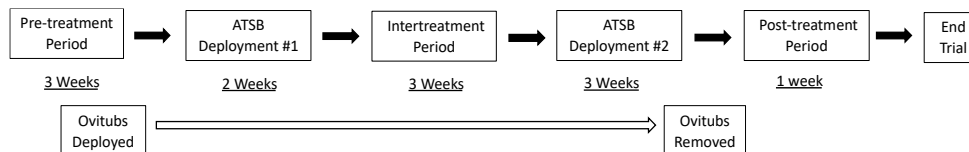
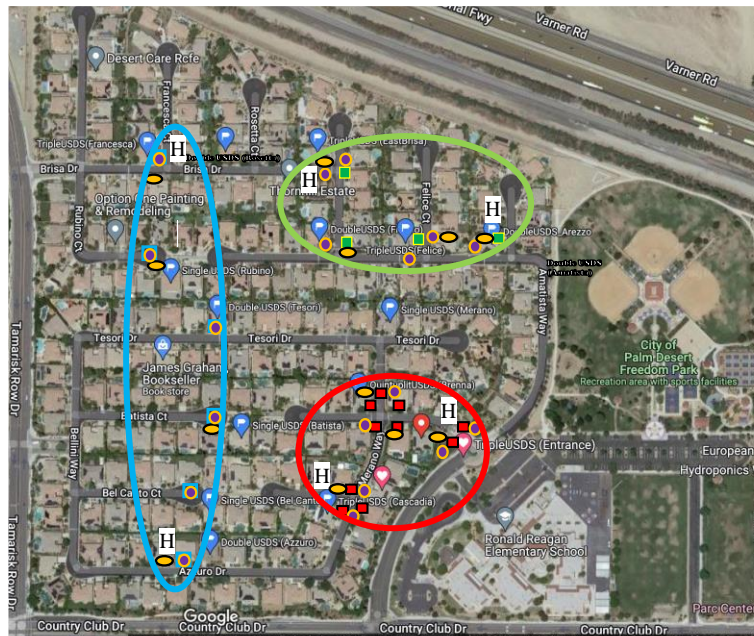


Figure 1. Experimental design with timeline of ATSB/ovitub deployments for the spring season USDS-ATSB trial at Palm Desert, CA. ATSB treatments were located either inside the Brenna HOA (high density = red circle), Amatista HOA (low density = green circle) or both HOA (control = blue circle). Two high density sites were just outside both HOA (red circle, east side), at the main entrance that contains both HOA access gates.

Station bait consisted of 1% boric acid, 33% sugar, 5% attractant (6 grams powdered larval food per liter water fermented for 1 week), 1% food coloring (red or green), and 0.1% mold inhibitor (potassium sorbate) mixed in carboys the day before deployment. Ingestion of toxic sugar meals was the sole intended source of mortality of adult mosquitoes and therefore other control agents – e.g. *Beauveria bassiana* fungus – were not included in ATSB stations.

The construction of ATSB stations was identical to that described in previous project reports and each included a black plastic bowl dispenser (maximum bait volume = 2 liters with a two-sponge stack) with a mesh-covered feeding site and inverted cover with access flaps. Each dispenser was placed inside a washtub with 1 liter of bait diffused into absorbent plastic crystals, covered by an open-ended, plastic-covered cardboard roof, and secured to USDS ladders by rope with binder clips. All covered tubs were placed floating on top of standing water reservoirs and two plastic foam floats were fastened with rope on opposite sides to keep washtubs upright. Each dispenser and washtub was designed to protect feeding sites from street-based waterfalls and human- and wind-driven debris flows, while preserving mosquito access to baits and preventing unwanted oviposition inside washtubs.

The physical condition of each ATSB station was assessed weekly after deployment. Bait dispensers were removed from covered tubs, weighed, and opened to judge condition and mosquito activity on the inner feeding membrane. Dead mosquitoes inside bait dispensers were removed and identified by gender, female reproductive state, presence of bait color, and species. Freshly-prepared bait treatment (red or green) was added to bait dispensers directly through the feeding membrane and into the sponge stack underneath. All bait dispensers weighed approximately 2500 grams when first deployed and the amount of bait added depended on the amount of bait lost during the previous week.

Bait inside covered tubs was also recharged; however, tub weighing was impractical and therefore the amount of bait added was based on visual estimates. Bait station surveys included assessment of mold growth on dispenser membranes and/or within washtub reservoirs (1 = none, 5 = thick); thick mold growth was mechanically disrupted, if possible, to inhibit growth of biofilms that laboratory assays suggested can reduce mosquito ingestion of bait and overall efficacy (data not shown). After ATSB removal during week 4, covered washtubs with bait dispensers were sealed in black garbage bags and transported to the laboratory to measure final bait volumes. Adult mosquitoes found trapped in covered tub bait were identified and added to the total number of mosquitoes collected from each station.

Environmental Conditions within USDS

Six HOBO sensor units (Onset Computer Corp., Bourne, MA) measured temperature and humidity every hour inside six USDS chambers, April 1 – June 3. Two HOBO units were located in each ATSB treatment area (Fig. 1 and Table 1), beginning one week before ATSB deployment #1 and ending at the completion of ATSB deployment #2. HOBOS were hung from hooks attached to vertical walls on the same side as the manhole access cover and located one meter above the solid bottom at the horizontal center of each underground chamber. Sensors were placed at dry spots without evidence of past water flows to minimize direct contact with street run-off. USDS measurements were compared to those of an aboveground weather station in relative proximity to all sites (CIMIS: La Quinta II, www.cimis.water.ca.gov, accessed June 21, 2022).

Physicochemical aspects of USDS chambers are summarized in Table 1. The dimensions of each individual USDS chamber were determined by a measuring tape and water depths recorded by a meter stick weekly. In collaboration with the Environmental Science department at UC Riverside, water quality is being assessed from a total of 11 water samples collected from USDS chambers (4 high, 4 low, and 3 control treatments) on June 3, 2022. Samples were refrigerated and pH, total suspended solids (TSS) and total dissolved solids (TDS) were determined. Analytical chemistry techniques to be discussed in greater detail in future reports were used to prepare water samples to detect and quantify pyriproxyfen using gas chromatography – mass spectrometry (GC-MS). The results will be used as a baseline comparison to future studies on the impact of water quality on the efficacy of pyriproxyfen granule treatments against mosquito production in USDS.

