

SLCMAD Updates and Tax Increase Overview

SLC Council
15 October 2024



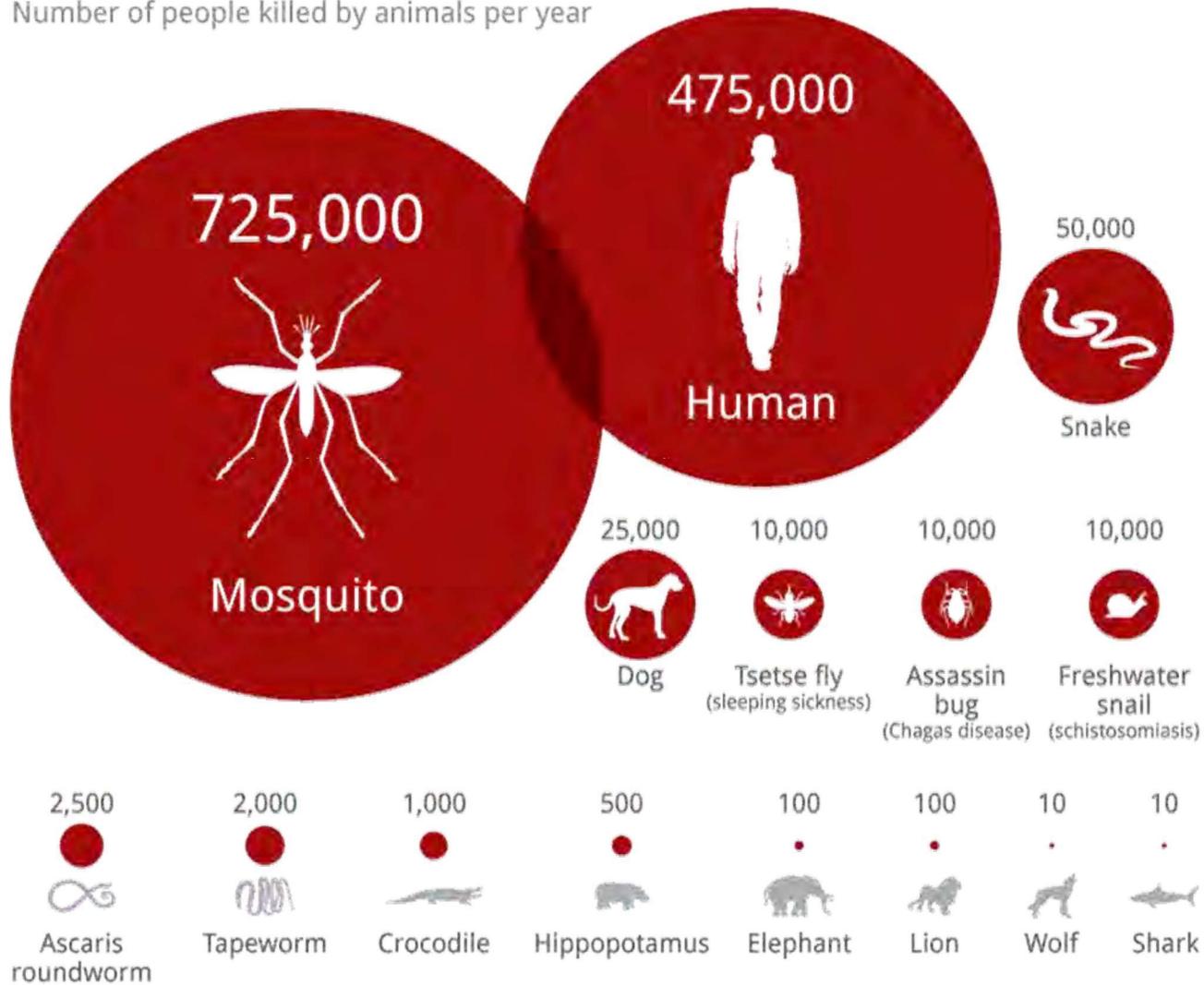


*Toxorhynchites rutilus
septentrionalis*

Aedes albopictus

The World's Deadliest Animals

