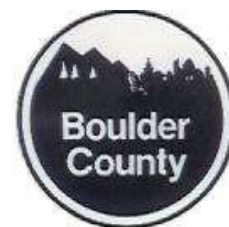


Boulder County Mosquito Control District Integrated Mosquito Management Program 2018 Annual Report

Prepared for and in Cooperation with:

Boulder County Mosquito Control District

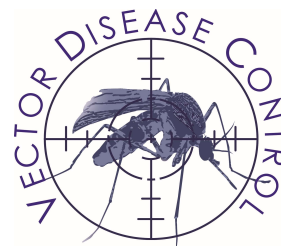
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October 2018

Boulder County Mosquito Control District Integrated Mosquito Management Program

2018 Annual Report

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Program Objectives

Boulder County Mosquito Control District (BCMCD) and Boulder County Public Health Department (BCPH) contracted Vector Disease Control International, LLC (VDCI) to operate an Integrated Mosquito Management (IMM) program in 2018. The primary objective of BCMCD's IMM Program is to monitor and reduce mosquito populations through the use of environmentally sound control techniques in order to protect its residents from the threat of mosquito-borne diseases and suppress local populations of nuisance mosquitoes. VDCI prioritizes the detection and elimination of larval mosquitoes in aquatic habitats, in conjunction with the monitoring of adult mosquito populations through routine surveillance, in order to assess West Nile virus vector species abundance in the area.

Open communication is maintained by VDCI between the BCMCD, residents, HOAs, Property Management Companies, County and State Departments of Health & Environment, and surrounding municipalities in order to ensure that the highest level of mosquito control and epizootic response is achieved. This diligent and cooperative communication is important to the Boulder County Mosquito Control District mosquito management program and provides significant benefit to public health throughout the entire area.

VDCI's Commitment

Vector Disease Control International is a company built on the foundations of public health, ethics, professionalism, and technical expertise. VDCI is 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 strive to improve the quality of human life in communities through public education and the control of mosquitoes and the diseases they can transmit. VDCI currently has programs across the state of Colorado, providing services for towns, cities, counties, homeowners associations, and encephalitis surveillance monitoring programs for county health departments.

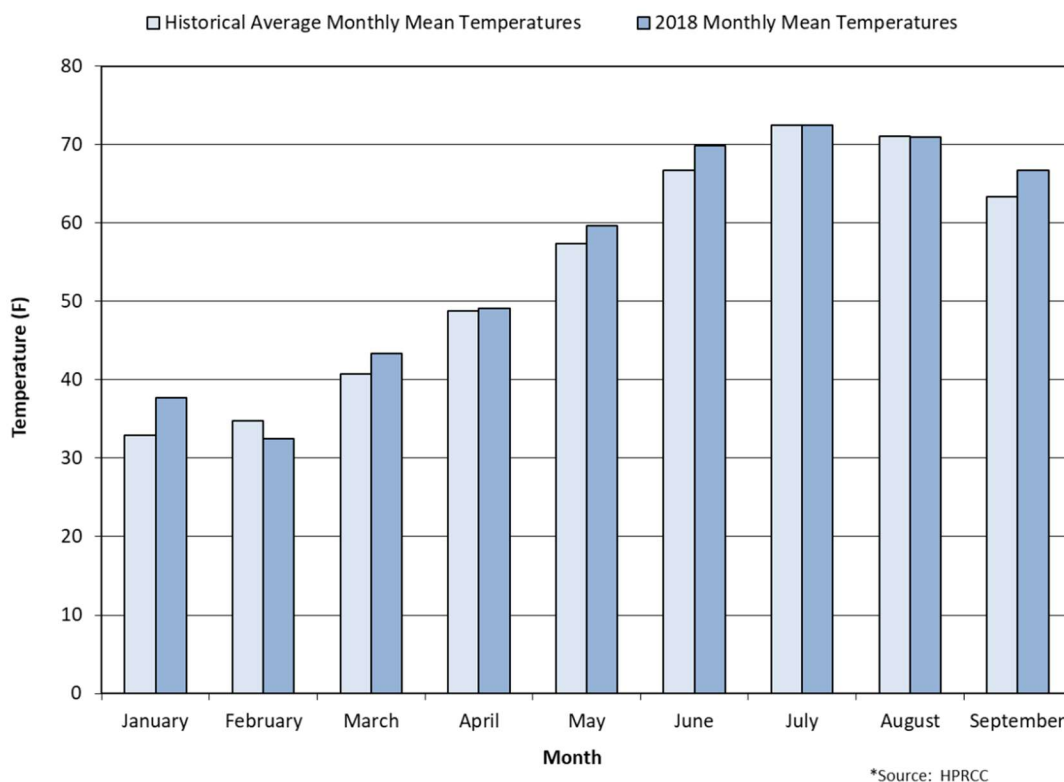
Vector Disease Control International, as the contractor for the Boulder County Mosquito Control District, will continue to use proven scientific Integrated Mosquito Management techniques to survey and control local mosquito populations using biorational larval controls and limited low-toxicity insecticide 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.

2018 Season Perspective and Climate Data

At VDCI we have come to expect each Colorado summer to present a unique set of temperature, precipitation, irrigation, and human interactions that combine to create new and different challenges in both mosquito control and mosquito-borne disease proliferation. Boulder County is located in a semi-arid environment with elevations in the BCMCD ranging from approximately 4,900 feet to 5,500 feet above sea level. The typical mosquito season for the BCMDC is from late April to September. Current and historical climate data from the National Oceanic Atmospheric Administration's (NOAA) High Plains Regional Climate Center's (HPRCC) Boulder, Colorado weather station was used to monitor regional temperature and precipitation patterns throughout the season.

In 2018, every month of the mosquito season, except February, had temperatures at or above normal (**Figure 1**). The months of January, June and September experienced the highest deviation from average, +4.8, +3.2 and +3.4 degrees respectively, during the year while March and May were +2.3-2.6 degrees higher than average. April and July had mean monthly temperatures that were at or near average, while February and August were slightly below or at average. Overall, the 2018 season was approximately two (2) percent warmer than the previous year.

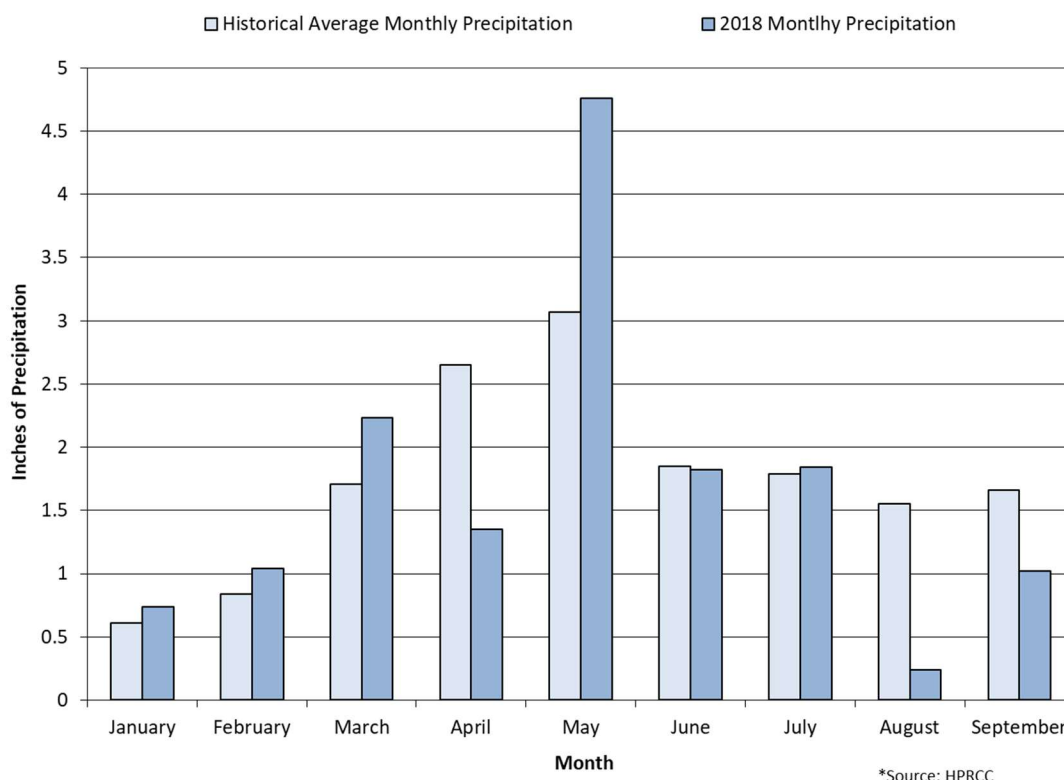
Figure 1 2018 Monthly Mean Air Temperature and Historical Averages



The historical averages for monthly mean precipitation indicate that April, May and June are usually the wettest months of the year. During 2018, the accumulated precipitation from January through September was lower than the historical average for the same period with a total of 15.04 inches (**Figure 2**). This is approximately 4.4 percent less precipitation than the historical average of 15.73 inches. The most significant variation during the mosquito season was the month of May which received 55 percent more than (4.76 inches) the average (3.07 inches) amount of precipitation, making it the wettest month

of 2018. By contrast, August received approximately 15.5 percent of its normal precipitation, making it the driest month of the mosquito season in 2018.