Table 1. Characteristics of 18 USDS chambers sampled during spring 2022 trial, Palm Desert CA. CDC traps and dipper samples were collected from standing water from all 18 sites. Ctrl = Control USDS area without ATSB. Predominate debris types: O = open water, F = floating foliage, U = underwater organics, S = sediment filling approximately ¼ to ½ of chamber volume.

HOA	ATSB Treatment		Ovitub at Site	USDS site: Orientation + Size			Avg Water Depth (cm) ± SD	Debris		HOBO		Water Quality: June 3, 2022				
	Density	Station On-Site		Direction to street	Volume (m ³)	Height (m)		Level (1-5)	Type	Temp °C (Mean ± SD)	Rh % (Mean ± SD)	pH	Total Solids (mg/L)			
													TSS	TDS		
Brenna	High ₁	Yes	Yes	East	10.4	2.3	15 ± 1	4	F			7.08	34.1	645		
	High ₄	Yes	Yes	East	7.6	2.3	26 ± 1	4.5	F							
	High ₇	Yes	Yes	East	11.3	2.5	29 ± 2	3	U	26 ± 3.0	43 ± 14	7.06	19.2	330		
	High ₈	Yes	No	West	7.9	1.8	34 ± 2	4	F			6.93	67.9	2050		
Entrance	High ₁₆	Yes	No	South	7.8	2.5	24 ± 1	2	O	27 ± 3.3	37 ± 13	7.16	34.1	645		
	High ₁₇	Yes	Yes	North	6.2	2.0	13 ± 1	3	U							
Amatista	Low ₆	No	Yes	North	6.3	2.5	23 ± 3	4	S _{3/4}	25 ± 2.6	39 ± 11	7.01	16.3	438		
	Low ₇	Yes	No	South	5.6	1.7	23 ± 2	5	F			6.98	22.7	735		
	Low ₁₀	Yes	Yes	South	9.6	2.8	24 ± 2	2.5	O							
	Low ₁₁	No	Yes	North	6.9	2.3	17 ± 4	3	S _{1/2}							
	Low ₁₂	Yes	No	South	8.0	1.7	15 ± 3	4.5	F			6.75	53.2	640		
	Low ₁₄	Yes	Yes	South	8.0	1.7	21 ± 2	3.5	U	26 ± 3.1	42 ± 14	6.88	34.3	535		
	Ctrl ₁	No	Yes	East	6.3	1.9	18 ± 5	2	O							
	Ctrl ₂	No	No	South	8.5	1.7	31 ± 4	2	O					7.32	31.9	1400
Ctrl ₃	No	No	West	4.6	1.4	20 ± 1	3	U								
Brenna	Ctrl ₄	No	Yes	North	9.9	2.3	28 ± 2	1.5	O	25 ± 3.1	35 ± 12	7.49	8.46	280		
	Ctrl ₅	No	Yes	West	5.9	1.8	24 ± 2	2.5	O							
	Ctrl ₆	No	Yes	North	7.9	2.4	24 ± 2	4.5	F	25 ± 3.2	35 ± 13	6.72	12.7	1300		

Mosquito Monitoring

Mosquito abundance was assessed weekly using CDC traps (adults), dipper cup sweeps (immature development within USDS), and washtubs with fermented infusions (oviposition). A single CDC suction trap with UV light (no carbon dioxide) was deployed hanging from a USDS ladder overnight one night each week at six USDS locations per treatment area (total = 18 CDC traps). Captured adult mosquitoes were transported to the lab on ice, frozen, then identified and enumerated under dissection microscope as to species, gender, female reproductive state, and presence/absence and color of ATSB-associated bait dye.

Larval dipper samples were collected weekly in triplicate in each USDS chamber using standardized sweep, filter, and 95% alcohol preservation techniques with a stick-attached 350 mL dipper cup, 500 mL cup with mesh filtering windows, and 20-dram storage vial. Egg rafts, immature mosquitoes and their associated invertebrates have been identified and enumerated by microscope for 3 out of the total 13 sample dates (Figure 3).

To provide an additional, standardized assessment of mosquito oviposition rates and immature development, a total of 12 covered washtubs with 2000 mL oviposition-attracting infusions were deployed over 10 weeks (Figure 1, Table 1). Four covered ovitubs were placed into USDS within each of the three treatment areas (high density, low density, control). Each ovitub in the high-density treatment was coupled with an ATSB, two of the ovitubs in the low-density treatment were coupled with ATSB t, none of the ovitubs in the control treatment was

coupled with an ATSB. Oviposition, egg hatch, and development from larvae to pupae were allowed to occur in each tub for up to one week. Immature mosquitoes within ovitubs were not allowed to complete development to the adult stage. At most, two 500 mL subsamples were collected per ovitub sample removed, and each subsample was concentrated in filtering cups and preserved in 50-dram vials with 95% ethanol on-site. Egg rafts, immature mosquitoes and their associated invertebrates have been identified and enumerated by microscope for 5 of the total 9 sample dates (Figure 3), with the remainder of the samples anticipated to be enumerated within the next few weeks. The remaining volume, if any, was discarded and tubs were washed with a small amount of fresh infusion to remove any remaining mosquito eggs or larvae before addition of fresh infusion volume for next week. Oviposition infusions were based on the same concentrated solution used as the attractant component of ATSB baits (6 g of 3 parts mouse chow and 1 part yeast per 1 L of water) fermented for one week. Full-strength infusions were diluted with water by 50% to speed up filtration, more easily prepare the total volume of infusion required for the ovitub array, and reduce larval mortality suspected to be a result of excessive nutrient buildup in past full-strength infusions.

Statistical analysis of adult trap counts, immature density from dipper samples, and immature production from ovitubs using the appropriate methods will added to subsequent reports. Sample date, the presence/absence of ATSB and/or ovitub, and ATSB density associations with the various adult and immature mosquito stages will be compared among the three mosquito sampling techniques once sample arrays are fully processed.

Results:

Adult Mosquitoes in CDC Traps

An average of 90 adult mosquitoes per trap night were collected in USDS chambers ($N = 20,830$) and *Culex quinquefasciatus* accounted for 99.2% of these captured adults. *Culex tarsalis* were frequently trapped but at low levels (152 females, 3 males), while *Aedes aegypti* were rarely found (4 females, 1 male). Trap sex ratio was 60:40 (female: male) and most females lacked eggs/bloodmeals (77% of total females). Gravid females were abundant to a lesser extent (16% of total), followed by those recently bloodfed (3% of total) and those lacking abdomens altogether that could therefore not be classified (3% of total).