Number of people killed by animals per year



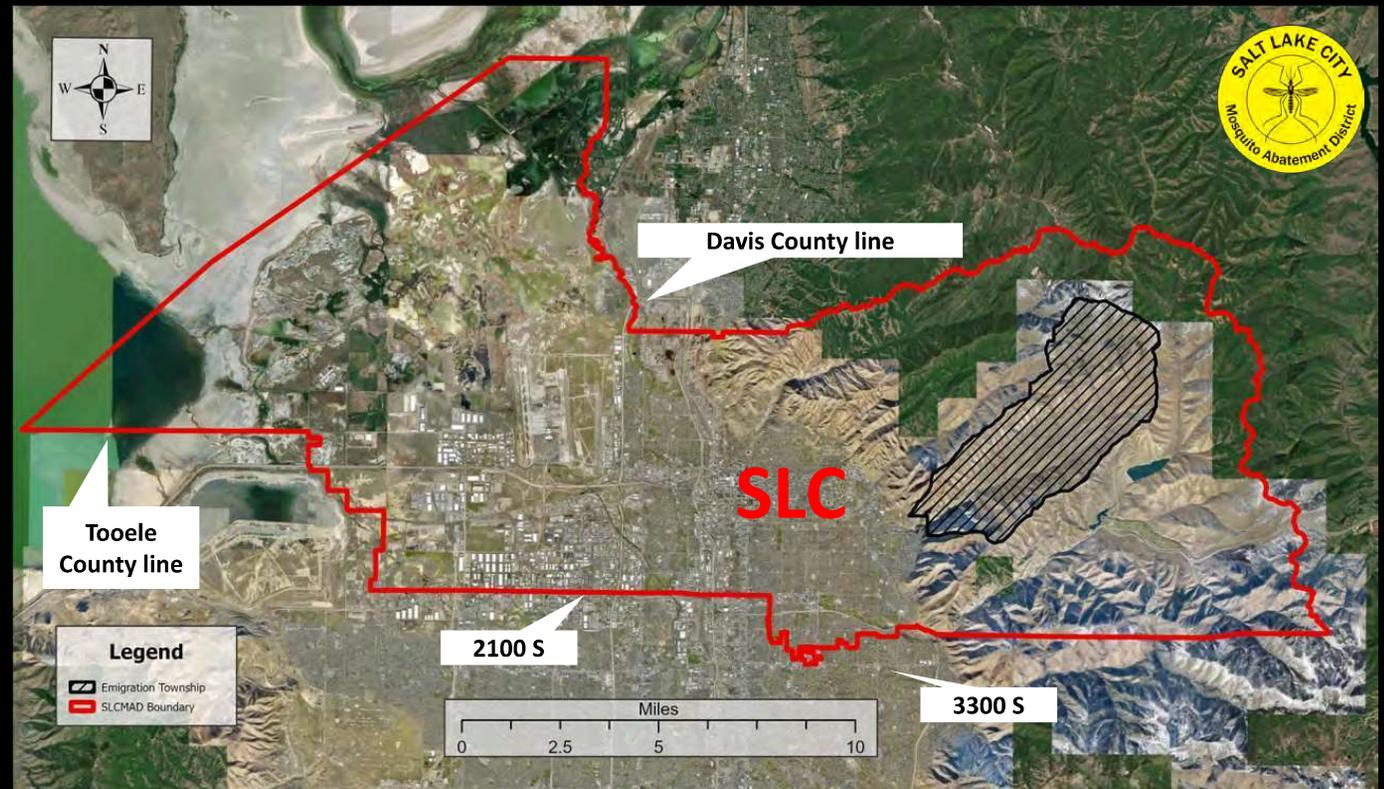
SLCMAD

1923

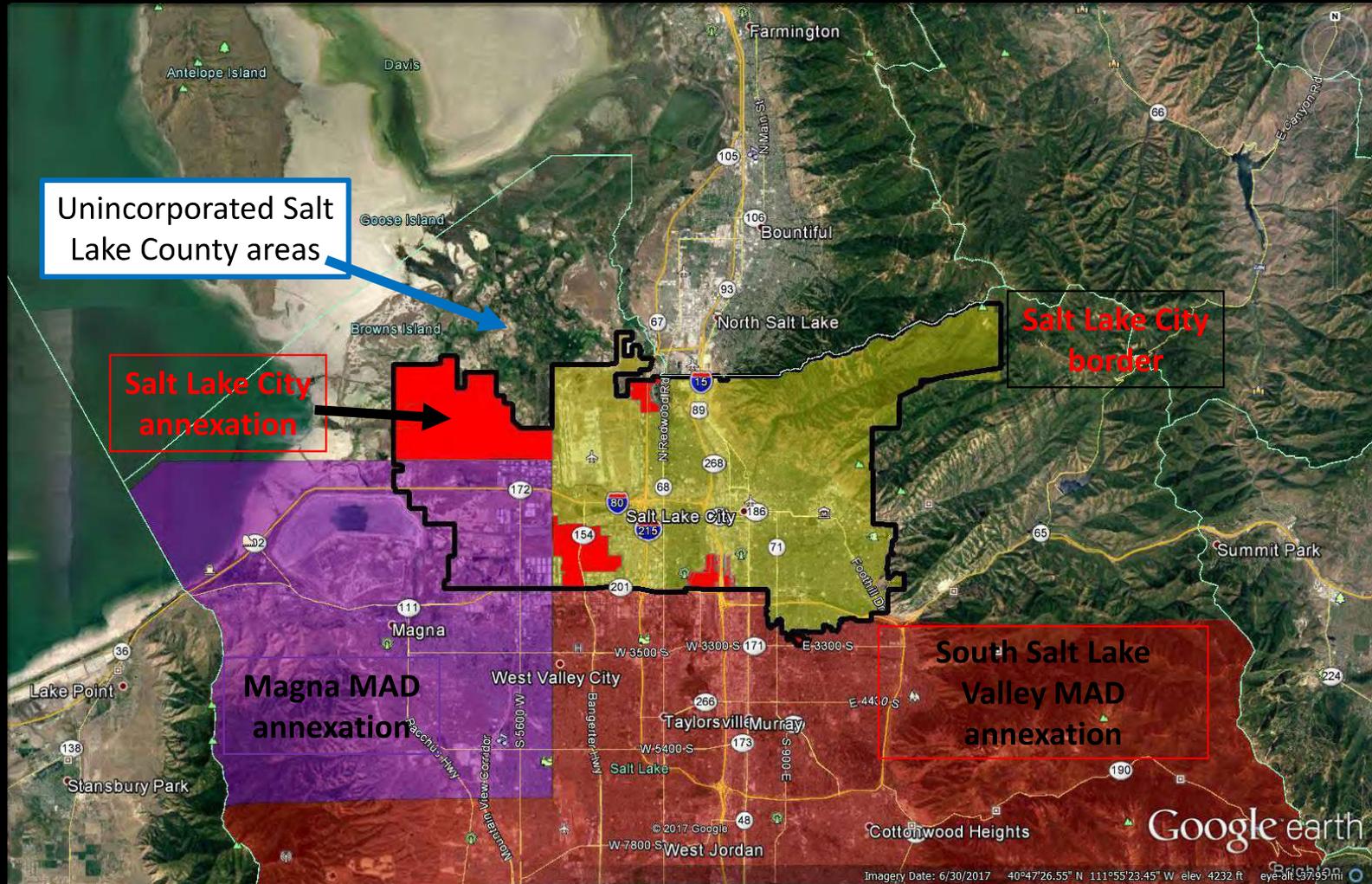
Independent Tax
Special District

~ 180 miles²
(Service Area)