Figure 2 2018 Monthly Total Precipitation Data and Historical Averages*



The overall decrease in precipitation and continuous above normal temperatures during the 2018 mosquito season likely caused mosquito larvae to develop at a much faster rate which influenced both the nuisance and vector mosquito populations. While a drier than usual August, coupled with a warmer season presumably caused the elevated abundance of *Culex* species mosquitoes experienced throughout much the of the 2018 mosquito season, it also allowed for lower than average levels of West Nile virus to be detected throughout the area.

West Nile Virus Season

Since the introduction of West Nile virus to the United States in 1999, the virus has made a complete westward expansion to the West Coast. Starting in the Northeastern parts of the United States, the virus steadily spread through the South, the Midwest, the Rocky Mountain region and to the Western States. This extensive distribution is due to the ability of WNV to establish and persist in the wide variety of ecosystems present across the country. WNV has been detected in 65 different mosquito species in the U.S., though it appears that only a few *Culex* species drive epizootic and epidemic transmission (WNV Guidelines CDC 2013). Although West Nile virus has been endemic to the United States since 1999, researchers continue to seek an understanding for some of the factors which contribute to region specific spikes in vector abundance and human risk. We still do not understand why some humans develop West Nile fever while other infections develop into more serious West Nile encephalitis or West Nile meningitis cases. Additionally, physicians and researchers continue to seek answers to the variable recovery times and occurrence of deaths that result with some infections. WNV has expanded to the

point that it can now be found in all 48 contiguous states and has produced two additional, large nationwide epidemics in 2003 and 2012 (WNV Guidelines CDC 2013).

As of October 2nd, 2018, a total of 44 states and the District of Columbia have reported West Nile virus infections in people, birds, or mosquitoes in 2018 (**Figure 3**). Overall, 1,611 cases of West Nile virus disease in humans have been reported to CDC. Of these, 933 (58%) were classified as neuroinvasive disease (such as meningitis or encephalitis) and 678 (42%) were classified as non-neuroinvasive disease (**Figure 4**) and a total of 68 deaths have resulted from these infections.

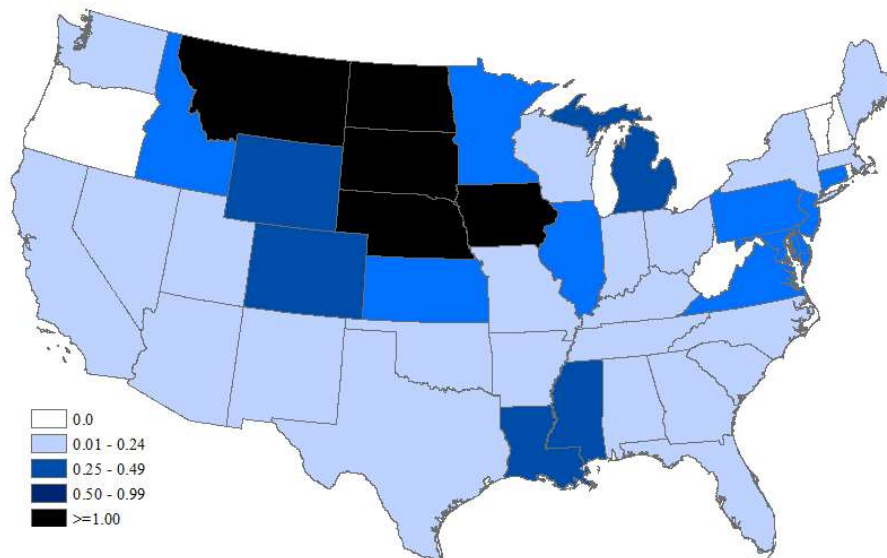
Figure 3 West Nile Virus Activity by State – United States, 2018 (as of October 2nd, 2018)*

*CDC image <https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2018/activitybystate2018.html>



Figure 4 West Nile Virus Neuroinvasive Disease Incidence by State – United States, 2018 (as of October 2nd, 2018)*

*CDC image <https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2018/incidencestate-2018.html>



This map shows the incidence of human West Nile virus neuroinvasive disease (e.g., meningitis, encephalitis, or acute flaccid paralysis) by state for 2018 with shading ranging from 0.01-0.24, 0.25-0.49, 0.50-0.99, and greater than 1.00 per 100,000 population.

Colorado 2018

As of October 5th, 2018, the Colorado Department of Health and Environment has identified 78 cases of human West Nile virus (WNV) infections in Colorado (**Figure 5**). The CDC reports only 73 cases as of October 2nd, 2018 with 4 (5%) asymptomatic blood donor, 36 (47%) neuroinvasive cases including symptoms of meningitis or encephalitis (including meningoencephalitis), and 37 (48%) non-neuroinvasive which includes cases where individuals are non-symptomatic or present with fever and other minor symptoms (**Figure 6**). There has been one death (**Figure 6**) associated with West Nile virus infections from an undisclosed location in Colorado during the 2018 season. The discrepancy between CDPHE data and CDC data is likely due to lag time in the communication between these entities.

Figure 5 Weekly WNV Human Case Count, 2002-2018 (2003 suppressed)*

*CDPHE image <https://www.colorado.gov/pacific/cdphe/west-nile-virus-data>

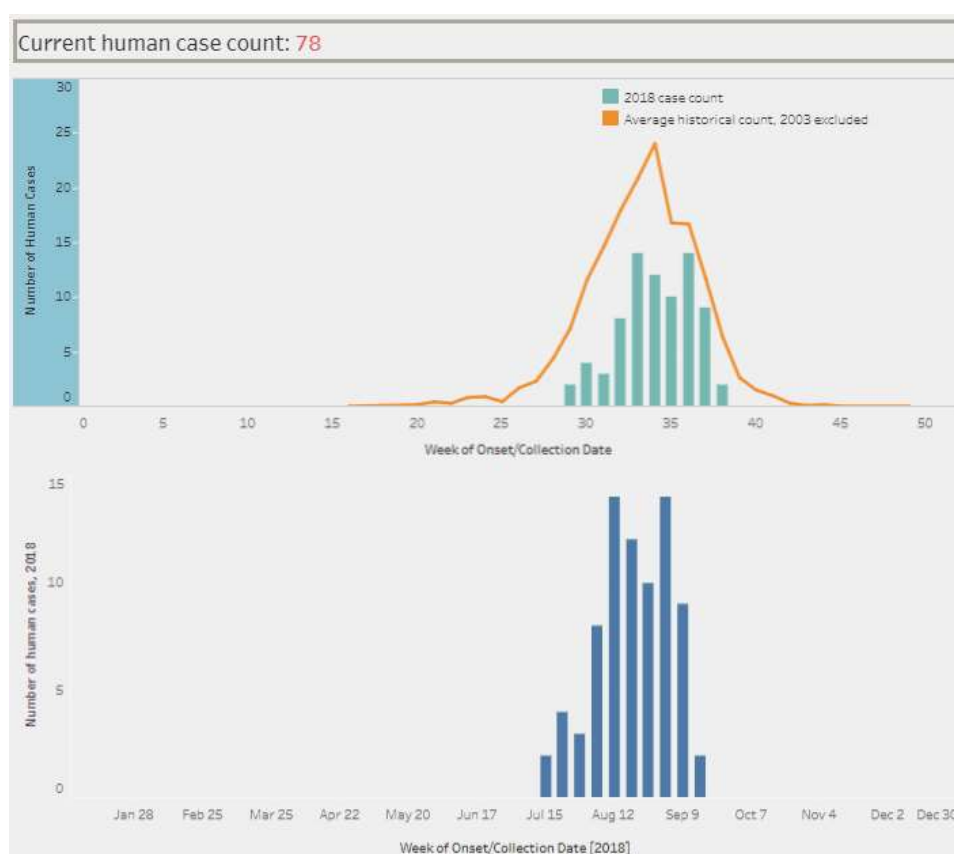


Figure 6 West Nile Virus Disease Cases and Presumptive Viremic Blood Donors by State – United States, 2018 (as of October 2nd, 2018)*

State	Neuroinvasive Disease Cases†	Non-neuroinvasive Disease Cases	Total cases	Deaths	Presumptive viremic blood donors‡
Colorado	36	37	73	1	4

