



2018 Annual Report Beaver Creek Metro District Mosquito Control Program



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**Beaver Creek Metro District
Mosquito Management Operations**

Annual Report For 2018

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VDCI's Commitment

VDCI has completed its third year of operations in Colorado after the acquisition of Colorado Mosquito Control. We have followed the same mission as a company built on the foundations of public health, ethics, professionalism, and technical expertise. We are committed to providing our customers with scientifically based, environmentally sensitive and technologically advanced Integrated Mosquito Management (IMM) programs of the highest quality. All of our employees are committed to excellence in vector control and public health and always strive to improve the quality of human life in our communities through public education and the control of mosquitoes and the diseases they can transmit. VDCI currently has programs across the state of Colorado, Idaho, Utah, and the entire Southeast United States. We provide services for towns, cities, counties, homeowners associations, Indian reservations, and encephalitis surveillance monitoring programs for county health departments.

VDCI, as the contractor for the Beaver Creek Metro District, will continue to use scientifically established Integrated Mosquito Management techniques to survey and control local mosquito populations using bio-rational larval controls and limited low-toxicity insecticide applications. All of the methods and materials used have been reviewed and registered by the US Environmental Protection Agency, the Centers for Disease Control, the Colorado Department of Agriculture and the American Mosquito Control Association.

Program Objectives

VDCI completed its 3rd year of cost effective Integrated Mosquito Management (IMM) for Beaver Creek Metro District. The primary objective of Beaver Creek Metro District IMM Program is to reduce nuisance mosquito populations through the use of specific, environmentally sound, control techniques. An integral component of the program is the detection and elimination of larval mosquitoes in aquatic habitats. If this objective is met we do not have to spray pesticides for biting adults. If we have adults exceed a threshold population we control them with routine barrier applications or truck spraying.

Open communication is maintained between Beaver Creek Metro District managers and VDCI in order to ensure that the highest level of mosquito control and epizootic response is achieved for these two adjacent programs. This communication is important to the Beaver Creek Metro District mosquito management program and provides significant benefits to outdoor recreation and public health throughout the entire control area.

2018 Season Perspective

The summer of 2018 was initially forecasted to have low mosquito activity. This prediction was based on the lack of snow throughout the winter leading to low runoff. However, the warm temperatures and minimal amounts of water still produced a great deal of mosquitoes. The effective irrigation practices in Beaver Creek also played a role in consistent mosquito larvae emergence.

Typically, the mosquitoes begin to emerge in late April and May. In 2018, however, the below average precipitation and warm early season temperatures started the process in early May. These conditions accelerated the initial hatch several weeks. There were many larvae observed along Beaver Creek during the weekly early season visits to Beaver Creek Metro District. When temperatures finally increased in June mosquito larvae really began to emerge. These factors coupled with the consistent watering, and intermittent rain led to unusually high mosquito emergence. This trend continued throughout the summer. Several weeks of rain would be followed up with a week of very high temperatures. This cycle led to a consistent mosquito emergence throughout Beaver Creek.

Larval Mosquito Control

Larval mosquito control can be achieved in several ways including biological, biochemical, chemical, and mechanical means. No single larvicide product will work effectively in every habitat where mosquito larvae are found, thus a variety of products and methods should be employed. Additionally, although there are a variety of methods for reducing larval populations, some may have negative consequences that outweigh their benefits. Mechanical or physical habitat modification, called Source Reduction, is a technique which VDCI uses on relatively small scale projects, as the area to be modified and the extent to which the work will affect the surrounding area must be carefully reviewed. True biological controls, such as the introduction of predacious animal species, can also cause negative environmental impacts that outweigh the benefit of their control capacity.

The ideal method for larval mosquito control is through the use of bacterial bio-rational products. The main product used by VDCI is a variety of bacteria (*Bacillus thuringiensis var. israeliensis*). *Bti*, as it is known, has become the cornerstone of mosquito control programs throughout the world. The benefits include its efficacy and lack of environmental impacts. When used in accordance with its label, successful control of mosquito larvae can be achieved without impact to non-target species such as other aquatic invertebrates, birds, mammals, fish, amphibians, reptiles, or humans. A broad label allows for the use of the product in the majority of the habitats throughout the service area. Another bacterial product closely related to *Bti* is *Bacillus sphaericus (Bs)*. *BS* provides similar benefits to *Bti* while also providing residual control of certain species of mosquitoes.

Larval mosquito control is the cornerstone of the IMM program for Beaver Creek Metro District. It reduces the number of potential disease vectors and annoyances associated with biting adults. It also greatly reduces the reproductive potential of the mosquito as they never have the opportunity to lay eggs and increase the overall population.