~ 240 miles²
(Greater Boundary)



Annexation Updates





13 full time staff (5 PhD's)
~50 seasonals (interns/techs)



SLCMAD Board of Trustees



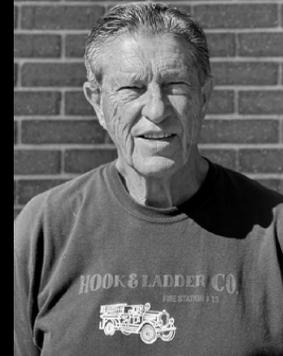
Dr. Shireen Moers
Board Chair (D6)
Pediatrician



Amanda Barth
Board Vice Chair (D7)
Utah Rare Insect Coord.



Luz Escamilla
District 1
Utah State Senator



Van Turner
District 2
Businessman/Past Council



Neil Vickers, PhD
District 6
UoU Bio Professor

Past Notable Board of Trustees



Ray Uno
Judge



Dr. Dagmar Vitek
Medical Director SLCHD



Karen Okabe
Deputy Mayor SLCO

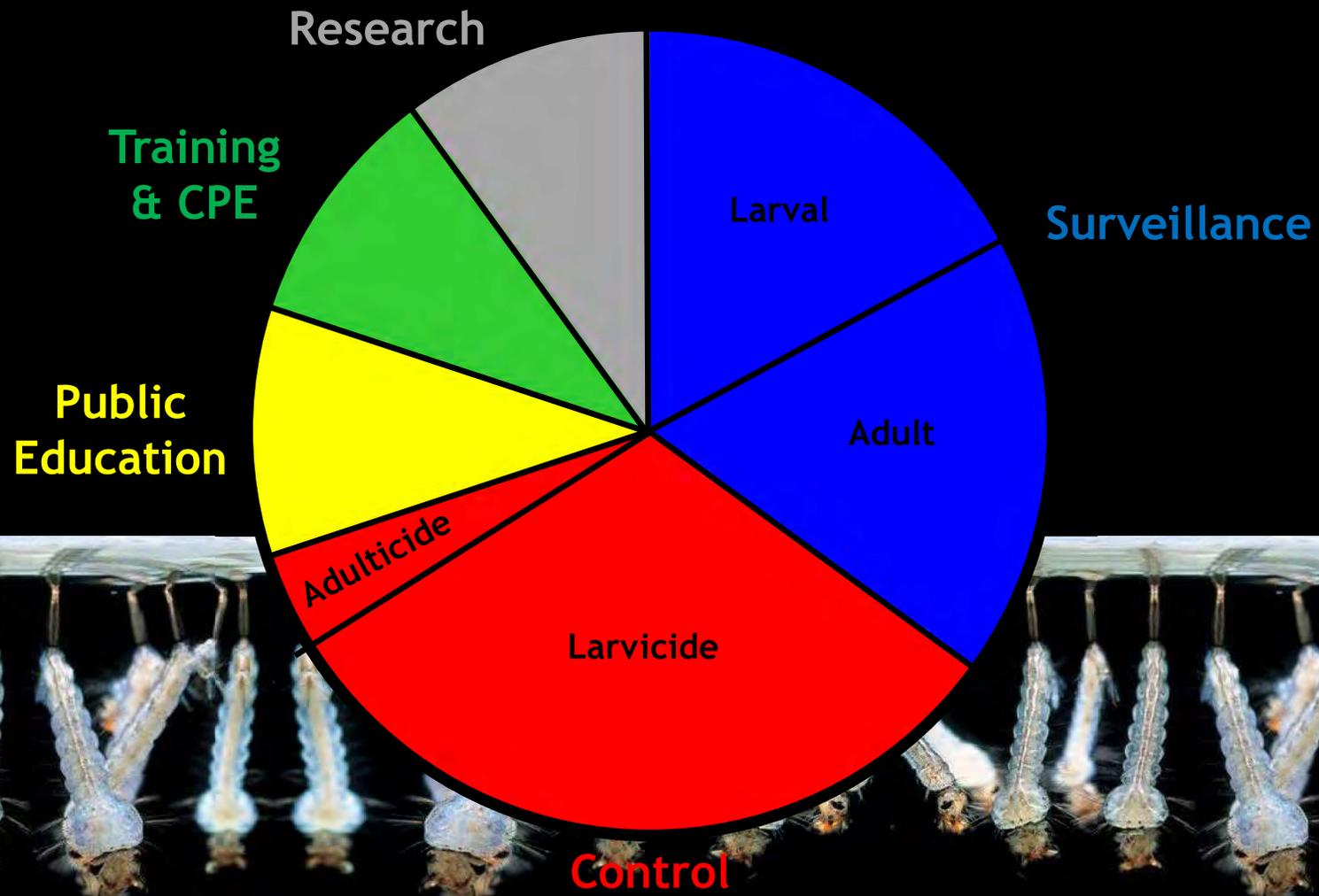


Carlton Christensen
UTA, RDA, Past Council



LaVone Liddle
Judge

Integrated Mosquito Management



Surveillance

PLOS NEGLECTED TROPICAL DISEASES

OPEN ACCESS

Citation: Bibbs CS, Reissen N, Dewsnup MA, Sorensen RB, Faraji A, White GS (2024) Do it yourself: 3D-printed miniature CDC trap for adult mosquito (Diptera: Culicidae) surveillance. *PLoS Negl Trop Dis* 18(1): e0011899. <https://doi.org/10.1371/journal.pntd.0011899>