The predominate bait station treatment pattern (Figure 2) was greater numbers in Low-USDS (mean = 125 adults) compared to High-USDS (mean = 73 adults) and Control-USDS (mean = 77 adults). This mosquito abundance hierarchy (Low > High/Control) was largely consistent for the time periods before the first ATSB deployment, during ATSB deployments, and after ATSBs were removed. Higher numbers in low-USDS were evident for all female reproductive states and males.

Bait dye was evident in 0.3% of all adults collected and included 39 females (all reproductive stages: 16 red, 23 green) and 19 males (8 red, 11 green). All red-positive adults were found in high density USDS (red bait) and all green-positive adults were found in low density USDS (green bait); the only exception to this rule was a single red-positive non-gravid female found in the control USDS-C2 on April 22. Nearly half (48%) of all dye-positive adults

were collected on a single date (June 3), three weeks after ATSBs were deployed the second time.

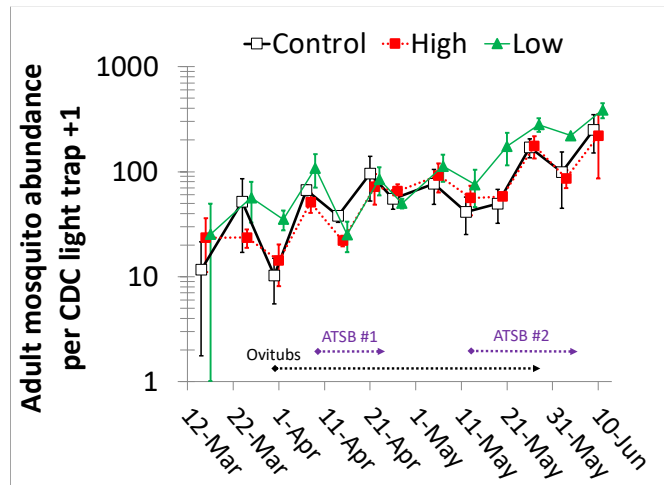


Figure 2. Mean (\pm SE) log₁₀ scale abundance of adult mosquitoes from overnight CDC traps deployed weekly in spring of 2022 within USDS at Palm Desert, CA. Bait station density treatments: Control = no USDS, Low = 1/3 of USDS, High = 1/1 of USDS. Ovitubs = deployment period of washtubs with fermented attractant. ATSB #1 = first bait deployment period. ATSB #2 = second bait deployment period.

Adult Mosquitoes within ATSB Stations

Dead adult mosquitoes totaled 24 females and 35 males inside bait dispensers inspected weekly and 40 females and 64 males inside washtub (outside dispenser) inspected after ATSB removal. Nearly 80% of all dead mosquitoes were found on the last inspection date (week 3) of the second ATSB deployment period, especially inside ATSB-L14 (low density treatment: 22 females, 59 males) and ATSB-H16 (high density treatment: 18 females, 10 males). *Culex quinquefasciatus* was the only species evident based on sight-identifiable features.

Egg and Immature Production

Processing and analysis of preserved immature mosquito samples is ongoing and preliminary findings illustrated in Figure 3. In dipper cup mosquito totals from the first 3 dates (mean = 13 per dip, $N = 1817$), young (1st/2nd instars) larvae were most abundant (46%), followed by older larvae (26% for 3rd/4th instars), individual eggs (18%), and pupae (9%). The profile of mosquito stages in ovitubs over 5 sample dates (mean total stages = 675 per tub, $N = 54,027$) revealed the most abundant life stage was individual eggs (42%) and early-instar larvae (41%), while late instar larvae were still common (16%) and pupae were rare (<1%). *Culex quinquefasciatus* was the only mosquito species found in both dipper and ovitub samples; however, we continue to monitor for less common species such as *Aedes aegypti* that could be of concern if they become more prominent in USDS populations.

Among ATSB treatments, abundance of all immature stages in baseline dipper samples three dates before ATSB deployment averaged three-fold higher numbers in low-density USDS (mean = 28 immatures) compared to high-density (mean = 8 immatures) and control (mean = 9 immatures) USDS. By comparison, ovitub immature density was similar among low (mean = 800 per tub), high (mean = 804 per tub), and control (mean = 723 per tub) USDS treatments.

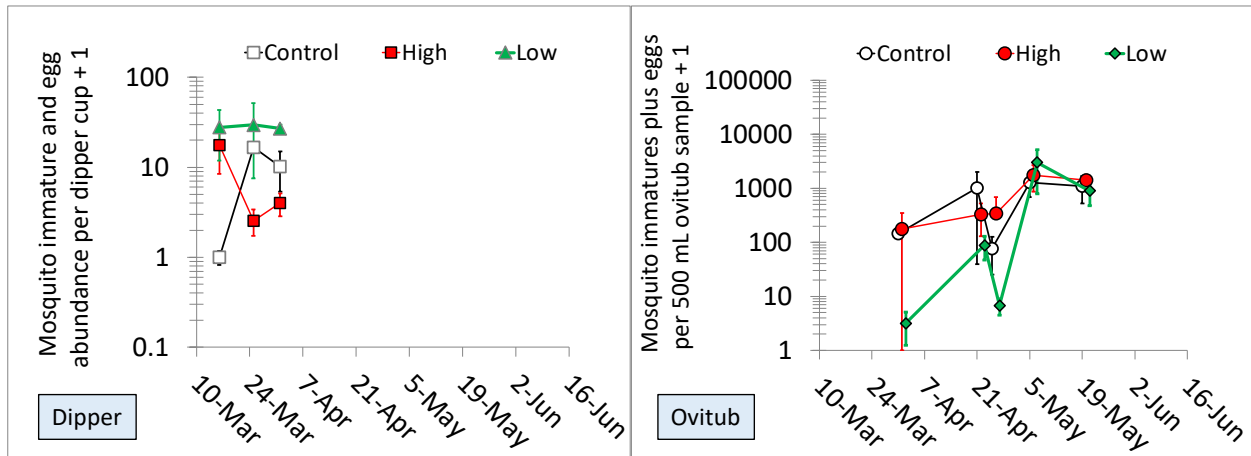


Figure 3. Early analysis of immature *Culex* mosquito log₁₀ scale abundance (mean ±SE) in dipper (left) and ovitub (right) samples processed to date.