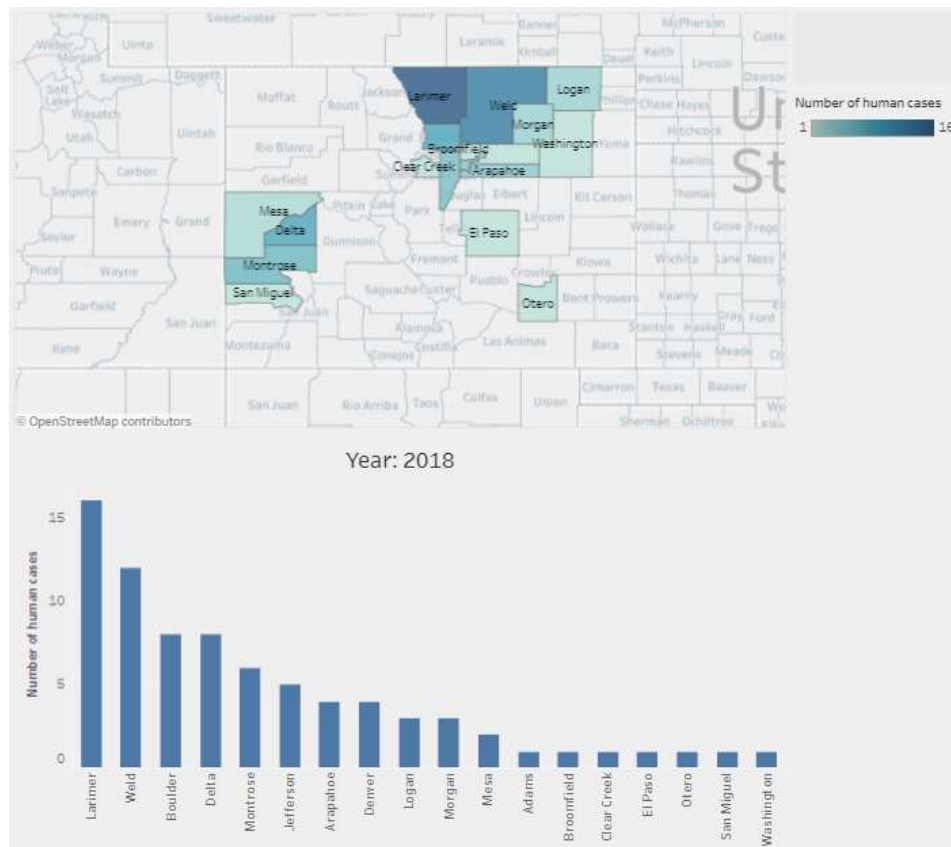
*CDC image <https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2018/disease-cases-state-2018.html>

Boulder County 2018

CDPHE data currently ranks Boulder County 3rd in the number of West Nile virus human cases in the state (8 cases), while Larimer County has reported the most human cases (16) followed by Weld County with 12 (Figure 7).

Figure 7 Colorado WNV Human Cases by County, 2018*

*CDPHE image <https://www.colorado.gov/pacific/cdphe/west-nile-virus-data>



Adult mosquito surveillance data, submitted mosquito pools, and the resulting WNV infection rates were used by BCPH throughout the season to calculate Vector Index (VI) levels in order to help BCMCD officials determine local areas of concern for public awareness and safety. The VI is a tool used by health officials that takes into account the presence and density of *Culex* mosquitoes and their WNV infection rates, resulting in an early indicator for the risk of human WNV infection. Once the VI reaches levels above 0.75, state and local health departments typically recommend communities take additional action to control both larval and adult mosquitoes, increase public awareness, and encourage personal protection measures.

The actual 2018 weekly Vector Index rates, as calculated by BCPH, for sentinel zones 1, 2 and 3 are illustrated below (Table 1). Due to below average WNV activity in 2018, no widespread emergency spraying was conducted within BCMCD during the 2018 mosquito season.

Table 1 Vector Index, Boulder County Sentinel Zones 1 - 3, 2018

Boulder County Vector Index 2018 ¹			
	Sentinel Zone 1 ²	Sentinel Zone 2 ³	Sentinel Zone 3 ⁴
Season Week	Vector Index	Vector Index	Vector Index
Week 21	----	----	----
Week 22	----	----	----
Week 23	----	----	----
Week 24	0.00	0.00	0.00
Week 25	0.00	0.00	0.00
Week 26	0.00	0.00	0.00
Week 27	0.00	0.00	0.00
Week 28	0.00	0.00	0.00
Week 29	0.00	0.00	0.01
Week 30	0.00	0.11	0.13
Week 31	0.01	0.00	0.48
Week 32	0.02	0.38	0.44
Week 33	0.03	0.20	0.19
Week 34	0.19	0.00	0.00
Week 35	0.00	0.00	0.00
Week 36	----	----	----
1. Reported by BCPH as of September 14, 2018			
2. City of Boulder; 3. Longmont; 4. Erie, Lafayette, Louisville, Superior			

Larval Mosquito Control

Larval mosquito control is the foundation of the Boulder County Mosquito Control District's Mosquito Control program and can be an extremely effective way to manage mosquitoes, thereby reducing the number of potential disease vectors and annoyances associated with biting adults. Years of research and practical experience have shown that the most effective way to control mosquito populations is through an aggressive Integrated Mosquito Management (IMM) approach. This approach aims at using a variety of concepts, tools, and products to reduce mosquito populations to a tolerable level.

Pre-season larval control work involved ground truthing GIS maps, remapping areas where new development and altered landscapes occurred. VDCI began larval site inspections in many areas in May. Hiring of seasonal field technicians began in March and continued into May. VDCI's Annual Field Technician Classroom Training Day took place on May 21st with over 60 new and returning field technicians in attendance. Field training by VDCI management and veteran employees lasted through May and full time field activities were in force by early June.

In 2018 Vector Disease Control International performed 12,697 larval site inspections at 1,921 documented breeding sites throughout the District. Of these individual inspections, 8,618 sites (67.9%) were wet upon inspection and 2,711 (31.5%) were producing mosquito larvae in the Boulder County Mosquito Control District. These inspections resulted in 2,678 treatments in which VDCI applied 2,129.5 lbs. of VectoBac G (*Bti*), 372.1 lbs. of Vectolex FG (*Bs*), 3.6 lbs of Vectolex WDG (*Bs*), 1.1 oz Altosid XR-G (S-Methoprene), and 118.7 gallons of BVA 2 larvicide oil (**Table 2; Figures 8 and 9**) to 385 acres of land within the Boulder County Mosquito Control District.



By comparison, in 2017 VDCI performed 12,329 larval site inspections at 1,921 documented breeding sites throughout the District. Of these individual inspections, 7,100 sites (58%) were wet upon inspection and 1,851 (26%) were producing mosquito larvae in the Boulder County Mosquito Control District. These inspections resulted in 1,851 treatments in which VDCI applied 4,025.2 lbs. of VectoBac G (*Bti*), 31.6 lbs. of Aquabac 200g (*Bti*), 96.8 lbs. of Vectolex FG (*Bs*), 5.2 lbs of Vectolex WDG (*Bs*), 12.3 lbs of Spheratax SPH (*Bs*), 1 Altosid XR briquet, and 76.7 gallons of BVA 2 larvicide oil (**Table 2 and Figure 9**) to 515 acres of land within the Boulder County Mosquito Control District.

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, so 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 is a technique which VDCI uses on relatively small scale projects, as the area to be modified must be carefully reviewed.



VDCI's favored method of 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. The 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. It is used specifically in difficult to treat areas where *Culex* larvae are the predominant species due to its limitations and high cost.

Other larval control products include the insect growth regulator S-methoprene (Altosid), and light mineral oils (BVA 2 larvicide oil). Methoprene is a synthetic version of a juvenile growth hormone in larval mosquitoes. The hormone prevents the normal development of larval mosquitoes into pupae and adults, eventually causing death. VDCI limits the use of chemical larvicides to areas with little biodiversity, such as road side ditches, or areas that chronically produce high mosquito populations. They are only used after a thorough assessment has been made of any habitat where their use is being considered. Mineral oil is the only product effective in controlling mosquito pupae and therefore is an essential tool when pupae are present.

VDCI made available predatory fathead minnows (*Pimephales promelas*) in limited habitats to serve as a biological control for mosquito larvae. Fathead minnows are a native fish species in Colorado that regularly feed off of surface-dwelling aquatic organisms, including mosquito larvae. VDCI will provide minnows to residents that have “closed system” habitats such as ornamental ponds or small farm ponds that are isolated from streams or other areas so the minnows cannot expand indiscriminately. VDCI received one request for fathead minnows in 2018, however due to high summer temperatures, transport and delivery from the supplier was not available.

Table 2 2018 Summary of Larval Control Product Applications by Type

Larval Control Product Types	2017	2018
<i>Bacillus thuringiensis israelensis (Bti)</i>		
Vectobac G (lbs) EPA Reg. #73049-10	4,025.2	2,129.5
Aquabac 200g (lbs) EPA Reg. #62637-3	31.6	-
<i>Bacillus sphaericus (Bs)</i>		
Vectolex FG (lbs) EPA Reg. #73049-20	96.7	372.1
Vectolex WDG (lbs) EPA Reg. #73049-57	5.2	3.6
Spheratax SPH (lbs) EPA Reg. #84268-2	12.3	-
S-Methoprene		
Altosid Briquet (oz) EPA Reg. #2724-375	1.0	0.0
Altosid XR -G (oz) EPA Reg. #2724-451	-	1.1
Mineral Oil		
BVA 2 Larvicide Oil (gal) EPA Reg. #70589-1	76.7	118.7