RESEARCH ARTICLE

Do it yourself: 3D-printed miniature CDC trap for adult mosquito (Diptera: Culicidae) surveillance

Christopher S. Bibbs^{1*}, Nadja Reissen, M. Andrew Dewsnup, R. Bradley Sorensen, Ary Faraji, Gregory S. White

Journal of the American Mosquito Control Association, 39(4):231–235, 2023
Copyright © 2023 by The American Mosquito Control Association, Inc.

DO IT YOURSELF: A MODERNIZED GRAVID TRAP DESIGN FOR MOSQUITO SURVEILLANCE

M. ANDREW DEWSNUP, THOMAS D. WIDMER, ELLA J. BRANHAM, ARY FARAJI, GREGORY S. WHITE AND CHRISTOPHER S. BIBBS¹

scientific reports

OPEN Infrared light sensors permit rapid recording of wingbeat frequency and bioacoustic species identification of mosquitoes

Dongmin Kim¹, Terry J. DeBriere², Satish Cherukumalli², Gregory S. White³ & Nathan D. Burkett-Cadena^{1,2,3}

Journal of Insect Science (2020) 20:11–17
doi: 10.1093/jiss/iaa131
Research



Trap Comparison for Surveillance of the Western Tree Hole Mosquito (Diptera: Culicidae)

Luis Fernando Chaves,^{1,2} Nadja Reissen,² Gregory S. White,² Scott Gordon,³ and Ary Faraji^{2,4}

¹Instituto Costarricense de Investigación y Enseñanza en Nutrición y Salud (INCIENSA), Tres Ríos, Cartago, Apartado 4-2250, Costa Rica, ²Salt Lake City Mosquito Abatement District, 2215 North 2300 West, Salt Lake City, UT 84116, ³Biogents AG, Wissenschaftsstr. 27 5065 Regensburg, Germany, and ⁴Corresponding author: e-mail: ary@slmad.org

Subject Editor: Phyllis Wountroub.
Received 5 November 2019; Editorial decision 29 December 2019

Surveillance

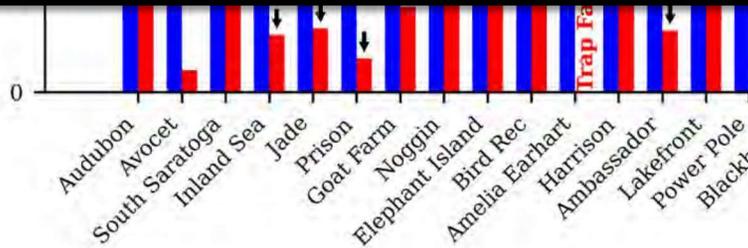
CO2

14000



22 July 2024
(Monday night)

Num Count
3
5,000
10,000
14,323



Control - Urban

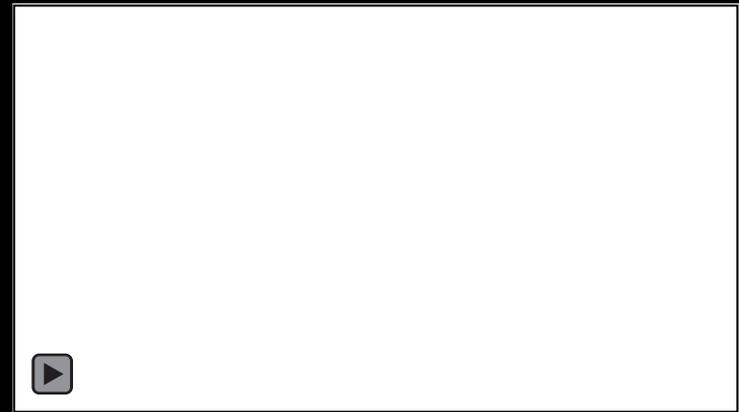
Tree Hole Program



Catch Basin Program



Biological Control Program



Control - Rural

UtahState

Home Logan

Aviation

By College of Ac

To learn more about the Degree Informa
degree's academic
some of these sugg
you have already m
usu.edu/orientation

Degree Informa

Recommen

These courses are s
for 15-16 credits.

Degree Recco

CREDITS COURSE COURSE OPTIONS

Joel B...
Clint Hoffmann

<https://on/gu/acr>

Grants

CDC Funded

2023-2028

\$1,013,794

COLORADO STATE UNIVERSITY NEWS FROM THE COLLEGE OF VETERINARY MEDICINE AND BIOMEDICAL SCIENCES **SOURCE** Thursday, October 10

News CSU Magazines - Impact Magazine CVMBBS Website Calendar Suggest a Story

CSU, partners land \$8.75M for center on vector-borne diseases like West Nile virus

COLORADO STATE UNIVERSITY ROCKIES AND HIGH PLAINS VECTOR-BORNE DISEASES CENTER

ABOUT RAHP VEC - TRAINING - PROJECTS - RESOURCES - CONTACT

Investigators

Directors



Brian Foy, Ph.D.
RaHP VEC Co-Director/Co-Principal Investigator
Professor, Colorado State University

— About Dr. Foy

Brian brings extensive experience in field entomology and testing novel strategies for vector control of domestic arboviral vectors. As the program co-director, Dr. Foy is involved in all aspects of RaHP VEC.