Environmental Conditions

For the duration of HOB0 deployment ($N = 1513$ total measurements by hour per probe), spikes in temperature and relative humidity were rare inside USDS compared to those reported by an aboveground weather station (Figure 4). Air temperatures greater than 35 °C were more than two times less frequent in the 6 USDS combined ($n = 59$) compared to the single weather station ($n = 138$), and found predominately at the two high density treatment chambers H7 and H16 ($n = 52$). Air temperatures less than 18 °C were nearly absent in USDS ($n = 5$), but not uncommon at the weather station ($n = 97$). Relative humidity measurements less than 10% were found in H16 ($n = 17$ of 29 total USDS data points); however, this condition was more common at the weather station ($n = 48$).

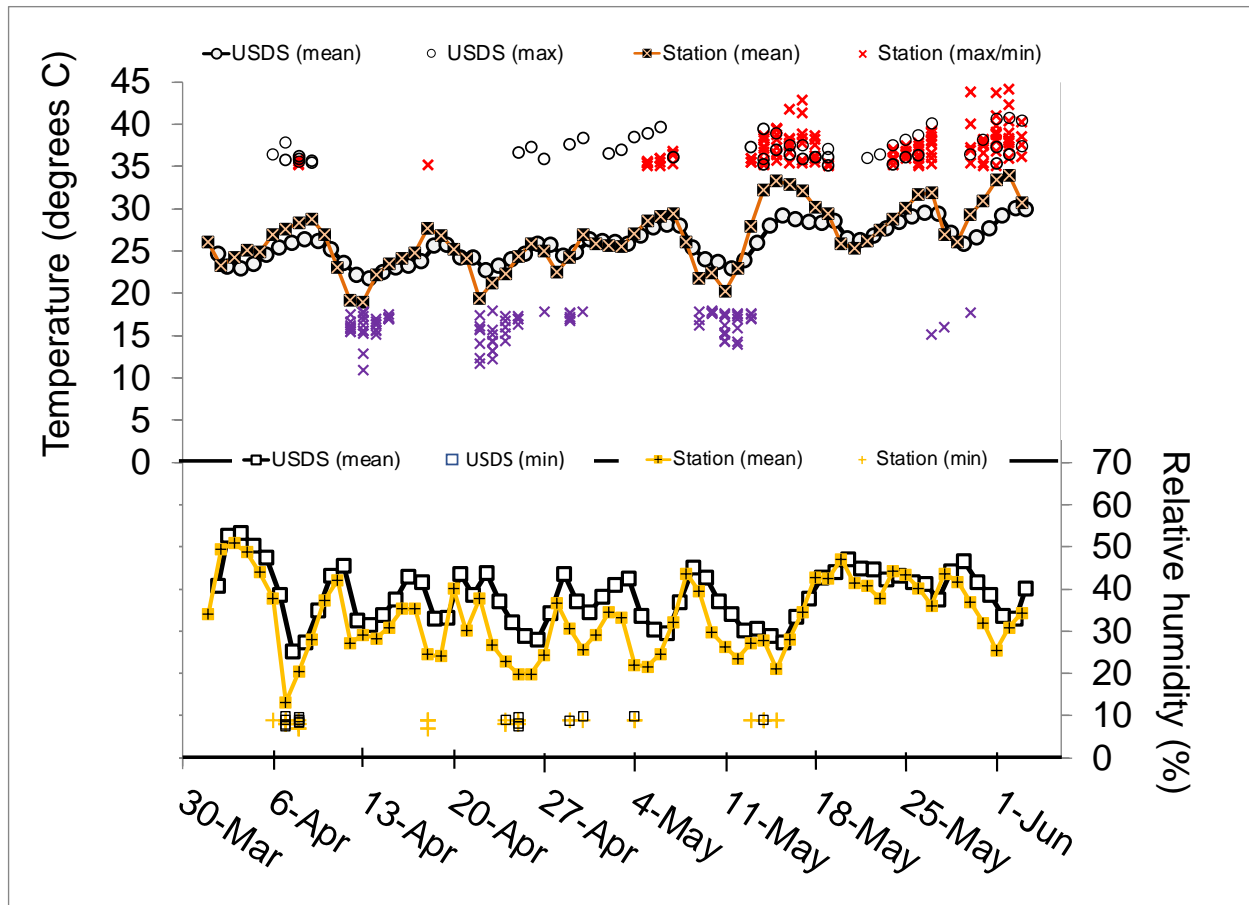


Figure 4. Air temperature (top) and relative humidity (bottom) daily averages from USDS (HOBO sensors) and at ground level (CIMIS, La Quinta II station). Air temperatures greater than 35°C (max) and relative humidity less than 10% (min) were plotted for both USDS and the weather station. Temperatures less than 18°C (min) were plotted only for the weather station given USDS measurements were rare.

Discussion

Attractive toxic sugar bait (ATSB) stations distributed at three density treatments over two separate deployment periods did not appear to obviously impact adult mosquito abundance in CDC-UV trap samples within an underground storm drain system (USDS) in the Coachella valley. No clear changes in mosquito abundance were detected in the high treatment area where ATSB density was five times higher than the low treatment area, or among both ATSB areas and the control area lacking ATSBs. Adults with bait dyes were encountered in CDC traps and bait station inspections; however, dyed mosquitoes were proportionally rare suggesting bait ingestion by mosquitoes within USDS may be limited. One explanation is the complexity of the USDS environment could alter the efficacy of the ATSB design. Previous laboratory evidence demonstrated an assay chamber with an isolated ATSB kills an average of 80% of *Culex quinquefasciatus* adults, but the same ATSB in the presence of a nearby water cup results in mean mortality rates of 20% (Popko, unpublished).

Adult mosquitoes likely travelled freely in the connections between nearby USDS chambers and may have even dispersed in a more limited way among the three treatment areas. The only clear evidence of such movement was a single red-dyed female found in a control USDS; otherwise, red-dyed adults were collected in the high treatment with red bait and green-dyed adults in the low treatment with green bait. However, bait dye in toxic baits may be of limited use to track long distance movement since flight activity is often observed in the laboratory to be reduced after bait ingestion, presumably due to toxic/digestive side effects. With the assistance of CVMVCD personnel, nearby communities (e.g., Mt. View Country Club in Sun City) far from the study site were explored and sampled to better separate bait treatment areas, especially the control sites; however, many of these USDS chambers lacked water and were too variable in size and accessibility to be viable experimental replicates. Future searches to find USDS similar to those at the HOAs of the study are warranted.

