

SALT LAKE CITY MOSQUITO ABATEMENT DISTRICT

Executive Director's Report

June 2025

1. Personnel:

Personnel	
Staff	Seasonal
12	38

Type of Work	2025	3 - Year Average
Adulticiding	15.25	16.92
Wetlands / Rural	1,114.25	1,019.58
Fish Culture	263.00	258.42
Catch Basins / Gutters	503.00	620.67
Tree Holes	369.50	296.50
Prison	19.00	51.25
Service Request	78.00	28.00
Traps	448.25	497.42
Laboratory	754.00	960.50
Office / Administration	894.50	815.75
Equipment Maintenance	323.75	373.83
Facility Maintenance	437.25	327.08
Training	241.00	112.58
Education	308.75	126.92
Unmanned Aerial System	338.50	222.83
CSU Grant	959.75	106.00
Other Grants	Not Recorded	0.00
Other / Errands	99.75	166.25
Comp. Time Used	86.50	73.83
Vacation	48.50	66.08
Additional Hours	0.00	123.25
Holidays	192.00	171.33
Sick Leave	30.75	24.17
Total	7,525.25	6,459.16

2. Office/Lab Activities:

- Michael Weber, PhD student from a university in Thailand, visited the District and stayed in the dormitories to work on mosquito flight activity on 2-5 June 2025.
- Executive Director Faraji met with Ryan Arkoudas from Clarke Mosquito Control on 3 June 2025.
- The District hosted Ryan Noord from PEHP to discuss health benefits with employees on 3 June 2025.
- Executive Director Faraji attended a bi-weekly meeting with the Rocky and High Plains Vector Borne Diseases Center on 4 June 2025.
- Executive Director Faraji attended a video call with the Pacific Southwest Center of Excellence in Vector Borne Diseases on 4 June 2025.
- Executive Director Faraji attended a weekly Owners/Architects/Contractor meeting on 4 June 2025.
- Loren Cunningham from Central Life Sciences visited the District and stayed in the dormitories to work on mosquito flight activity on 9-12 June 2025.
- Executive Director Faraji met with Dynamic Aviation representatives at the Ogden hangar on 10 June 2025.
- Executive Director Faraji attended a policies and procedures meeting with EntSoc's MUVE Section on 10 June 2025.
- Executive Director Faraji attended a virtual meeting for the leadership of the Northeast Center of Excellence in Vector Borne Diseases on 11 June 2025.
- Executive Director Faraji attended a weekly Owners/Architects/Contractor meeting on 11 June 2025.
- Executive Director Faraji conducted a bi-monthly meeting as the President of the MUVE Section of the ESA on 17 June 2025.
- Executive Director Faraji attended a Newsletter Committee meeting for ESA's MUVE Section on 11 June 2025.
- Executive Director Faraji attended a bi-weekly meeting with the Rocky and High Plains Vector Borne Diseases Center on 18 June 2025.
- Executive Director Faraji attended a weekly Owners/Architects/Contractor meeting on 18 June 2025.
- Executive Director Faraji attended the interim board meetings for the Entomological Society of America in Portland, Oregon on 23-26 June 2025.

Greg White, Assistant Director

New employee orientations – various days

Weekly Construction Meetings plus other construction meetings

Helping transfer RNA-seq data from UPHL to Dr. Liz Hemming-Schoeder at CSU 6/3 to 6/11

Meet with Emily Calhoun from USU – 6/9

Meet with Katie Graybeal from USU - weekly

UMAA Mangers Meeting – 6/11

Zoom call with Karla Saavedra Rodriguez about IR – 6/18

DSLASA Meeting – 6/18

Chris Bibbs, Laboratory Director

Jun 2	Setting up education materials for rotator traps at Hogle Zoo; black fly service report for board books; CO2 pump re-training and troubleshooting for lab staff
Jun 3	Project outline and sample site discussion w/ Matt Yurtzenka (USU); experimental design for Barricor Essentials testing w/ Sage Moessing; Assisting Michael Weber
Jun 4	JAMCA review for Jack Petersen; assisting Michael Weber (BioGents)
Jun 5	Training Joe Holt on Drop Vision; assisting Michael Weber (BioGents); flight tickets for Sam Rund (Jun 27 arrival)
Jun 9	Consulting w/ Ilia for Tox paper
Jun 10	Samples for Katie; RaHP VEC trial 1, mosquito impingement analysis
Jun 11	Mosquito impingement and droplet slide analysis
Jun 17	Training Amy on droplet analysis; project update with Vicky Ng (CAD public health)
Jun 18	CO1 sample prep w/ Clara
Jun 19	Volatile Pyrethroid Meta Analysis review comments/edits w/ Ingrid Chen;
Jun 24	Wild Cx. pipiens collections (Church route) w/ Matt Yurtzenka (Saarman Lab); RaHP VEC trial 2, mosquito impingement analysis
Jun 25	Mosquito impingement and droplet analysis; methoprene bioassay data analysis; bottle bioassays
Jun 26	Equipment prep for Sam Rund visit (infrared light activity monitors)
Jun 30	Cross training with Sam Rund for mosquito activity bioassays