[Foy Lab Website](#)

+ Current Activities



Arj Faraji, Ph.D., BCE
Executive Director, Salt Lake City Mosquito Abatement District (SLCMAD)

— About Dr. Faraji

Arj has over 20 years of experience in vector management, including surveillance, various forms of adult and larval control, and conducting vector training workshops. He applies this programmatic knowledge and perspective across RaHP VEC activities.

+ Current Activities

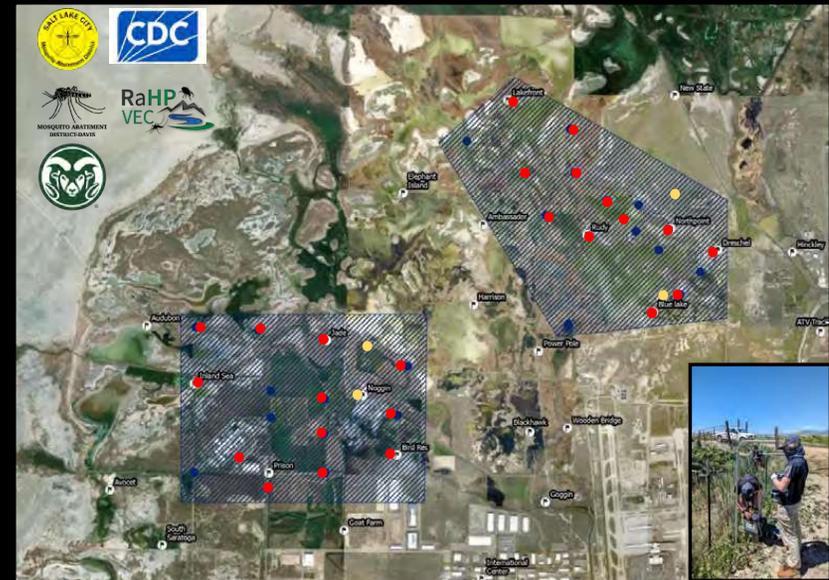


Greg White, Ph.D.
Assistant Director, Salt Lake City Mosquito Abatement District (SLCMAD)

— About Dr. White

Greg has worked in the field of vector control for over 15 years. He has experience in mosquito and arbovirus surveillance, insecticide resistance management, evaluating insecticide applications, filth fly and biting midge management, and performing vector control in multiple states.

+ Current Activities





Community garden: \$3,195
Pollinator garden: 390 native plants

Pollinator Habitat and Community Garden





USCF Grant Project:

- Mosquito Education and Outreach program
- Least Chub fish rearing program



2023 Western IPM Center: \$26,515
 2024 Western IPM Center: \$35,823
 2024 EOJC Legislative Session: \$51,000
 2024 Regional IPM Centers: \$18,000



This project was funded in part by the USDA National Institute of Food and Agriculture, through the Western Integrated Pest Management Center.

