

Western US Floodwater Summit: Solutions for Floodwater Mosquito Control Tuesday, January 19, 2021 (PST)

Sponsored and hosted by Valent BioSciences

8:00 am Introduction - Carolina Torres Gutierrez, PhD.
Technical Development Specialist; Valent BioSciences, LLC

8:10 am “Common floodwater mosquitoes in California: the overlooked vectors?”
Presented by: Mark Novak, Supervising Public Health Biologist; California Department of Public Health, Vector-Borne Disease Section

This presentation will cover the biology and distribution of mosquito species commonly found in various floodwater ecotypes in California, with a major focus on freshwater *Aedes* species. Although most of these species have limited involvement with the transmission of human disease pathogens, adults may occur locally in large numbers and their biting can create a significant public nuisance.

Speaker Bio:

Mark received his Ph.D. in Entomology from Iowa State University. Following a post-doc at the University of Arizona Center for Insect Science he served for six years as a medical entomologist in the U.S. Navy. Mark has been with the California Department of Public Health - Vector-Borne Disease Section (VBDS) since 2000 and is the Supervising Public Health Biologist for the VBDS Northern Region.

8:30 am “Biorational Larvicides and Larviciding for mosquito control with notes on resistance management”
Presented by: Steven Su, Scientific Director; West Valley Mosquito & Vector Control District, CA

The presentation will cover larvicide resistance and an overview of active ingredients available for floodwater mosquitos.

Speaker Bio:

Dr. Steven Su has diverse experiences and achievements in management, operations and scientific development in government and academia, including supervisory Vector Ecologist and Scientific Programs Director at the West Valley Mosquito and Vector Control District (Ontario, CA. 2005-present), supervisory Biologist at Coachella Valley Mosquito and Vector Control District (Indio, CA. 2002-2005), Laboratory Manager and Research Entomologist at University of California at Riverside (Riverside, CA. 1995-2002), and Associate Professor and Director at Tropical Medicine Research Center, Henan Medical University, China (1995-1993). His career is fulfilled with over 150 publications and over 200 presentations.

8:55 am “Pyrethroid resistance in *Culex tarsalis* in regions of Northern California”
Presented by: Tara Thiemann, Associate Professor of Biological Sciences; University of the Pacific

This study looks at pyrethroid resistance in 17 *Culex tarsalis* populations across 5 counties. We assessed the prevalence of permethrin resistance using bottle bioassays, and we

explored mechanisms of resistance by testing the levels of detoxifying enzymes and by looking for the presence of the knockdown resistance (kdr) genetic mutation.

Speaker Bio:

Dr. Tara Thiemann is an Associate Professor of Biological Sciences at University of the Pacific. She was born and raised in Missouri, receiving her B.S. and M.S. in Biology at Truman State University in Kirksville, MO. She then moved to California to pursue graduate work at University of California Davis. Dr. Thiemann graduated from UC Davis in 2011 with a Ph.D. in Entomology and a Designated Emphasis in the Biology of Vector-borne Diseases. Her dissertation focused on the blood feeding patterns of the *Culex pipiens* complex and *Culex tarsalis*, two primary vectors of West Nile virus in California. At Pacific, Dr. Thiemann continues to study mosquitoes, while training both undergraduate and graduate students in her research lab. Projects include continued exploration of the blood feeding patterns of California mosquitoes, studying the transmission of dog heartworm, and characterizing insecticide resistance in local populations of *Culex tarsalis*.

9:15 am “Floodwater mosquito management in the western USA”
Presented by: Peter DeChant, Chief Executive Officer; DeChant Vector Solutions LLC (DVS)

Larval control solutions in flood plains/irrigation habitats.

Speaker Bio:

Peter DeChant has been working in the mosquito and vector control profession since 1978 when he joined Multnomah County Vector Control (Portland, Oregon) as a field technician. In 1983, he advanced to become Chief Sanitarian and managed the program until 1997 when he joined Abbott Laboratories (now Valent BioSciences LLC) Public Health Business Unit. At Valent BioSciences (VBC), he held positions of increasing responsibility in technical and commercial development of biorational mosquito control products and retired in July of 2020 from the position of Global Technical Manager. During his tenure at VBC, Peter achieved multiple patents and received the AMCA Industry Award for his contributions to mosquito control. He recently formed DVS and became certified as a Pesticide Consultant in Oregon in order to continue contributing to public health vector control on a part-time basis. Peter has been an active member of AMCA since 1987, serving as North Pacific Regional Director and on various committees. He also served as President and Executive Director of the Northwest Mosquito and Vector Control Association and is active in various other scientific societies.

9:35 am “Managed Wetland Mosquito Control Strategies”
Presented by: Marty Scholl, Ecological Management Supervisor; Sacramento-Yolo Mosquito & Vector Control District, CA

Managed wetlands are typically flooded, drained, and maintained seasonally for waterfowl habitat. This presentation will briefly describe the protocols the Sacramento-Yolo Mosquito and Vector Control District has established for sound IPM including the implementation of wetland BMPs, timing of flooding, larvicide rotation and use of UAS technologies.

Speaker Bio:

Marty Scholl is the Ecological Management Supervisor for the Sacramento-Yolo Mosquito and Vector Control District. Marty oversees the District’s BMP programs including Source Reduction, Wetland Management, Environmental Planning, Green Pool enforcement, and Unmanned Aerial Technologies (UAS).