An intriguing alternative to a ATSB design that relies strictly on toxic bait to kill, is one that combines toxic bait with a sticky surface application. Preliminary laboratory assays demonstrated a sticky grease coating added to the inner perimeter of the feeding membrane of the ATSB design deployed in this study readily attracted and trapped adult *Culex quinquefasciatus*. Removable strips with a sticky coating (e.g., Tanglefoot) could be employed to quantify weekly mortality rates of adult visitors to ATSBs, with fresh strips attached during each field inspection. A sticky option may be able to capture adult mosquitoes that visit bait stations but do not feed and/or take small, sub-lethal sugar meals. Mosquito swarms have been commonly observed inside and around ATSB stations in USDS and sticky-ATSB designs that could capture large pools of such adults should be considered. Laboratory tests of an ATSB with bait alone, with sticky strips alone, or with both treatments in the presence/absence of water cups could reveal merits of this approach.

The practicality of the ATSB approach continues to be of concern given challenges that may be faced to prepare, deploy/remove, protect, and inspect stations in the confines of USDS. USDS conditions require ATSB station design to consist of multiple compartments that provide mosquito access to bait and allow for rapid inspections and refills, yet also protect against water level fluctuations, evaporative loss, waterfalls, wind events, dust and debris accumulations, and non-mosquito visitors (e.g., spiders, ants, roaches, rats, etc.). Stations can be built from inexpensive components, although large numbers of units could be problematic given construction, maintenance, transport, and storage can be time- and space-consuming. ATSB stations can easily provide mosquitoes ready access to bait for one month under stable USDS conditions, but require cursory visual inspections of each unit every week and a detailed inspection of the inner bait feeding site every two weeks to ensure adequate bait availability. ATSB stations can be difficult to insert into and remove from USDS and this would naturally be even more problematic if personnel would not be physically allowed inside treatment chambers. A methodology that enables ATSB stations to be reliably moved in and out of any manhole cover from street level and a station design that would best facilitate this process have yet to be determined.

Culex quinquefasciatus continues to dominate USDS mosquito populations, with *Aedes aegypti* rarely encountered, although monitoring changes in species composition due to invasive larvae, pupae, and/or eggs continues to be a priority.

ATSB treatment associations between immature mosquito data from dipper samples and tubs with attractive infusions will continue to be assessed as remaining field samples are processed. At the moment, it does not appear that ATSB in this study greatly impacted the production of immature mosquitoes within USDS, but too many samples remain to be processed to be confident in this outcome. Future studies that combine ATSBs with an insect growth regulator might prove to be integrated control strategies more effective in reducing mosquito production within USDS.

Semiannual Research Progress Report #1 for CVMVCD grant:

Determining fire ant bait specificity to extend fire ant control by conserving non-target ants.

David H. Oi
USDA Agricultural Research Service,
Center for Medical, Agricultural, and Veterinary Entomology
1600 SW 23rd Drive, Gainesville, FL 32605

June 30, 2022

Summary of Activity January 2022 through June 2022.

The goal of the proposed 2022-23 research is to extend red imported fire ant (RIFA) control by conserving non-target ants. Maintaining populations of non-RIFA ants should provide biotic resistance to RIFA reinfestation in areas cleared of fire ants. Specific aims are to determine which fire ant baits are not foraged upon by non-RIFA ant species found in the Coachella Valley.

Year 1: Identify fire ant baits that are not accepted, or foraged, by non-RIFA ants in FL in anticipation they will be indicators of bait specificity applicable to ants in the Coachella Valley.

- The following oil-feeding test ants are being reared or have been located in the field:
 - Laboratory colonies of bicolor trailing ants, *Monomorium floricola*, and Pharaoh ants, *Monomorium pharaonis*, are being reared to an appropriate size for testing.
 - Field populations of the big-headed ant, *Pheidole megacephala*, and the little fire ant, *Wasmannia auropunctata*, have been located.
 - Other indicator ants are being searched for in the field.
- Potential non-target ants were collected in Palm Desert, CA for identification, with collection sites noted for possible future field bait acceptance testing. Some of the ants collected were in bait treated areas of the Palm Desert Greens Country Club.

Due to COVID-19 restrictions at USDA-ARS labs were in place through March 2022. First quarter objectives were rescheduled to the third and fourth quarters.

Revised milestones for fire ant bait acceptance studies on non-target ants.

Year / Quarter	FL bait acceptance tests	CA bait acceptance tests
2022 Jan-Mar	Lab acceptance tests	
2022 Apr-Jun	Field surveys & lab acceptance tests In progress	
2022 Jul-Sep	Field surveys & lab acceptance tests	
2022 Oct-Dec	Field surveys & tests	
2023 Jan-Mar		Field surveys & tests
2023 Apr*-Jun		Field surveys & tests
2023 Jul-Sep		
2023 Oct-Dec		

*avoid Coachella and Stagecoach Festivals in April

Semiannual Research Progress Report #5 for CVMVCD grant:

Improving fire ant IPM in the Coachella Valley: Effects of irrigation on bait efficacy, mating flight phenology, and the status of biocontrol agents.

David H. Oi and Steven M. Valles
USDA Agricultural Research Service,
Center for Medical, Agricultural, and Veterinary Entomology
1600 SW 23rd Drive, Gainesville, FL 32605

June 30, 2022

Summary of Activity January 2020 through June 2022.

The objective of the proposed research for 2020-2021 is to improve the integrated pest management (IPM) of fire ants in the Coachella Valley by: 1) Evaluating the effect of irrigation on bait efficacy to determine the need to withhold irrigation after bait application; 2) Identifying periods of peak mating flight activity to improve timing of bait applications; and 3) Determining the spread of fire ant biocontrol agents released in the Coachella Valley to assess their further utilization for fire ant IPM. Due to COVID-19 restrictions, a 1-year no-cost extension (ending March 31, 2023) was granted to provide more time to complete the objectives. USDA-ARS travel restrictions for COVID-19 were eased in the spring of 2022 which resulted in significant progress on the proposed research.