Michele Rehbein, Education Specialist

- Dr. Rehbein started to develop an SLCMAD biweekly newsletter with current happenings, surveillance updates, mosquito prevention, and more. The first issue was made live on 5 June.
- Dr. Rehbein conducted pollinator habitat maintenance on 10 June and 16 June.
- Dr. Rehbein conducted Taylee Ruedas' orientation on 26 June.
- Dr. Rehbein attended a PeHP meeting with full-time staff on 3 June.
- Dr. Rehbein and Evelyn Acosta participated in Sageland Collaborative's third annual Pollinator Pride Party on 7 June at Tracy Aviary's Nature Center at Pia Okwai.
- Dr. Rehbein and Evelyn Acosta participated in the first Partners in the Park event for the summer at Jordan Park on 10 June.
- Dr. Rehbein guest lectured at the USCF through their Utah Prisoner Education Program (UPEP) in an ecology course taught by Dr. Katharine Walter with the University of Utah on 11 June.
- Dr. Rehbein gave a presentation to RaHP Vec interns on 12 June on media and outreach training for blog posts they will write this summer.
- Dr. Rehbein attended an AMCA national campaign committee meeting on 12 June with Dan Markowski, Megan MacNee, Peter Bonkrude, and the Media Cause team.
- Dr. Rehbein held a safety meeting on 20 June.
- Dr. Rehbein met with Dr. Heath Ogden from Utah Valley University to discuss a Moth Week event collaboration on 24 June.
- Dr. Rehbein and Evelyn Acosta participated in Partners in the Park at Parkway Park on 24 June.
- Dr. Rehbein and Evelyn Acosta participated in the Pollinator Power Week event at the Butterfly Biosphere at Thanksgiving Point on 25 June.
- Dr. Rehbein met with Jonny Gonzalez, Associate Director of STEM CAP (Community Alliance Program) through the University of Utah to discuss collaborating and conducting guest lectures and/or educational programming across incarcerated youth centers on 26 June.

Nate Byers, Molecular Biologist

Two RaHPVec trials + routine surveillance

Responded to request from Tracy Aviary to conduct additional larval and adult surveillance and larval control in response to an endangered red siskin that was fatally stricken with avian malaria. I identified a substantial larval habitat adjacent to the aviary; 26 June

Initiated avian malaria molecular detection project in response to the above incident. Nadia and Avery are the intern researchers.

Participated as a reviewer for PacVec grants; 2 June

Met with and assisted Michael Weber on eave tube zapper project; 2-3 June

Represented SLCMAD at the Arboviral Coordination Call hosted by the Utah DHHS; 5 June

Met with Karla and Greg to discuss L to F mutations in KDR for our tarsalis; 6 June

Met with Jennifer Henke (Coachella Valley Mosquito & Vector Control District) to discuss her lithium ion battery problems and potential solutions; 24 June

Assisted Sam Rund (Notre Dame) in designing and implementing experiments on mosquito circadian behavior 27 June through 3 July

Brad Sorensen, Aerial Operations Supervisor

Airbus Training documentation submittal

Answered questions about Airbus build for Airbus

Applied for insurance

Calibrate T25 corn cob swath

Calibrate ULV Equipment with Andrew and Reed Miles

Phase 2 work

FFE meetings

6/4 – CCG Design Meeting

6/4 – OAC Meeting

6/10 – Millwork review with MHTN

6/11 – OAC Meeting

6/17 – CCG Chair and Design Review

6/18 – OAC Meeting

6/25 – OAC Meeting

Jason Hardman, Rural Field Supervisor

Training, field work, and adulticiding

Quinten Salt, Urban Field Supervisor

6/ Complete first round of city and industrial catch basin treatments

6/30 Collect and drop off fish to be tested for Jensen pond certification

6/24 Inspect Tracy aviary in response to bird death from avian malaria

3. Field Data:

Control:

ACRES TREATED

	Adulticide		Larvicide		Total
	Ground	Aerial	Ground	Aerial	
June's Total	723.00	20,480.00	1,171.00	1,294.00	23,668.00
June's 3 Year Avg.	623.91	36,181.33	1,183.97	2,070.67	40,059.88

Service Requests:

MOSQUITO SERVICE OPPORTUNITIES RECEIVED BY MONTH

	March	April	May	June	July	Aug.	Sept.	Oct.	Total
2025	5	11	40	44					100
3-Year Avg.	4.00	11.33	26.33	40.00	34.00	19.33	9.67	20.33	164.99

