

## 2021 Annual Report

### Moab Mosquito Abatement District

#### **2021 Year in Review:**

The 2021 year held some challenges but also some new and exciting changes. The new District Manager, Dr. Michele Rehbein, began her role at the abatement district in early May. The mosquito season started off slow with low mosquito numbers due to dry and drought-like conditions, however halfway through the field season, Moab experienced some heavy rain increasing mosquito populations.

The District continued its surveillance program trapping weekly for adult mosquitoes along with larval inspections and an addition of oviposition traps for mosquito egg surveillance. Near the end of August, the invasive *Aedes aegypti* mosquito was trapped in a tire yard for the first time since 2019, then continued to be collected around residential homes through the beginning of October. The *Ae. aegypti* mosquito is a highly invasive mosquito originating from Africa with the ability to transmit serious diseases including dengue, chikungunya, Zika, and yellow fever viruses. The District crew worked tirelessly to educate the community about the significance of reducing this mosquito and preventing it through Integrated Mosquito Management (IMM) approaches.

Mosquito numbers overall increased in late August due to flash flooding and heavy rain in the Moab area which continued into September. However, after testing numerous mosquito pools collected for West Nile virus (WNV) throughout the season, there were no WNV positive pools detected during 2021.

In 2021, Dr. Rehbein began to focus and work on educational opportunities for the abatement district to share and collaborate with others and she hopes to further this in 2022. The abatement district was invited to participate in the annual Moab Festival of Science in the fall of 2021. The abatement district shared information with kids and families on mosquito ecology, surveillance, prevention, and arboviruses through their booth in the festival. The mayor of Moab also invited Dr. Rehbein to speak and present at a city council meeting on mosquitoes and their prevention. Dr. Rehbein was approached by Science Moab to participate in their Science on Tap event in the winter and be a part of their novel School to Science program for 2022. Through the program, the abatement district will be paired with the Grand County high school and Dr. Rehbein will serve as a mentor scientist to high school students.

Some of the District staff also attended the annual Utah Mosquito Abatement Association conference which took place in Park City, Utah in the fall. Dr. Rehbein presented on her past research and the appearance of *Ae. aegypti* in Moab. There were many new connections made and the District staff brought back fresh ideas for the next season.

#### **Integrated Mosquito Management:**

The Moab Mosquito Abatement District follows an Integrated Mosquito Management (IMM) program which includes education and prevention, cultural, physical and mechanical controls,

biological control, and chemical control. The District operates under the UPDES permit number UTG-170000. The District treatment area consists of a 25 mi<sup>2</sup> boundary encompassing downtown Moab, residential and rural areas, and the Matheson Wetlands Preserve. Mosquito treatment applications began March 22, 2021 through October 11, 2021. Presented in the tables below are mosquito treatment applications throughout the 2021 mosquito season:

**Table 1. Larvicide treatments in 2021.**

Pesticide Name	EPA Registration #	Quantity	Unit	# of Treatments	Area Treated (acres)	Application Method
BVA	70589-1	63	gallons	145	30.19	Ground
VectoBac CG	73049-19	69.1	pounds	33	10.42	Ground
VectoPrime	73049-501	451.48	pounds	136	85.65	Ground
Duplex-G	89459-93	148.9	pounds	24	10.82	Ground
Altosid P-35	89459-95	78.88	pounds	29	9.01	Ground
Natular G30	8329-83	3.75	pounds	1	0 (tires)	Ground
Altosid XRG	2724-451	1	briquets	1	0.056	Ground

**Table 2. Adulticide treatments in 2021.**

Pesticide Name	EPA Registration #	Quantity	Unit	# of Treatments	Area Treated (acres)	Application Method
Biomist 30-30	8329-42	0.25	gallons	1	5.26	Ground
Biomist 4+4	8329-35	402	ounces	2	13.52	Ground

A majority of mosquito pesticide treatments were done using larvicides, many consisting of naturally occurring bacteria (i.e., *Bacillus thuringiensis israelensis*), other physical and source reductions, and education and prevention. As a last resort, adulticide treatments were conducted to target the invasive *Ae. aegypti* mosquito, consisting of ULV (ultra-low volume) truck applications and barrier sprays using handheld equipment, and were small, localized areas specifically targeting *Ae. aegypti*.