- 1) To evaluate the effect of irrigation on fire ant bait efficacy in the field, two field sites, located at Lake Cahuilla Veterans Regional Park and Lake La Quinta Recreation Area, were surveyed for red imported fire ants on Feb. 25-26, 2020, and were determined to be suitable for the study. However, because the study was suspended for over 2 years due to COVID, a new study site was located by the CVMVCD (District) staff. With significant support from the District, the field study to evaluate effect of irrigation on fire ant bait efficacy was conducted in May and June 2022 at the Palm Desert Greens Country Club. Preliminary data analysis indicated that reductions in fire ant activity was not significantly different when bait was applied regardless of whether irrigation was withheld or not withheld (i.e., normal irrigation schedule was maintained). Fire ant activity after bait applications under both irrigation regimes was significantly lower than the untreated controls.
- 2) Research on monitoring fire ant mating flight activity has resumed in May 2022. The prototype fire ant alate traps successfully caught alates in Gainesville, Florida and in Palm Desert, CA in 2021. The prototype trap has been partially redesigned to simplify transport and assembly. Eight traps were installed with District assistance in May 2022 at two sites (4 traps each at the Eldorado wash and at Arnold Palmer Restaurant). Alates were trapped at both of these irrigated sites in May and June. In addition, temperature and humidity sensors were installed at both trap sites to correlate weather conditions to mating flights.
- 3) Surveys for the spread of fire ant biocontrol agents released and established in Palm Desert and La Quinta in 2014/2015 were conducted in May and June 2002. Fire ant decapitating phorid flies were collected on sticky traps at the Monterey Country Club release site as well as 748.95 meters (ca. 0.46 miles) west and 650.14 meters (0.4 miles) east of the release site.

A total of 41 flies were collected within the wash area. Both released species, *Pseudacteon curvatus* and *P. obtusus* were found.

The fire ant virus, *Solenopsis invicta* virus 3 (SINV-3) was detected in the Eldorado wash area where it was introduced into fire ant nests in 2014. Of the 19 nests sampled, five (26%) were infected with the farthest detection about 0.26 miles east of the release site. SINV-3 was not detected (n=7) at the other successful inoculation in 2015, at the La Quinta Medical Center.

#####

Due to the COVID-19 pandemic, USDA-ARS labs were closed on March 19, 2020 and all personnel were placed in mandatory telework status. In July 2020, the CVMVCD project was approved for limited research activity to allow progress toward meeting objectives of extramural agreements. However, the pace of research was slow as the USDA labs were only permitted 25% occupancy (1 person per lab) and air travel was prohibited. In late March 2022 USDA labs began to transition to full occupancy and domestic air travel was allowed in mid-April 2022.

1) Irrigation effects on bait efficacy.

We proposed to compare the efficacy of standard fire ant bait on fire ant populations in field sites where irrigation is withheld after baiting and in sites that follow a normal, daily irrigation schedule. We hypothesized that fire ant bait efficacy will be similar at the irrigated and non-irrigated sites, based on the results of the 2019 Coachella Valley field study and observations of fire ants foraging on wet bait (Oi et al. 2022).

Site selection and preliminary fire ant sampling was completed on February 25-26, 2020. Two field sites, located at Lake Cahuilla Veterans Regional Park and Lake La Quinta Recreation Area, were determined to be suitable for the study. Because the study was suspended for over 2 years due to COVID restrictions, a new site was located by the CVMVCD (District) staff. With significant support from the District, the field study was conducted in May and June 2022 at Palm Desert Greens Country Club. The course was previously treated with Extinguish Plus fire ant bait about a year ago and standard fire ant surveillance by the district indicated 61% of the hotdog lures had fire ants on May 20, 2022.

Eight golf course holes and an alcove off the hole #4 fairway, which was used as a practice chipping area and dog park, were used in the study. Hole #1, #2, #4, #6, and the alcove received the standard withholding of irrigation the night before the day of fire ant bait application, and the resumption of irrigation in the evening of the day bait was applied. Hole #10, #12, #14, and #16 received bait application the morning after evening irrigation was resumed. Overnight/early morning irrigation was measured with rain gauges at 7 holes and averaged 1.1 cm (range, 0.9 – 1.4). All holes received the label rate of Avion® Fire Ant Bait (0.045% indoxacarb), except holes #1, #16, and the alcove, which were untreated controls. Bait was applied in the mornings of May 24 and 25, 2022 by the District Operations personnel using a herd seeder (Fig. 1.). Hence, treatment applications reflected District bait application methods.



Fig. 1. CVMVCD fire ant bait application equipment and operator.

The study utilized a completely randomized design with each course hole serving as a replicate. Thus, there were three treatments (a) bait-with irrigation, (b) bait with irrigation withheld, and (c) a control without bait [1 hole each with and withheld irrigation, plus the alcove where irrigation was withheld]. Assessment of fire ant activity was determined by counting the number of fire ants on nickel diameter-sized dollops of peanut butter lures (21 mm, $\approx 1 - 1.5$ ml) placed on three transects per hole that were located along the edge of tee boxes, along one side of a fairway rough, and along the edge around a putting green. For the alcove, three transects were set about 50 ft apart. Ten lures per transect were placed at ≈ 15 ft intervals and examined for ants 45 – 60 minutes after lures were applied. Peanut butter was dispensed directly onto the turf using syringes (60, 100 ml). Sun exposed lures were shaded with a wooden placard ($\approx 3 \times 4$ in.) supported by a landscape staple. Sampling was conducted at 0 (pretreatment), 2, and 4 weeks after bait application. For each sampling date, the number of fire ants per lure was averaged for each tee, fairway, and green transect per hole, then compared among treatments by analysis of variance and Tukey’s HSD test.

Initial data analysis indicated that the reduction in fire ant activity was not significantly different when bait was applied with irrigation (i.e., normal irrigation schedule was maintained) or without irrigation. Fire ant activity after bait applications under both irrigation regimes was significantly lower than the untreated controls (Table 1). These results are consistent with reports of fire ant bait efficacy not being negatively affected when applied in the presence heavy dew that dries during the day (Collins et al. 1993), and baits wetted after application in field plots in the Coachella Valley (Oi et al. 2022). Fire ants will feed on wet bait and water-soaked baits that have dried (Oi et al. 2022). It is likely that fire ant baits applied before or after irrigation in the arid climate of the Coachella Valley will not be compromised and will be foraged by fire ants if the baits are accessible (i.e., not washed away or submerged in standing water).