9:50 am Break

10:00 am “Challenges of mosquito control in flood irrigated habitat”
Presented by: Matt Hutchinson, District Manager; Baker Valley Vector Control District, OR

This presentation will cover the methods Baker Valley Vector Control District uses to control mosquitoes in flood irrigated pastures & hay fields. It will discuss the ways the district applies products to control mosquitoes, working with landowners to control mosquitoes more effectively, operational challenges the district faces, and future plans to improve control efforts.

Speaker Bio:

Mr. Hutchinson has been the Manager for Baker Valley Vector Control District in Baker City, OR since 2013. He started in mosquito control with Union County Vector Control District in La Grande, OR, where he was a Seasonal Field Technician for 3 seasons. He is currently the President for the Oregon Mosquito & Vector Control Association and Oregon State Representative for the Northwest Mosquito & Vector Control Association.

10:15 am “Surveillance and Control Strategies for *Aedes squamiger* in the Coastal Region of Northern CA”
Presented by: Erik Engh, Environmental Biologist; Marin/Sonoma Mosquito and Vector Control District, CA

We will report on the Marin/Sonoma Mosquito and Vector Control District’s strategy for controlling this problematic species, including surveillance, timing of applications, materials/equipment used, source reduction work and use of GIS technology.

Speaker Bio:

Eric Engh has worked for Marin/Sonoma Mosquito and Vector Control District since 2007 in a variety of capacities including Education/Outreach, Insect Identification, and currently as Environmental Biologist. Erick has a master’s degree from the University of Florida in Entomology.

10:30 am “Enough of these *Anopheles!*”
Presented by: Stephen Ingalls, Field Supervisor; Benton County Mosquito Control, WA

The unique phenomenon of water stargrass in the Yakima River. Water stargrass creating habitat for *Anopheles freeborni*. Significant increase in *Anopheles* mosquitoes in CO2 traps. Solutions attempted: VectoBac GS applied by air (limited basis in test area), VectoBac 12 AS applied by hand sprayer from a kayak (limited basis in test area), and changes in river level. Coordination with other governmental agencies to secure funding for a harvester to remove the stargrass from the river in selected areas.

Speaker Bio:

Steve Ingalls is the current Field Supervisor with Benton County Mosquito Control District and has been involved in public health specializing in mosquito control for 40 years with experience in all aspects of mosquito control including mosquito biology and control utilizing ground and aerial applications of mosquito larvicides and adulticides. Also well versed in administration of mosquito control programs. He is the former Manager of Benton County Mosquito Control District in West Richland, Washington and Yakima County Mosquito Control District in Yakima, Washington. Previous positions with Benton

County include, Control Operator, Field Supervisor/Chief Pilot and Manager. Steve was a former employee of Clarke Mosquito Control in various positions including, Control Consultant, Distributor Coordinator and Regional Manager. In addition, Steve was a former employee of Valent BioSciences in the position of Technical Sales Specialist.

- 10:45 am “Placer Mosquito & Vector Control District’s UAS program”
Presented by: Jacob Hartle, Operations Manager and Scott Schon, Lead Vector Control Technician; Placer Mosquito Abatement District, CA

Speaker Bio:

Jacob Hartle, Operations Manager at Placer MVCD, has over 10 years of experience in mosquito and vector control in both the private and public sectors. During this time, he has worked on product development, the calibration and characterization of pesticide application equipment ranging from backpack sprayers to aircrafts and currently manages both surveillance and field operations teams. All his work is dedicated to keeping the public safe from mosquito borne diseases.

Speaker Bio:

Scott Schon, Lead Vector Control Technician, and one of the Unmanned Aircraft Systems (UAS) Operators for Placer Mosquito and Vector Control District, has over 10 years of experience in mosquito control, including work in Fisheries, as well as the District’s UAS Program. He has played a key role in integrating and evaluating UAS technology in mosquito control for the last 4 years.

- 11:05 am “Technical Challenges and Solutions for Low Rate Applications”
Presented by: Banugopan Kesavaraju, PhD., Global Technical Manager, Valent BioSciences, LLC

Technical challenges of delivering low rate applications with consistency and the solutions to those equipment challenges.

Speaker Bio:

Dr. Kesavaraju holds a Doctoral degree in Biology specializing on invasion biology of *Aedes albopictus* from Illinois State University and is currently working with Valent Biosciences as Technical Manager managing field research for both new and existing products. Before joining Valent Biosciences, he worked at Salt Lake City Mosquito Abatement as an Assistant Manager overseeing laboratory and operational control. His postdoctoral training was with Rutgers University aiding in research on *Aedes albopictus* operational control.

- 11:20 am “From Skeptic to True Believer”
Presented by: Andrew Sage, Franklin County Mosquito Control, WA

Drone applications of MetaLarv SP-T for larval control in wetlands

Speaker Bio:

Andrew Sage has 9 years of experience with Franklin County MCD. Starting out as a field technician for 4 of those years, then becoming a full time member of FCMCD, controlling and managing FCMCD's immense wetlands. In 2019 FCMCD considered the use of drones to supplement a rising cost in aerial application with traditional fixed wings, by implementing their own Aerial Operations Unit with the use of UAV's. FCMCD Director Dave Dorsett and Andrew created FCMCD's Aerial Unit, which became fully operational in 2020; Andrew is the Lead Unmanned Aerial Systems (UAS) Pilot in Control (PIC).

11:35 am Panel Discussion/Open Q and A (All Speakers)

11:55 am Closing remarks - Carolina Torres Gutierrez, PhD.
Technical Development Specialist; Valent BioSciences, LLC