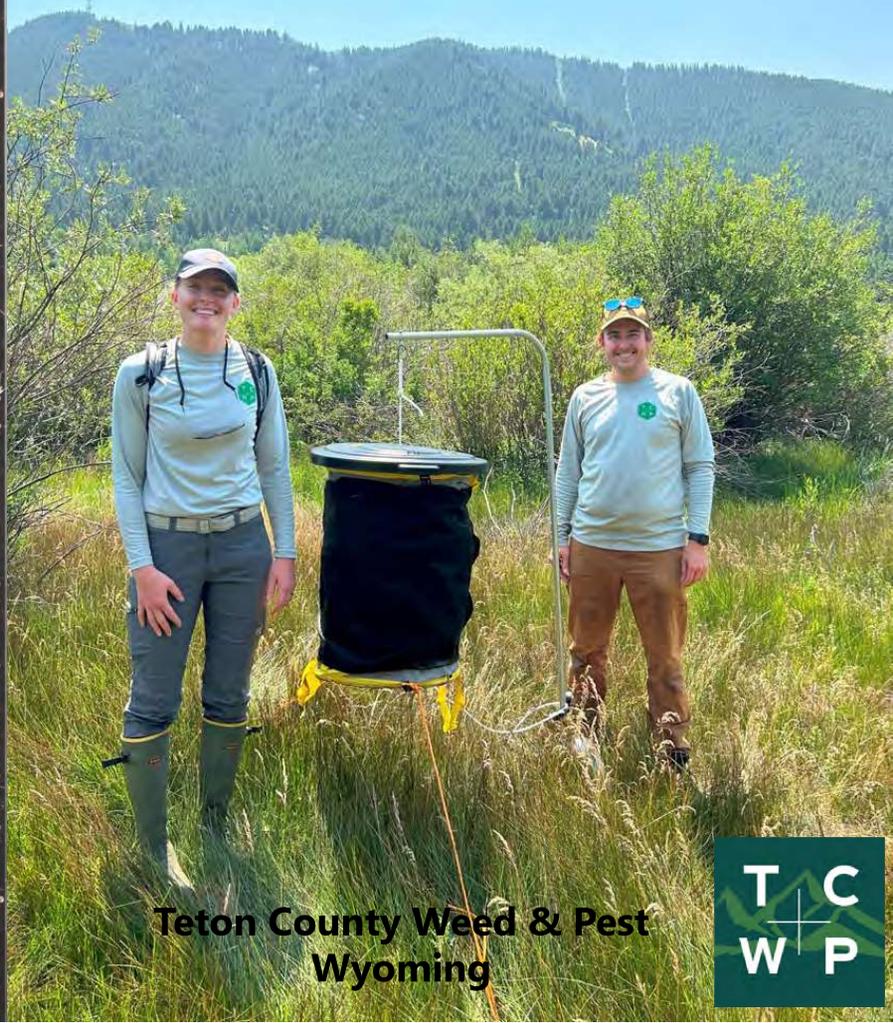


WILDLIFE RESOURCES

Mosquito Attract and Kill Device (MAKD) \$38,400



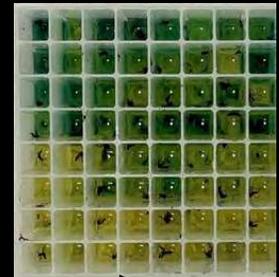
This project was funded in part by the USDA National Institute of Food and Agriculture, through the Western Integrated Pest Management Center.



Teton County Weed & Pest
Wyoming



Research Projects



Journal of Medical Entomology, 58(2), 2021, 761-772
doi: 10.1093/jme/tjaa214
Advance Access Publication Date: 20 October 2020
Research

Vector Control, Pest Management, Resistance, Repellents

No Evidence That Salt Water Ingestion Kills Adult Mosquitoes (Diptera: Culicidae)

Donald A. Yee,^{1,7} Catherine Dean,¹ Cameron Webb,^{2,3} Jennifer A. Henke,⁴ Gabriela Perezchica-Harvey,⁴ Gregory S. White,⁵ Ary Faraji,⁶ Joshua D. Macaluso,⁸ and Rebecca Christofferson⁸

OXFORD

www.nature.com/scientificreports

scientific reports

OPEN Heterodissemination: precision insecticide delivery to mosquito larval habitats by cohabiting vertebrates

Isik Unlu^{1,2,3}, Ary Faraji², Yi Wang¹, Ilia Rochlin² & Randy Gaugler²

Home > Parasites & Vectors > Article

Diuresis and α -glucosidase inhibition by erythritol in *Aedes aegypti* (Diptera: Culicidae) and viability for efficacy against mosquitoes

Research | Open access | Published: 20 February 2024
Volume 17, article number 76, (2024) | Cite this article
Irvane E. Nelson, Kobi A. Baker, Ary Faraji, Gregory S. White & Christopher S. Bibbs

Parasites & Vectors
Aims and scope →

Research Projects

Non-target impact studies

Modeling/drift/deposition



Dr. Daniel Mendoza



Science of the Total Environment 955 (2024) 176848

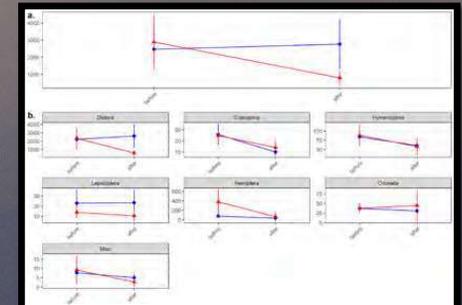
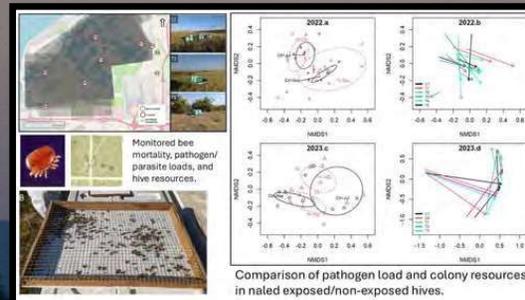
Contents lists available at ScienceDirect

Science of the Total Environment

journal homepage: www.elsevier.com/locate/scitotenv

Managed honey bees, *Apis mellifera* (Hymenoptera: Apidae), face greater risk from parasites and pathogens than mosquito control insecticide applications

Jenna Crowder,^{1*} Ilia Rochlin,¹ Christopher S. Bibbs,¹ Emily Pennock,¹ Mike Browning,² Cody Lott,² Amanda Barth,^{1,3} Gregory S. White,¹ Ary Faraji¹



Journal of the ASABE

© 2024 American Society of Agricultural and Biological Engineers ISSN 2769-3295

Where do the droplets go? Evaluating risk of aerial ultra-low volume insecticide treatments for adult mosquito management using dispersion modeling

Daniel L. Mendoza^{1,*}, Christopher S. Bibbs², M. Andrew Dewsnup², Ilia Rochlin², Gregory S. White², Jane A. S. Bonds³, Robert K. D. Peterson, Ary Faraji²

pollutants

MDPI

Review

Are Adult Mosquito Control Products (Adulticides) Harmful? A Review of the Potential Human Health Impacts from Exposure to Naled and Dichlorvos (DDVP)

Daniel L. Mendoza^{1,*}, Robert K. D. Peterson², Jane A. S. Bonds³, Gregory S. White⁴ and Ary Faraji⁴

Received: 2 June 2021 | Revised: 23 July 2021 | Accepted: 28 July 2021

DOI: 10.1002/ece2.2396

ARTICLE

Disease Ecology

Effects of aerial adulticiding for mosquito management on nontarget insects: A Bayesian and community ecology approach

Ilia Rochlin¹ | Greg White² | Nadja Reissen² | Tarun Martheshwaran^{2,3} | Ary Faraji²