VDCI began larval site inspections in many low elevation areas in early April. These sites are the historical breeding sites along Village Road, Beaver Creek itself, the golf course ponds, and melt pools and seeps throughout the metro district. Very few larvae were found during the early season inspections. As alluded to earlier, significant numbers of larvae were not observed until early June when temperatures increased enough to warm the water. At this time all of the breeding sites throughout Beaver Creek were producing several broods at once. This was a result of the typical early season species not having the opportunity to emerge as conditions were not ideal. The result was very heavy initial emergence.

In 2018, VDCI performed 91 larval site inspections. More sites than the past 2 years were producing mosquito larvae in the Beaver Creek Metro District. VDCI visited Beaver Creek Metro District VDCI 13 times throughout the season. During these site visits the field technicians applied 65 lbs. of VectoBac (Bti) to 8 acres of sloughs, melt pools, and other breeding sites around Beaver Creek Metro District.

The main problem areas were the sloughs and depressions adjacent to Village Road, and the golf course ponds. These large, inundated areas were treated for larvae on a weekly basis. The field technicians routinely observed several hundred larvae/dip in this area. The other problem areas were the barrow ditches along the roads, and the variety of low spots that hold water. There were also several breeding sites along the Townsend Ditch that were consistently wet and producing mosquitoes throughout the summer.

ADULT MOSQUITO CONTROL

The goal of VDCI is to provide all residents of the Beaver Creek Metro District program with the best options for effective modern mosquito management. The primary emphasis of the Beaver Creek Metro District Mosquito Management Program is to control mosquitoes in the larval stage, using biological control products. There were two complaints received from Beaver Creek residents along when we were working along Village Road. We placed barriers along a few of the greens on the golf course and 2 residences along Beaver Creek. Due to increased larval control effort we did not have to conduct any adulticide applications within Beaver Creek in 2018.

Public Relations and Education

VDCI is dedicated to providing strong Public Outreach and Education Programs to residents in all of our communities. Citizen complaints, inquiry, information and satisfaction surveys can aid in evaluating the effectiveness of a program. We constantly look for ways to better serve the communities we work with and encourages both the citizen and local media involvement in order to increase the effectiveness of our programs. We have clearly demonstrated that commitment and belief by proactively serving the Beaver Creek Metro District (and all of our contracted communities) with numerous innovative programs, activities and services.

Customer service is always a high priority for VDCI. We take pride in training each and every technician so that they have the knowledge to provide residents with the correct answers to their questions. Each field technician spends part of their day responding to resident concerns in their work area. This in-field customer service personalizes the mosquito control program, provides VDCI with local information on mosquito activity and presents a valuable opportunity to educate our residents about mosquito biology and control.

MosquitoLine™

We maintain a toll-free telephone line: (877) 276-4306 and local lines at 970-962-2582 and 970-663-5697 (at no cost to the customer) to accept calls from the public concerning:

- * Information about mosquito biology and source reduction of mosquito habitats

- * information on program components, operations and monitoring
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- * Seasonal West Nile virus activity
- * Personal protection options for mosquito annoyances and West Nile virus risk
- * Reports about mosquitoes and possible larval mosquito habitats
- * Requests to perform larvicide applications
- * Opt-out of any adulticide spraying via a shut-off list
- * Request notification when adulticide spraying is planned in their neighborhood
- * Request health and safety information about mosquito control operations and pesticide products used in the Beaver Creek Metro District

VDCI has provided Mosquito Hotlines to the residents in communities which we are contracted to also reduce workload by municipal personnel. This enables direct communication and response by mosquito control employees to resident's concerns about West Nile virus and larval site activity and treatment.

CALL NOTIFICATION & SHUTOFF SYSTEM

VDCI continues to maintain a comprehensive Call Notification & Shutoff database and will notify residents on the list when conducting ULV adulticide spray applications within 2 blocks of their property or within the effective ULV spray drift distance (300-500 ft depending on wind speed and direction). All Shutoff locations are mapped in ArcView GIS. Call & Shutoff forms are available online and may be submitted via mail or email.

Summary

VDCI feels the 2018 mosquito control program for Beaver Creek Metro District was a success. The season presented unusual challenges with the late arrival of summer and abundance of water throughout the program area. VDCI managed the mosquitoes by greatly increasing the larval control efforts. The main increase in larval control efforts was along Beaver Creek, Beaver Creek Rd. Village Road.

VDCI looks forward to providing Beaver Creek Metro District with mosquito control in 2019.