Figure 8 2018 Larval Site Inspections and Applications by Month

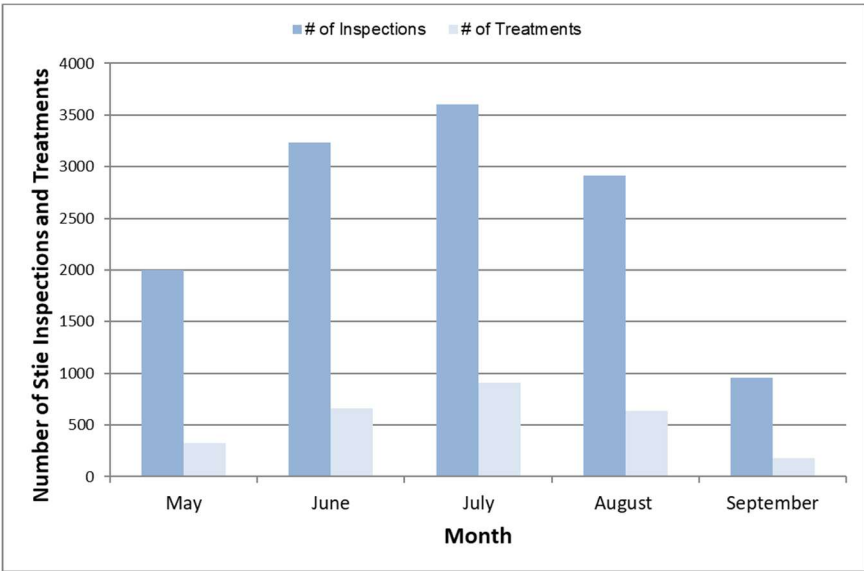
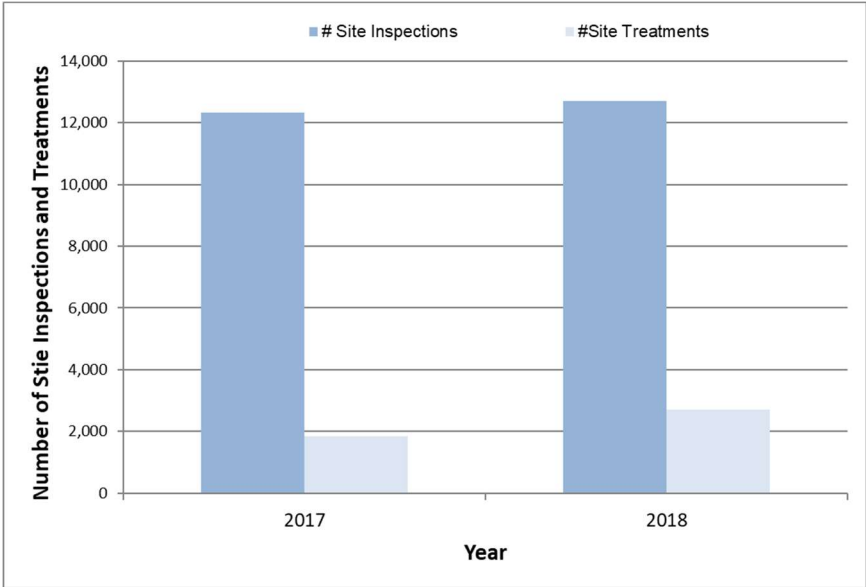


Figure 9 Comparison of Larval Site Inspections and Applications by Year



VDCI Adult Mosquito Surveillance and Laboratory




Information about mosquito abundance and species diversity is essential to any IMM program. Vector Disease Control International's most commonly used adult mosquito surveillance tool is the CDC light trap which uses carbon-dioxide from dry ice as bait to attract female mosquitoes seeking a blood meal from a breathing animal. Once attracted by the CO₂, the mosquitoes are lured by a small light to a fan that pulls them into a net for collection. Traps are set overnight at carefully selected sites with abundant harborage. They are collected the following morning and returned to VDCI's laboratory, where the contents of the trap nets are counted and speciated by trained technicians.


In 2018, Vector Disease Control International monitored a statewide network of hundreds of weekly trap sites, collecting 695,151 adult mosquitoes that were counted and identified to species by the VDCI Surveillance Laboratories. While individual traps provide current seasonal information, trap data can be interpreted in the context of historical records for the same trap site if such data is available. Individual traps are also compared to other traps from around the region that were set on the same night and therefore exposed to similar weather conditions. Technicians working in the Surveillance Laboratories at Vector Disease Control International are trained to provide accurate species-level identification of both larval and adult mosquitoes.



Additionally, the VDCI Surveillance Laboratory conducts an intensive larval identification program with larval mosquito samples collected by field technicians. This information is now invaluable in targeting mosquito control efforts as we gain a greater understanding of the habitat types preferred by Colorado mosquito species and the seasonality of these habitats as sites for mosquito development.

Specimens and data collected from these traps and larval identification are used in:

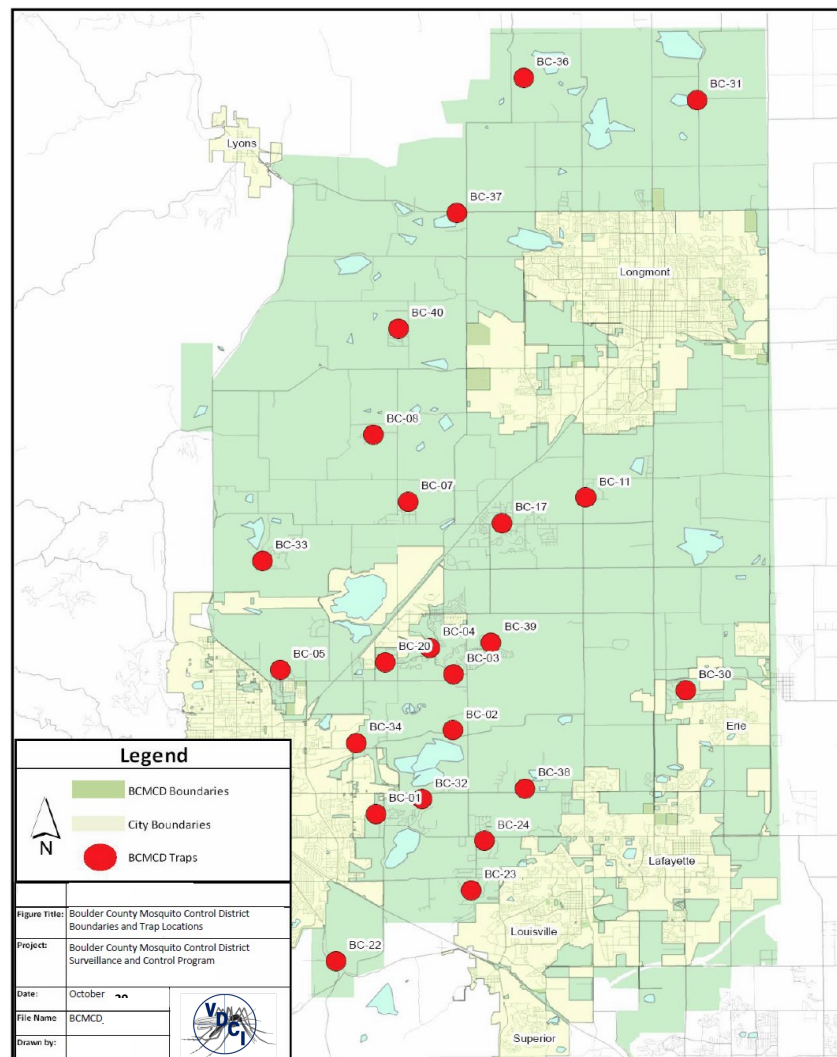
-  Determining the effect of larval control efforts. Each mosquito species prefers specific types of habitats for larval development. If a trap includes large numbers, it could indicate the presence of an unknown larval habitat and, based on the species identification and known habitat preference for that species, direct field technicians as to possible sources of the mosquitoes collected.
-  Determining larval and adult mosquito species. This helps to illustrate the threat of mosquito-borne disease amplification and transmission because different mosquito species can vector different diseases to people and animals.
-  Determining where adult control efforts were necessary. While mosquito eradication is impossible, significant population reduction is achievable. In places where larval control is insufficient, such as neighborhoods where adult mosquitoes have migrated in from outside of the control area, it may be necessary to use adulticide methods, such as ULV truck fogging or barrier sprays of harborage areas. Trap counts that exceed an acceptable threshold for an area may trigger adult control measures.

 Surveillance for Mosquito-borne Disease. Historically, VDCI efforts were targeted primarily at controlling mosquito nuisance problems with limited disease surveillance. However, since the arrival of the West Nile virus in Colorado in August of 2002, the paradigm has shifted toward disease prevention and control. Accurate species identification of the mosquitoes in the traps is important when monitoring species population trends. It also is necessary for evaluating whether a population spike represents an actual increase in disease transmission potential or only an increased nuisance level.

BOULDER COUNTY SURVEILLANCE LIGHT TRAP DATA

In 2018, an average of 23 surveillance light traps monitored adult mosquito populations within the Boulder County Mosquito Control District on a weekly basis (**Figure 10**). Early season surveillance began at select sites (8 traps) the week of May 7th. Full surveillance (23 traps) began the week of June 4th and concluded on September 10th per the Boulder County Mosquito Control District's contract and actual adult mosquito activity.