Tax Increase Purpose

Consumer Price Index and Inflation

Shorter tax increase cycles & smaller %

Enhancement of aerial operations

Phase II construction



Tax Revenue, New Growth, CPI

Year	Tax Revenue	New Growth	% New Growth	% Wasatch Front CPI	Difference
2022	\$6,621,359	\$83,355	2.23	9.6	-7.37
2023	\$6,819,257	\$197,898	2.99	3.8	-0.81
2024	\$7,029,062	\$209,805	3.08	3.8	-0.72
		Total	8.3	17.2	-8.9

2021-2023: 6.6% New Growth & 19.4% CPI (-12.8%)

Aerial Operations Enhancement

Fixed wing operation in Ogden

Antiquated aircraft

Multiple transfer points

Helicopter increases accuracy, efficiency, and efficacy



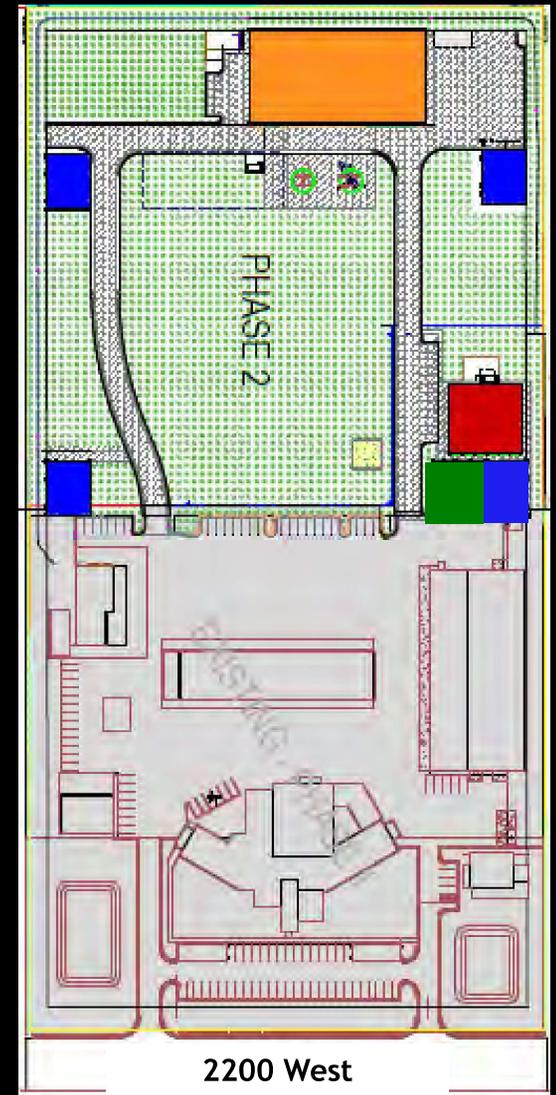
Phase II Construction

Additional Laboratory/Insectary

4 Adult Bioassay Cages (ABC's)

25 Larval Bioassay Vaults (LBV's)

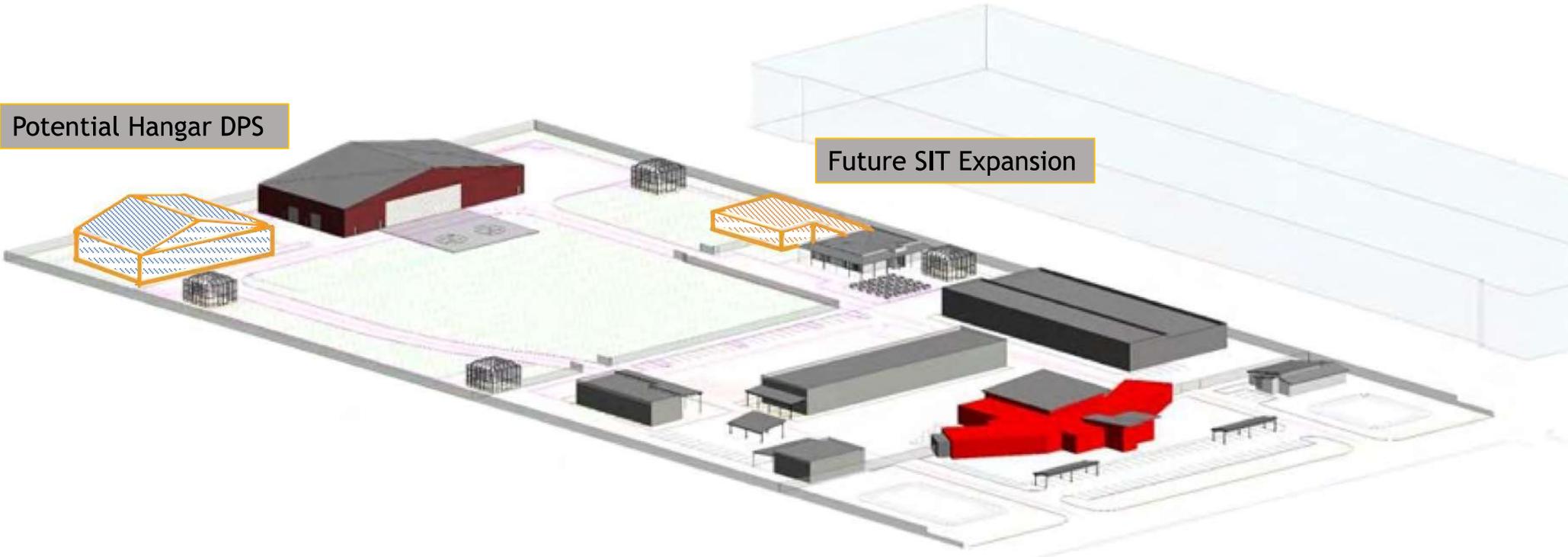
Helicopter Hangar



Phase II Construction

Potential Hangar DPS

Future SIT Expansion



Financial Advisor Forecasting



Salt Lake Mosquito Abatement District

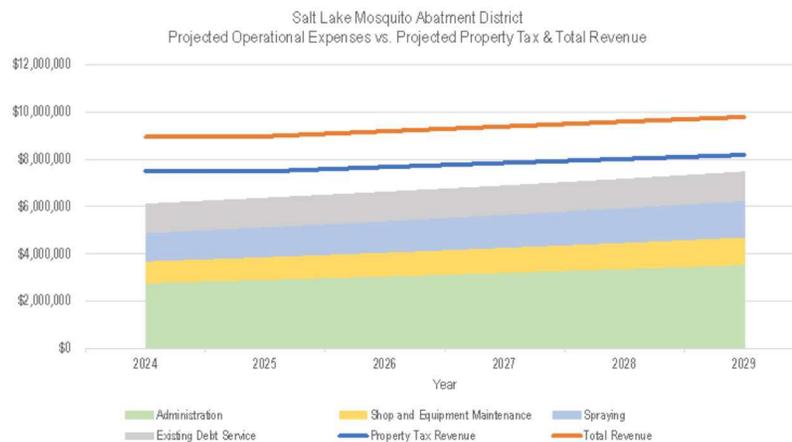
Zions Public Finance, Inc.



April 2024

Operational Considerations

Funds are well managed, yet Salt Lake Mosquito Abatement District (SLMAD) would likely require a future property tax increase regardless of its future capital program as new growth tapers.



ZIONS PUBLIC FINANCE, INC.

Scenario Analysis

Tools to achieve the vision.

Strong Fund Balance

Beneficial Interest
Income Environment

Specific Debt Tools

Salt Lake Mosquito Abatement District Scenario Analysis	Scenario 1 - Hold Funds @ PTIF, Bond for Needed Amount, Hold Interest Income @PTIF	Scenario 2 - Expend All Funds @PTIF, Bond for Remaining Amount	Scenario 3 - Hold Funds @PTIF, Bond for Needed Amount, Deploy Interest Income to SLMAD Fund	Scenario 4 - Hybrid of 2 & 3	Scenario 5 - Hold Funds @PTIF, Bond for Needed Amount, Deploy Interest Income to SLMAD Fund, Tax Increase fixed at 19.5%
Amount from PTIF Expended (\$)	\$0	\$9,000,000	\$0	\$4,500,000	\$0
New Bond Amount (\$)	\$20,000,000	\$12,000,000	\$20,000,000	\$16,000,000	\$20,000,000