Inspection and Surveillance:

<i>Larval Collections</i>		
<i>Species</i>	<i>June</i>	<i>5-Year Average</i>
<i>Ae. campestris</i>	0	0.0
<i>Ae. dorsalis</i>	80	114.6
<i>Ae. fitchii</i>	0	0.0
<i>Ae. increpitus</i>	0	0.4
<i>Ae. nigromaculis</i>	0	0.0
<i>Ae. niphadopsis</i>	0	0.0
<i>Ae. sierrensis</i>	0	0.2
<i>Ae. melanimon</i>	0	0.0
<i>Ae. varipalpus</i>	0	0.0
<i>Ae. vexans</i>	5	1.8
<i>Cx. erythrothorax</i>	2	1.0
<i>Cx. pipiens</i>	50	60.6
<i>Cx. tarsalis</i>	155	202.2
<i>Cx. impatiens</i>	0	0.0
<i>Cs. incidens</i>	30	31.0
<i>Cs. inornata</i>	29	24.8
<i>An. freeborni</i>	0	0.8
Total	351	437.4

4. Weather:

June's weather was warmer (by 3.4°) and drier (by 0.79") than normal.

Temperature:

	Monthly Avg.	Normal	High	Low
May	64.0°	61.5°	91°	42 °
June	75.0°	71.6°	104°	45 °

<https://www.weather.gov/wrh/Climate?wfo=slc>

Precipitation:

	Total for Month	Normal	Most in 24 hours
May	1.26"	1.82"	0.73" on 18 th
June	0.16"	0.95"	0.16" on 22 nd

<https://www.weather.gov/wrh/Climate?wfo=slc>

Great Salt Lake (elevation in feet above sea level):

	May 1	Jun 1	Jul 1
2024	4,194.9	4,195.0	4,194.5
2025	4,193.4	4,193.2	4,192.7

<https://waterdata.usgs.gov/monitoring-location/10010000/#parameterCode=62614&period=P7D&showMedian=true>



Fantastic feasts and where to find them: mosquito (Diptera: Culicidae) sugar feeding and survivorship on endemic flowers of arid scrublands

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Abstract

Mosquitoes, like many other insects, are dependent on plant-derived nutrients as adults. Arid lands in particular create a challenge for mosquitoes to find resources consistently. In the United States, the arid, high elevation floodplains around the Great Salt Lake present a rich environment where salt desert shrublands meet alkaline freshwater wetlands, while plant communities contain a diversity of native and invasive flower species. We investigated survivorship on 15 flowering plants representing the common ephemeral wildflowers found through the aforementioned habitats using local *Culex pipiens* (L.) under laboratory conditions. Four native angiosperm species, *Cleome serrulata* Pursh (Brassicales: Cleomaceae), *Asclepias incarnata* L. (Gentianales: Apocynaceae), *Asclepias speciosa* Torrey, and *Verbena hastata* L. (Lamiales: Verbenaceae) had the highest mosquito mean percent survival in 10-day assays. Mosquito survival was significantly better on native flowers than on non-native flowers. Endemic mosquitoes in the field were also sampled for frequency of sugar feeding at six sites across 11 weeks. Flower phenology data of the aforementioned four flowers with highest mosquito mean percent survival were taken from iNaturalist and compared to the abundance of sugar-fed mosquitoes from the wild. Flower phenology and sugar-fed mosquito abundance followed the same trends, with increased flower sightings co-occurring with increased sugar feeding. The short-lived blooming intervals in the arid landscape result in time periods when both flower sightings and sugar feeding in mosquitoes are low, highlighting elevated risks to exposure and malnutrition for wild populations. Sustainable research and management of mosquitoes require answers to basic biological and ecological questions such as flower dependence and resource scarcity in the field.

Keywords Nectar · Plant · *Culex* · *Aedes* · Ultraviolet · Anthrone

Introduction

Mosquitoes access to plant -sugars affects survivorship in the wild and pathogen transmission potential (Gu et al. 2011; Sissoko et al. 2019). For mosquitoes, a source of sugar will be the first thing adults seek upon emergence from larval aquatic habitats (Foster and Takken 2004; Takken et al. 2013). Studies in fragmented landscapes suggest that *Anopheles* mosquitoes living in lush, sugar-rich sites have larger population sizes with higher survival rates and shorter gonotrophic cycles than mosquitoes in sparse, sugar-poor areas (Gu et al. 2011). Even mosquito species such as *Aedes aegypti* (L.), which have the ability to convert blood into glycogen and triglycerides for energy (Nayar and Sauermaier 1997), will readily seek sugar sources in the wild, if available (Sissoko et al. 2019).

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