Table 1. Average number of fire ants per peanut butter lure from golf course holes (n=3) at specified weeks after application of Advion Fire Ant Bait (0.045% indoxacarb) with or without irrigation.

Treatment	Average (\pm SEM, n=3) number of fire ants		
	Week 0 (pretrt.)	Week 2	Week 4
Irrigation & bait	44.4 (\pm 9.6) a	21.1 (\pm 7.6) a	41.8 (\pm 9.8) a
Irrigation withheld & bait	32.5 (\pm 3.0) a	21.0 (\pm 5.6) a	35.5 (\pm 8.3) a
Control (no bait) ^a	32.6 (\pm 8.4) ^b a	50.8 (\pm 7.2) b	81.3 (\pm 5.1) b

Averages followed by the same letter within a column are not significantly different ($P > 0.05$) by analysis of variance and Tukey's HSD test.

^a Control had 1 hole each with or withheld irrigation plus the alcove with irrigation.

^b n=2 holes.

2) Peak mating flight activity.

With the resumption of limited research activity in July 2020 at CMAVE, we focused on the development of equipment (traps/cameras) for fire ant alate flight monitoring. Wildlife cameras partially recorded alate flights but were difficult to deploy and did not provide consistent, useable surveillance footage. Thus, we redesigned alate traps used in the past to make them less cumbersome to transport and service. Previous traps utilized an inverted root ball basket with screening to collect alates in a covered bunt pan (Fig. 2). Utilizing the fire ant alate behavior of crawling up blades of grass or other elevated perches from a nest before taking flight, the trap was redesigned with the following modifications (Fig. 3):

- 1) Dowel rods are used to guide alates into the covered collecting pan. Alates will crawl to the top of the rods and then take flight. The cover confines the alates which drop into the collecting pan filled with liquid preservative (propylene glycol solution).
- 2) Screening is not used since the dowel rod technique collects enough alates.
- 3) Root ball baskets were replaced with legs that can be disassembled from the collecting pan which allows for easier transport.



Fig. 2. Previous fire ant alate trap with inverted wire basket and screening that funnels alates initiating flights into a pan filled with collecting fluid.



Fig. 3. Redesigned fire ant alate trap with dowel rods that guide alates into a collecting pan. Alates typically crawl to a high perch when they initiate mating flights.

Traps were sent in March 2021 to the District for field testing under Coachella Valley conditions. Alates were caught in traps set in Gainesville, FL and Palm Desert, CA (Table 2.) Below is a link for a video of fire ant alates being trapped in Gainesville:

<https://drive.google.com/file/d/1KQGp2oP86L-PP6gpfcQFQShrdqDBjfr0/view?usp=sharing>

Table 2. Number and month fire ant alates caught in traps set in Gainesville, FL and Palm Desert, CA 2021.

Location	Trap 1	Trap 2	Trap 3	Trap 4	Trap 5
Gainesville, FL	57, April	35, May	37, May	49, June	548, June
Palm Desert, CA	87, June	–	–	–	–



Fig. 4. Dec.2021 trap design with a plywood base that provided more secure attachment points for the legs.

The trap design was later modified in Dec.2021 with a plywood base that simplified assembly and made the traps easier to ship (Fig. 4).

To correlate temperature and humidity with the occurrence of alate flights, radiation shields were constructed to protect temperature and humidity recorders (iButtons) that were installed near alate traps (Fig. 5.).

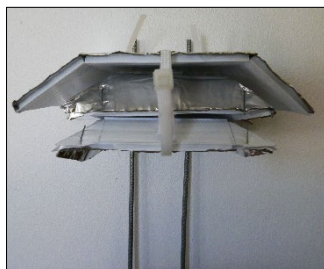


Fig. 5. Interior view of a radiation shield that houses temperature and humidity recorders.

Eight traps were installed with District assistance in May 2022. Four traps were installed in the Eldorado wash and the other four at Arnold Palmer Restaurant. All the colonies with traps were polygynous as determined by Gp-9 genotyping (Valles and Porter 2003). Alates were caught at both of these irrigated sites in May and June. In addition, temperature and humidity sensors were installed at both trap sites to correlate weather conditions to mating flights. The District is graciously servicing the alate traps and downloading the weather data.

3) Status of fire ant biocontrol agents.

Surveys were conducted in May and June 2022 to determine the spread of fire ant biocontrol agents, released in 2014/2015. Mapping of sample locations and biocontrol distribution is in progress. Preliminary results are as follows:

Phorid flies. Two species of fire ant decapitating phorid flies, *Pseudacteon obtusus* and *Pseudacteon curvatus*, were collected on sticky traps at the Monterey Country Club release site as well as 749 meters (ca. 0.46 miles) west and 650 meters (0.4 miles) east of the release site. A total of 41 flies (30 female *P. curvatus*; 6 female *P. obtusus*; 5 unidentified - possibly males) were collected and all were trapped within the wash area.

Solenopsis invicta virus 3. The fire ant virus, *Solenopsis invicta* virus 3 (SINV-3) was detected in the Eldorado wash area where it was introduced into fire ant nests in 2014. Of the 19 nests sampled, five (26%) were infected with the farthest detection about 417 m (0.26 miles) east of the release site. This was farther than the detection from the May 2017 survey where it was detected 103 m away. SINV-3 was not detected (n=7) at the other successful, 2015 inoculation at the La Quinta Medical Center. Part of the La Quinta site is undergoing construction and an adjacent natural garden area is not being maintained. Thus, fire ant habitat was diminished which limited sampling.

Additional fire ant samples for SINV-3 were obtained at the phorid fly and fire ant alate traps at Palm Desert Greens (dog walk area off hole #4 fairway), Monterey and Rancho Las Palmas Country Clubs wash area, and Arnold Palmer Restaurant. SINV-3 was detected at Monterey (2/2), Las Palmas (1/4), and Arnold Palmer (3/4). SINV-3 was not detected at Palm Desert Greens (0/6). While SINV-3 has been reported from other locations in the Coachella Valley (Oi et al. 2019), we wanted to use the opportunity to obtain an indication of prevalence at other sites. For all samples collected in May and June 2022, SINV3 was found in 24% of the samples (11/45).

Table 2. Revised milestones for fire ant bait efficacy in irrigated landscapes, mating flight activity, and determining the spread of fire ant biocontrol agents in the Coachella Valley.