Projected Tax Rate Without Increase	0.0001590	0.0001590	0.0001590	0.0001590	0.0001590
Projected Tax Rate With Increase	0.0001923	0.0001789	0.0001875	0.0001829	0.0001900
Change in Levy	0.0000333	0.0000199	0.0000285	0.0000239	0.0000310
Property Tax Rate Increase (%)	20.95%	12.50%	17.90%	15.00%	19.50%
Calculated Annual Tax Impact on \$400,000 Primary Residence (\$)	\$10.29	\$7.13	\$9.15	\$8.06	\$9.75
Calculated Annual Tax Impact on \$400,000 Primary Residence (%)	29.4%	20.4%	26.2%	23.1%	26.2%
Calculated Monthly Tax Impact on \$400,000 Primary Residence (\$)	\$0.96	\$0.59	\$0.76	\$0.67	\$0.81
New Principal and Interest Expense	\$1,534,485	\$920,691	\$1,534,485	\$1,227,588	\$1,534,485
New Revenue from Property Tax Increase	\$2,058,489	\$1,425,789	\$1,830,118	\$1,612,978	\$1,949,919
Net New Revenue	\$524,004	\$505,098	\$295,633	\$385,390	\$415,434
Interest Income Scenarios					
Avg. Ann. Interest Income Earnings on \$9M @ PTIF Assuming Rates Unchanged, No Compounding	\$495,000	\$0	\$495,000	\$247,500	\$495,000
Avg. Ann. Interest Income Earnings on \$9M @PTIF Assuming ZPF/SLMAD Scenario, No Compounding	\$368,571	\$0	\$368,571	\$187,500	\$332,100
Avg. Ann. Interest Income Earnings on \$9M @ PTIF Assuming Fed Dots, Income Reinvested, No Compounding	\$242,143	\$0	\$242,143	\$121,071	\$242,143
Total Interest Income Earnings @ PTIF Assuming Rates Unchanged, No Compounding	\$10,395,000	\$0	\$10,395,000	\$5,197,500	\$10,395,000
Total Interest Income Earnings @ PTIF Assuming ZPF/SLMAD Scenario, No Compounding	\$7,740,000	\$0	\$7,740,000	\$3,937,500	\$7,740,000
Total Interest Income Earnings @ PTIF Assuming Fed Dots, No Compounding	\$5,085,000	\$0	\$5,085,000	\$2,542,500	\$5,085,000

Legend Recommended Scenario



ZIONS PUBLIC FINANCE, INC.

Projected Annual Property Taxes

	Current 2024 Rate (0.000147)	~Proposed 2025 Rate (0.000176)	Price Increase
\$623,900 House (\$343,145 taxable value)	\$50.44 year (\$4.20 month)	\$60.39 year (\$5.03 month)	\$9.95 (\$0.83 month)
\$1,000,000 Business	\$147.00 year (\$12.25 month)	\$176.00 year (\$16.67 month)	\$29.00 (\$2.42 month)