Figure 10 **2018 BCMCD Boundaries and Trap Locations**

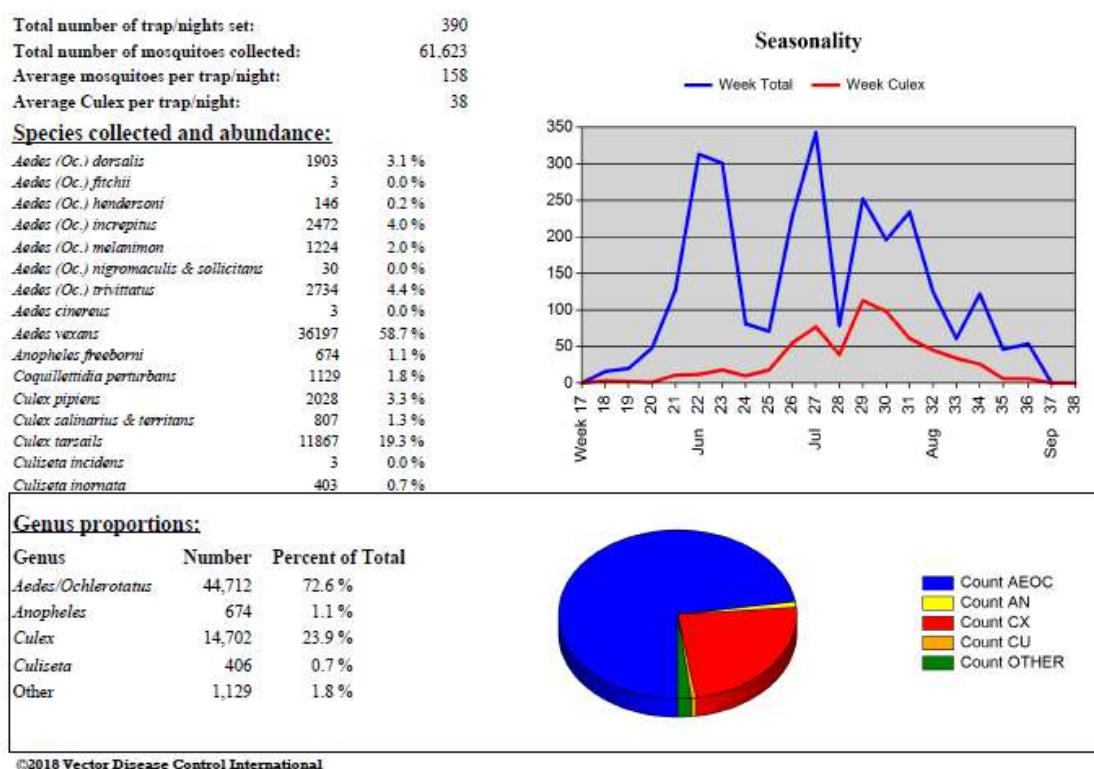


There were 390 CDC light surveillance trap nights set within Boulder County Mosquito Control District during the 2018 season. These traps collected a total of 61,623 mosquitoes. There was an average of 158 mosquitoes caught per trap per night and an average 38 *Culex spp.* mosquitoes per trap per night. The composition of mosquitoes collected was 23.9% (14,702) *Culex spp.*, 72.6% (44,712) *Aedes/Ochlerotatus spp.*, 1.8% (1,129) *Coquilleltidia spp.*, 1.1% (674) *Anopheles spp.*, and <1% (406) *Culiseta spp.* (**Figure 11**). Please refer to **Appendix A** for BCMCD Individual Light Trap Summaries.

A total of 18 species were represented in 2018 in BCMCD. No exotic/introduced species (such as Asian Tiger Mosquitoes) were collected this season.

By comparison, in 2017 there were 368 CDC light surveillance trap nights set within Boulder County Mosquito Control District. These traps collected a total of 69,957 mosquitoes. There was an average of 190 mosquitoes caught per trap per night and an average 63 *Culex spp.* mosquitoes per trap per night. The composition of mosquitoes collected was 33.3% (23,320) *Culex spp.*, 63.7% (44,597) *Aedes/Ochlerotatus spp.*, <1% (643) *Coquilleltidia spp.*, <1% (319) *Anopheles spp.*, and 1.5% (1,078) *Culiseta spp.*

Figure 11 2018 Boulder County Mosquito Control District Light Trap Composite Data

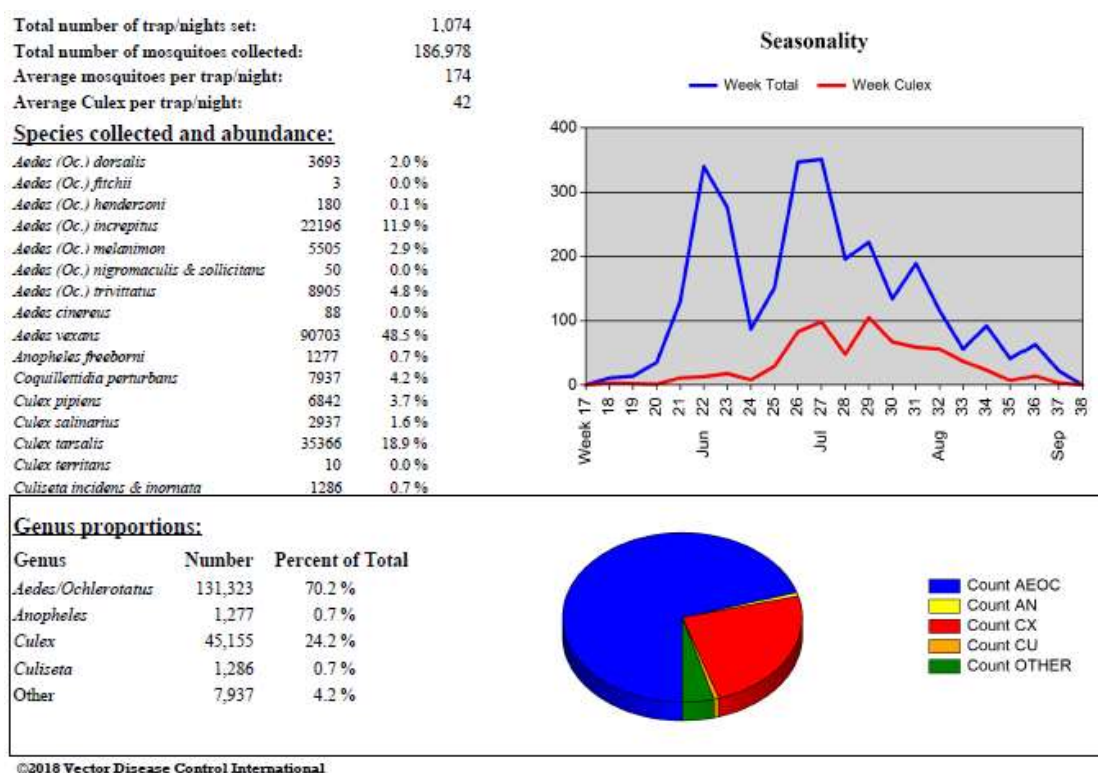


There were 1,074 CDC light surveillance trap nights set within Boulder County during the 2018 season. These traps collected a total of 186,978 mosquitoes. There was an average of 174 mosquitoes caught per trap per night and an average 42 *Culex spp.* mosquitoes per trap per night. The composition of mosquitoes collected was 24.2% (45,155) *Culex spp.*, 70.2% (131,323) *Aedes/Ochlerotatus spp.*, 4.2% (7,937) *Coquilleltidia spp.*, <1% (1,277) *Anopheles spp.*, and <1% (1,286) *Culiseta spp.* (**Figure 12**).

A total of 18 species were represented in 2018 in Boulder County. No exotic/introduced species (such as Asian Tiger Mosquitoes) were collected this season.

By comparison, in 2017 there were 1,086 CDC light surveillance trap nights set within Boulder County. These traps collected a total of 164,516 mosquitoes. There was an average of 151 mosquitoes caught per trap per night and an average 50 *Culex spp.* mosquitoes per trap per night. The composition of mosquitoes collected was 33.2% (54,543) *Culex spp.*, 61.5% (101,244) *Aedes/Ochlerotatus spp.*, 3.5% (5,716) *Coquilleltidia spp.*, <1% (539) *Anopheles spp.*, and 1.5% (2,474) *Culiseta spp.*

Figure 12 2018 Boulder County Light Trap Composite Data



WEST NILE VIRUS MOSQUITO SAMPLE TESTING RESULTS - BOULDER COUNTY

VDCI and BCMCD used the adult mosquito data collected to help determine local areas of concern for public awareness and safety as well as to monitor the local vector mosquito populations. Many local health departments have moved towards mosquito-based surveillance indicators to assess the weekly risk of West Nile transmission and guide response decisions for adult mosquito control applications. The vector index and infection rate is derived by testing the mosquitoes VDCI collects for the presence of West Nile virus. This value is closely monitored by the CDPHE and local health departments to evaluate the risk posed by the vector mosquito population.