Year / Quarter	CA field efficacy test of irrigated bait	Mating flight activity:	Biocontrol spread
2022 Jan-Mar	Site re-selection; Treat & sample	Site selection; Install alate traps	Sample & map
2022 Apr-Jun*	Site re-selection; Treat & sample Completed	Alate traps installed; Trapping In Progress	Sample & map In Progress
2022 Jul-Sep		X	X (if needed)
2022 Oct-Dec		X	X (if needed)
2023 Jan-Mar		X	

*avoid Coachella Fest 2022 April 15-24; Stagecoach April 29-May 1.

References Cited.

Collins, H., A. Ladner, A.-M. Callcott, L. McAnally, and R. Cuevas. 1993. Influence of dew on efficacy of Award fire ant bait, pp. 141–143. In A.-M. Callcott and H. Collins (eds.), 1993 Annual Report Imported Fire Ant Station, PPQ, APHIS, USDA, Gulfport, Mississippi.

Oi, D., S. Valles, S. Porter, C. Cavanaugh, G. White, and J. Henke. 2019. Introduction of fire ant biological control agents into the Coachella Valley of California. *Florida Entomologist* 102: 284-286.

Oi, D. H., R. A. Atchison, G. Chuzel, J. Chen, J. A. Henke, and R. D. Weeks. 2022. Effect of irrigation on the control of red imported fire ants (Hymenoptera: Formicidae) by water-resistant and standard fire ant baits. *Journal of Economic Entomology* 115: 266-272.

Valles, S. M., and S. D. Porter. 2003. Identification of polygyne and monogyne fire ant colonies (*Solenopsis invicta*) by multiplex PCR of Gp-9 alleles. *Insectes Sociaux* 50(2): 199-200.



**Coachella Valley Mosquito and
Vector Control District**

July 12, 2022

Staff Report

Agenda Item: Informational Item

National Conference on Urban Entomology and Invasive Pest Ant Conference – **Roberta Dieckmann, Operations Manager, and Michael Martinez, Field Supervisor**

Background:

The National Conference on Urban Entomology and Invasive Pest Ant Conference bring scientists in industry, academia, and government together to open channels of communication and information and to foster interest and research in the general area of urban entomology.

The conference was held in Salt Lake City, May 15-18, 2022

Attendees:

Roberta Dieckmann, Operations Manager

Michael Martinez, Field Supervisor



NEW BUSINESS



**Coachella Valley Mosquito and
Vector Control District**

July 12, 2022

Staff Report

Agenda Item: New Business

Discussion and/or approval to purchase chemical control products in an amount not to exceed \$558,116.00 from funds 7800.01.500.028, Field Chemical Control – **Budgeted, Funds Available** – **Greg Alvarado, Field Supervisor**

Background:

In 2014 the purchase of chemical control products was changed requiring approval of annual purchase of products based on multi-year historical analysis of pesticide usage to predict total product requirements and delivery schedules.

The purchase of the following chemical control products for Operations Control program is required during the FY 2022-2023. The bid decision will consider the level of technical support provided by the chemical distributors and/or manufacturers in determining the final award for each product. The amount and quality of service does vary from one company to another, and their technical support and expertise is an added benefit to the District and does increase value of funds spent on chemical products by the District.

Products will be delivered and billed on or near the projected delivery date or as needed if determined by the Operations Manager and approved by the General Manager.

PRODUCT	TARGET	TOTAL AMOUNT	ESTIMATED COST
ADVION	RIFA	3,000 Lbs.	\$30,690.00
ALTOSID BRIQUETS	MOSQUITO	800 units	\$1,032.00
ALTOSID P-35	MOSQUITO	520 Lbs.	\$9,560.00
AQUABAC 200G	MOSQUITO	3,200 Lbs.	\$7,264.00
AQUA-RESLIN	MOSQUITO	120 Gals.	\$26,864.00
DUET	MOSQUITO	110 Gals.	\$24,656.00
EVERGREEN ULV (5-25) GROUND	MOSQUITO	110 Gals.	\$19,868.00
EXTINGUISH PLUS	RIFA	9,000 Lbs.	\$60,300.00
FYFANON ULV	MOSQUITO	7.5 Gals.	\$589.00


NATULAR CENSOR	MOSQUITO	8,400 Lbs.	\$27,468.00
NATULAR G	MOSQUITO	500 Lbs.	\$3,590.00
NATULAR G30	MOSQUITO	1,000 Lbs.	\$17,840.00
NATULAR 2EC	MOSQUITO	20 Gals.	\$24,539.00
SUNSET ODOR REDUCTION TECHNOLOGY OIL	MOSQUITO	1 Gal.	\$335.00
VECTOBAC 12AS	MOSQUITO	300 Gals.	\$14,109.00
VECTOBAC G	MOSQUITO	3,200 Lbs.	\$9,568.00
VECTOBAC WDG	MOSQUITO	5,900 Lbs.	\$217,828.00
VECTOMAX FG	MOSQUITO	1,600 Lbs.	\$15,520.00
TOTAL			\$511,620.00

Staff Recommendation:

The Operations Department is requesting Board approval to purchase chemical control products in the amount not to exceed \$558,116.00.

Fiscal Impact:

FY2022-23 Budget	Current Available Funds	Proposed Expense Fiscal Year 2021/22	Remaining Available Funds
\$558,116.00	\$558,116.00	NTE \$558,116.00	\$0

	<p style="text-align: center;">Coachella Valley Mosquito and Vector Control District</p> <p style="text-align: center;">Staff Report</p>	<p style="text-align: center;">July 12, 2022</p>
<p>Agenda Item: New Business</p> <p>Appointment of the District's ad hoc Abatement Hearing Committee - Benjamin Guitron, President</p>		
<p>Background:</p> <p>The Board of Trustees approved Resolution 2019-12 on October 8, 2019, approving the District's Abatement Policy. As outlined in the policy, an Abatement Hearing Committee shall be formed to conduct nuisance abatement hearings. The Committee shall be composed of three members of the Board, with one alternate.</p> <p>Past members of the Committee are:</p> <p><i>Benjamin Guitron, Chair</i></p> <p><i>Gary Gardner</i></p> <p><i>Bito Larson</i></p> <p><i>Dr. Doug Kunz, alternate</i></p>		
<p>Staff Recommendation:</p> <p>That the President appoints an Abatement Hearing Committee.</p>		