As defined in the CDC guidelines for West Nile virus surveillance, prevention and control, the vector index (VI) is an estimate of the number of West Nile virus infected mosquitoes in an area. This number can serve as a human health risk value. An operational value of 0.75, which was derived from the comparison of historical data for human infections, as well as relative abundance and infection in mosquitoes, serves

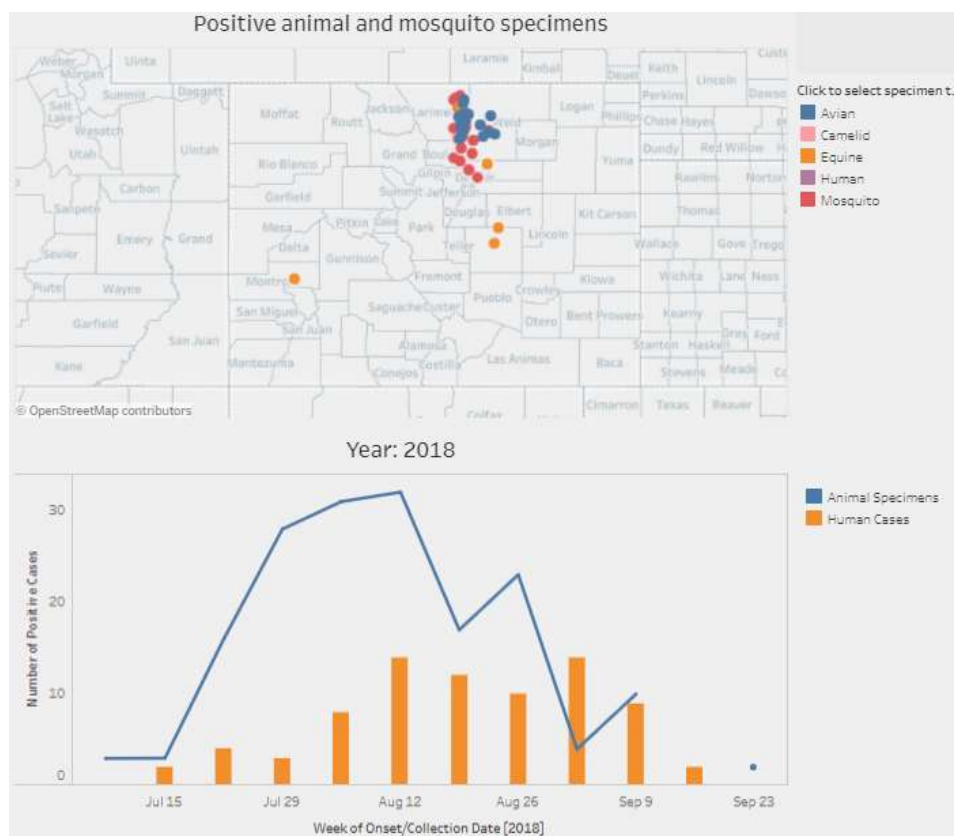
as an indicator of high risk for West Nile virus transmission to humans in the corresponding area. As the value of the vector index increases there is a corresponding risk of human disease and this value can be used to offset epidemics.

Due to budget cutbacks associated with West Nile virus surveillance in recent years, the CDPHE does not have the ability to test mosquitoes from every trap set across the state. As a result, there is select testing done within three sentinel zones in Boulder County. *Culex species* mosquito samples are sent to CDPHE for WNV testing on a weekly basis as part of the state's Sentinel Encephalitis Surveillance program (**Figure 13**), which VDCI is contracted separately through BCPH to perform.

As of September 14th, 2018 CDPHE, has tested a total of 189 mosquito pools from Boulder County. Of the tested mosquito pools, 11 pools tested positive for West Nile virus from all three sentinel zones (**Appendix B**). The first Boulder County West Nile virus positive mosquito sample pools (2) of the 2018 season were on July 23, 2018 in BCZ2 And BCZ3 (**Figure 14**).

Figure 13 **Number of Colorado Positive WNV Specimens 2018 (animal and mosquito)***

*CDPHE image <https://www.colorado.gov/pacific/cdphe/west-nile-virus-data>

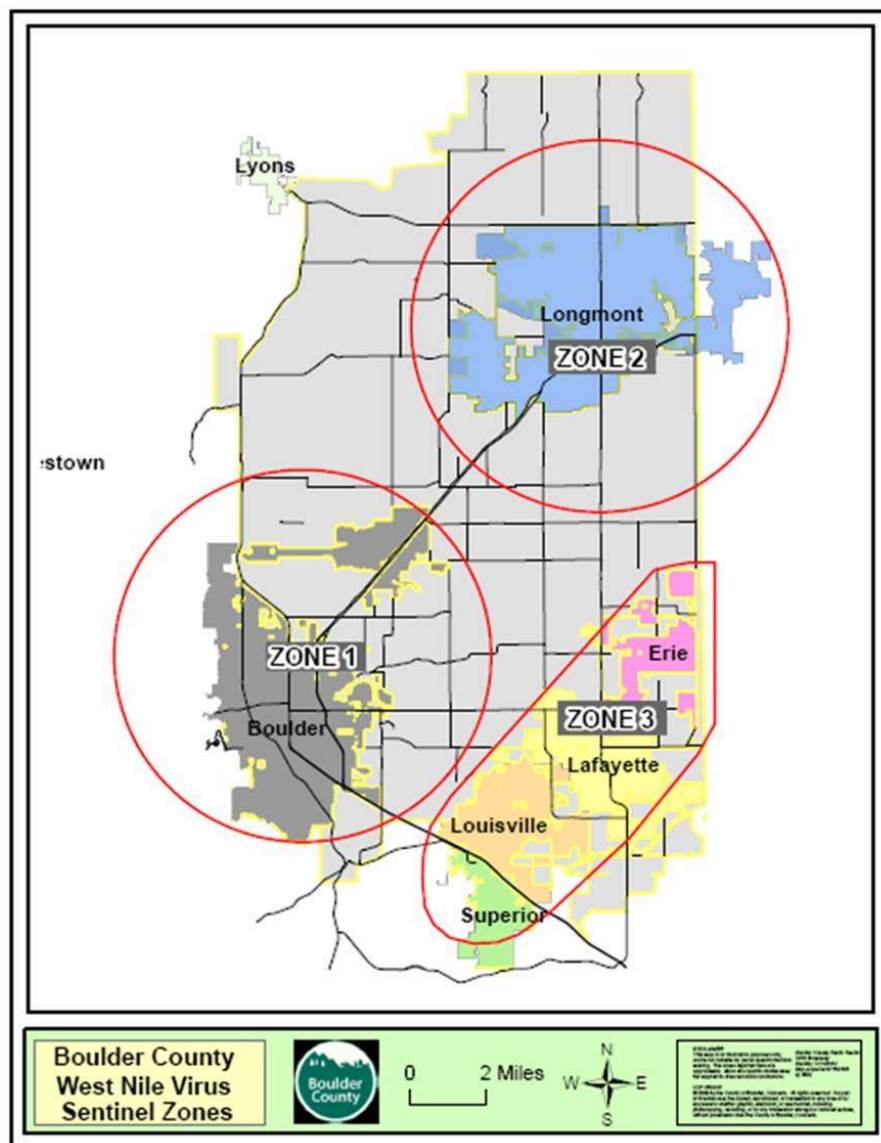


BOULDER COUNTY PUBLIC HEALTH ADULT MOSQUITO SENTINEL ZONES

The Sentinel Encephalitis Surveillance Program was funded by the Colorado Department of Public Health and Environment and Boulder County Public Health in 2018. VDCI maintained the sentinel system with five surveillance traps at permanent locations in each of three Boulder County Sentinel Zones: City of Boulder (BCZ1); City of Longmont (BCZ2); Town of Erie, City of Lafayette, City of Louisville, Town of Superior (BCZ3) (**Figure 14**). The sentinel light traps were set once a week from May 30th to September 10th, 2018.

In 2018 there were 85 sentinel surveillance trap nights set which collected 14,809 adult mosquitoes in BCZ1; 75 sentinel surveillance trap nights set which collected 8,903 adult mosquitoes in BCZ2; and 73 sentinel surveillance trap nights set which collected 9,009 adult mosquitoes in BCZ3. Please refer to **Appendix C** for a summary of species collected and abundance.

Figure 14 Boulder County Public Health Sentinel Surveillance Zone Map



ADULT MOSQUITO CONTROL

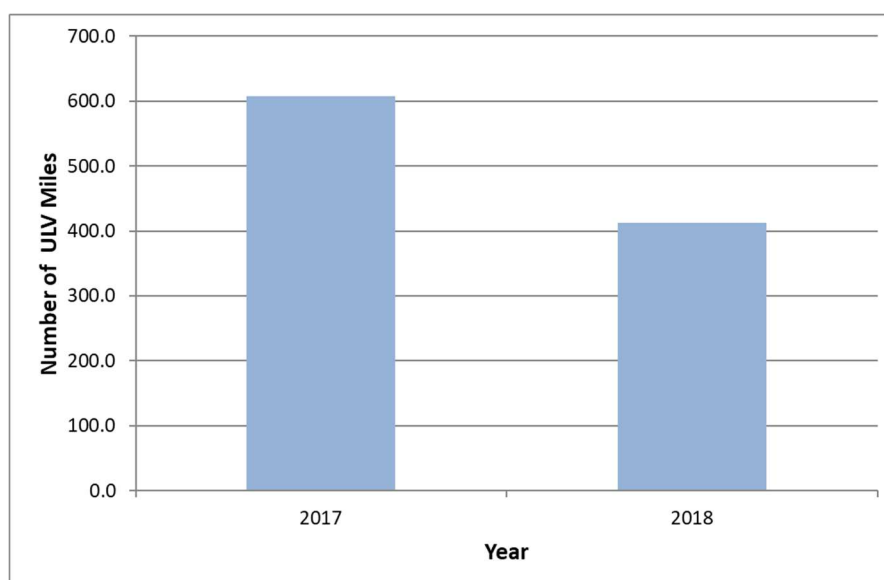
The goal of Vector Disease Control International is to provide our customers with the best options for safe, effective, modern mosquito management. The primary emphasis of the BCMCD Integrated Mosquito Management Program is to control mosquitoes in the larval stage, using safe biological control products. When mosquito counts surpass nuisance thresholds of 100 mosquitoes, VDCI uses EPA and CDC approved adulticides to reduce mosquito populations. During the 2018 season a total of 412 Ultra Low Volume (ULV) miles of roads and access paths within BCMCD were sprayed using the adulticide Aqua-Kontrol® 30-30 (Active Ingredient – Permethrin) (**Figure 15**). A detailed summary of adulticide applications, by neighborhood, can be found in **Appendix D**.

In 2017, a total of 607.3 Ultra Low Volume (ULV) miles of roads and access paths within BCMCD were sprayed using the adulticides Aqualuer® 20-20 and Aqua Kontrol® 30-30 (**Figure 15**).

VDCI uses state of the art technology, calibrated application timing, and least-toxic products to minimize non-target impacts. Adult mosquito control applications are accomplished using Ultra Low Volume (ULV) spray equipment and performed after dusk when the majority of mosquito species are most active. This type of equipment produces droplets averaging 10-25 microns in diameter and allows for a minimal amount of product to be put into the environment. These treatments take place in the evening when mosquitoes are flying in the greatest numbers and non-target insect activity (for example, day-flying pollinators like bees) is greatly reduced. Using this application technique, the overall goal of minimal environmental impact and effective adult control is achieved in the targeted area.



Figure 15 Comparison of ULV Adulticide Miles by Year



CALL NOTIFICATION & SHUTOFF SYSTEM

Both VDCI and the BCMCD acknowledge that adult mosquito control can be a sensitive matter to many residents; therefore a Spray Shutoff and/or Notification request option was available to the public. Residents were able to call VDCI's MosquitoLine™ or submit a website request to be notified before adult control applications were performed and/or request that the ULV sprayer be shutoff in front of their address.

At the beginning of the 2018 season, VDCI sent out 441 letters to all Boulder County shutoff and notification households to establish a current list for the 2018 season. During the season, VDCI received 29 shut off only requests, 124 shut off and notification requests, and 199 notification only requests. The 2018 season shutoff and notification list concluded with 352 households for the BCMCD. Of these 352 requests, approximately 59 were new shutoffs and/or call notifications received via VDCI's online request form. Residents on the shutoff and notification list were notified 24 hours in advance when their community was scheduled to be sprayed. VDCI used an automated message service to contact residents and listed weekly ULV spray events on VDCI's website, www.vdci.net/colorado-schedules, which utilized Google Calendar and Maps. In 2018, VDCI completed 1,506 BCMCD notification calls.

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. VDCI constantly looks 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 Boulder County Mosquito Control 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™

VDCI maintains a toll-free telephone line specific to Boulder County, (888) 774-2161 and a local line (303) 466-1892 to accept calls from the public concerning:

- ✧ Information requests about mosquito biology and source reduction of mosquito habitats
- ✧ Information on program components, operations and monitoring
- ✧ 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 and/or opt-out of any adulticide spraying
- * Request notification when adulticide spraying is planned in their neighborhood
- * Request health and safety information about mosquito control operations and pesticide products used

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. VDCI maintains a log of calls received and will summarize call activity in monthly and annual reports.

In 2018 Vector Disease Control International received 150 phone calls from residents of BCMCD. The majority of these calls (58) were for adult mosquito complaints. Of the rest, 22 calls were requests for habitat assessment, 38 requests for sprayer shut offs and/or call notifications and 32 calls were requests for general information or other reasons (**Table 3; Figure 16 and 17**). Four of the habitat calls resulted in new or expanded larval sites being added to the program.

By comparison, in 2017 VDCI received 585 phone calls from residents of BCMCD. 446 were requests for sprayer shut offs and/or call notifications prior to spraying, 52 calls were adult mosquito complaints, 33 calls were requests to have habitat inspected for mosquito larvae and 54 calls were requests for general information (**Figure 17**). Three of the habitat calls resulted in new larval sites being added to the program.

Table 3 2018 Mosquito Control Calls by Category

Call Category	2018	
	Number of Calls	Percentage
Adult Complaint	58	38.7%
Habitat Assessment	22	14.7%
Fog Shutoff/Notification	23	15.3%
Fog Notification	15	10.0%
General Info/Other	32	21.3%
Total	150	100.0%

Figure 16 2018 Mosquito Control Calls by Month

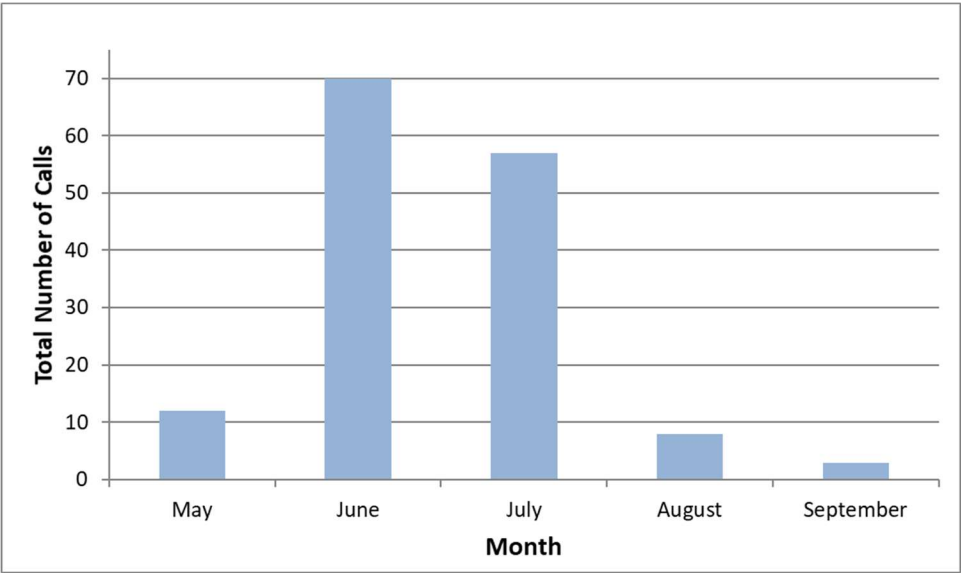
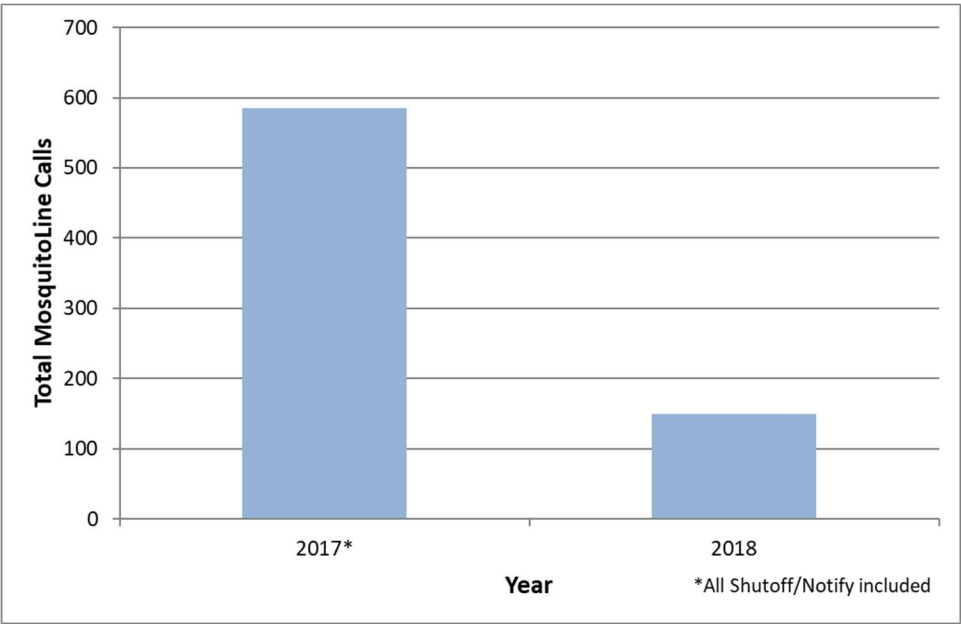


Figure 17 Comparison of Mosquito Control Calls by Year



Appendix A: Boulder County Mosquito Control District Individual Light Trap Summaries

BC-01: Old Tale Road

Season: 2018
Trap Type: Light/CO2
Location: Old Tale Road at South Boulder Creek
GPS: N40° 0.450', W105° 12.960'

Total number of trapnights set: 16
Total number of mosquitoes collected: 1,510
Average mosquitoes per trapnight: 94
Average Culex per trapnight: 31

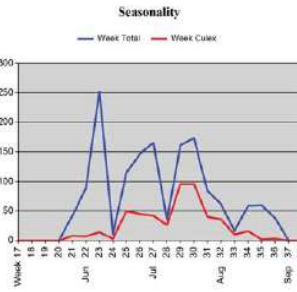
Species collected and abundance:

<i>Aedes (Oc.) dorsalis</i>	1	0.1%
<i>Aedes (Oc.) hendersoni</i>	29	1.9%
<i>Aedes (Oc.) incrucipatus</i>	185	12.3%
<i>Aedes (Oc.) melanotum</i>	32	1.5%
<i>Aedes (Oc.) trivittatus</i>	13	0.9%
<i>Aedes vexans</i>	706	46.5%
<i>Anopheles freeborni</i>	14	0.9%
<i>Copellandria pernithana</i>	11	0.7%
<i>Culex pipiens</i>	81	5.4%
<i>Culex salinarius</i>	11	0.7%
<i>Culex tarsalis</i>	402	26.6%
<i>Culiseta inornata</i>	34	2.3%

Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	957	63.4%
<i>Anopheles</i>	14	0.9%
<i>Culex</i>	494	32.7%
<i>Culiseta</i>	34	2.3%
Other	11	0.7%

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BC-02: Cottonwood Kennels

Season: 2018
Trap Type: Light/CO2
Location: 7275 Valmont Rd., west of 75th St.
GPS: N40° 2.085', W105° 10.995'

Total number of trapnights set: 19
Total number of mosquitoes collected: 5,336
Average mosquitoes per trapnight: 281
Average Culex per trapnight: 31

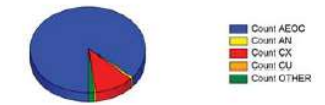
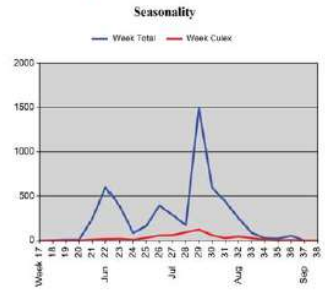
Species collected and abundance:

<i>Aedes (Oc.) dorsalis</i>	22	0.4%
<i>Aedes (Oc.) hendersoni</i>	19	0.4%
<i>Aedes (Oc.) incrucipatus</i>	840	15.7%
<i>Aedes (Oc.) melanotum</i>	136	2.5%
<i>Aedes (Oc.) trivittatus</i>	33	0.6%
<i>Aedes vexans</i>	3131	66.2%
<i>Anopheles freeborni</i>	42	0.8%
<i>Copellandria pernithana</i>	91	1.7%
<i>Culex pipiens</i>	53	1.0%
<i>Culex salinarius</i>	12	0.2%
<i>Culex tarsalis</i>	330	5.9%
<i>Culiseta inornata</i>	27	0.5%

Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	4,361	81.9%
<i>Anopheles</i>	42	0.8%
<i>Culex</i>	595	11.2%
<i>Culiseta</i>	27	0.5%
Other	91	1.7%

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BC-03: Gunbarrel SE - Pali Way

Season: 2018
Trap Type: Light/CO2
Location: 4311 Pali Way, Boulder
GPS: N40° 3.170', W105° 11.035'

Total number of trapnights set: 19
Total number of mosquitoes collected: 2,987
Average mosquitoes per trapnight: 157
Average Culex per trapnight: 52

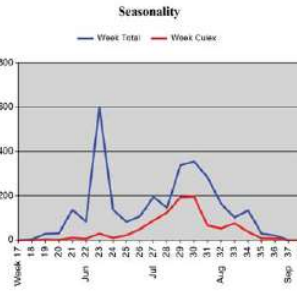
Species collected and abundance:

<i>Aedes (Oc.) dorsalis</i>	7	0.2%
<i>Aedes (Oc.) incrucipatus</i>	487	16.3%
<i>Aedes (Oc.) melanotum</i>	34	1.1%
<i>Aedes (Oc.) trivittatus</i>	11	0.4%
<i>Aedes vexans</i>	1342	44.9%
<i>Anopheles freeborni</i>	60	2.0%
<i>Copellandria pernithana</i>	40	1.3%
<i>Culex pipiens</i>	210	7.0%
<i>Culex salinarius</i>	166	5.6%
<i>Culex tarsalis</i>	611	20.5%
<i>Culiseta incidens</i>	1	0.0%
<i>Culiseta inornata</i>	18	0.6%

Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	1,851	62.0%
<i>Anopheles</i>	60	2.0%
<i>Culex</i>	987	33.0%
<i>Culiseta</i>	19	0.6%
Other	40	1.3%

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BC-04: Gunbarrel Idylwild/Redfox Hills

Season: 2018
Trap Type: Light/CO2
Location: Twin Lakes Rd. at Idylwild Ct.
GPS: N40° 3.700', W105° 11.640'

Total number of trapnights set: 19
Total number of mosquitoes collected: 4,631
Average mosquitoes per trapnight: 244
Average Culex per trapnight: 61

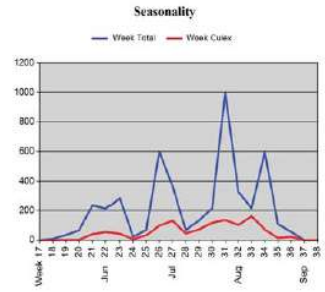
Species collected and abundance:

<i>Aedes (Oc.) dorsalis</i>	195	4.2%
<i>Aedes (Oc.) incrucipatus</i>	61	1.3%
<i>Aedes (Oc.) melanotum</i>	25	0.5%
<i>Aedes (Oc.) trivittatus</i>	4	0.1%
<i>Aedes vexans</i>	3101	67.0%
<i>Anopheles (Oc.) sollicitans</i>	1	0.0%
<i>Anopheles freeborni</i>	21	0.5%
<i>Copellandria pernithana</i>	12	0.3%
<i>Culex pipiens</i>	320	6.9%
<i>Culex salinarius</i>	88	1.9%
<i>Culex tarsalis</i>	748	16.2%
<i>Culiseta inornata</i>	55	1.2%

Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	3,387	73.1%
<i>Anopheles</i>	21	0.5%
<i>Culex</i>	1,156	25.0%
<i>Culiseta</i>	55	1.2%
Other	12	0.3%

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BC-05: Orange Orchard

Season: 2018
Trap Type: Light/CO2
Location: west of 4373 30th Street
GPS: N40° 3.245', W105° 11.290'

Total number of trapnights set: 18
Total number of mosquitoes collected: 3,213
Average mosquitoes per trapnight: 178
Average Culex per trapnight: 33

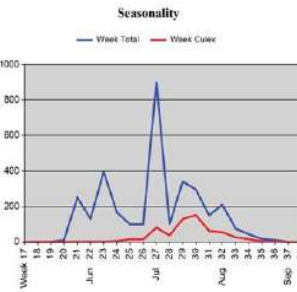
Species collected and abundance:

<i>Aedes (Oc.) dorsalis</i>	8	0.2%
<i>Aedes (Oc.) hendersoni</i>	1	0.0%
<i>Aedes (Oc.) incrucipatus</i>	12	0.4%
<i>Aedes (Oc.) melanotum</i>	19	0.6%
<i>Aedes (Oc.) trivittatus</i>	28	0.9%
<i>Aedes vexans</i>	2455	75.8%
<i>Anopheles freeborni</i>	35	1.1%
<i>Copellandria pernithana</i>	59	1.8%
<i>Culex pipiens</i>	109	3.4%
<i>Culex salinarius</i>	63	2.0%
<i>Culex tarsalis</i>	423	13.2%
<i>Culiseta inornata</i>	23	0.7%

Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	2,501	77.8%
<i>Anopheles</i>	35	1.1%
<i>Culex</i>	595	18.5%
<i>Culiseta</i>	23	0.7%
Other	59	1.8%

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BC-07: Brigadoon Glen

Season: 2018
Trap Type: Light/CO2
Location: along Left Hand Creek behind 6507 Robin Drive
GPS: N40° 6.515', W105° 12.140'

Total number of trapnights set: 16
Total number of mosquitoes collected: 1,478
Average mosquitoes per trapnight: 92
Average Culex per trapnight: 34

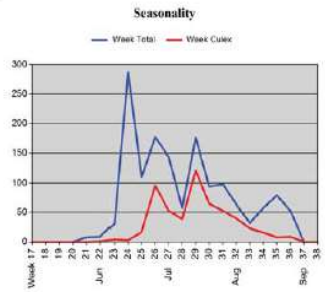
Species collected and abundance:

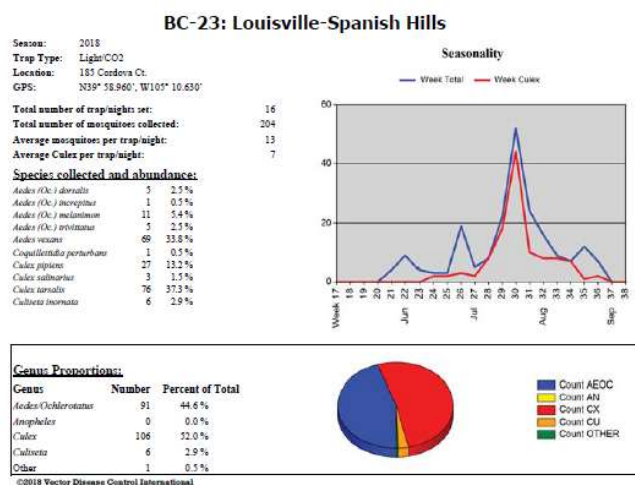
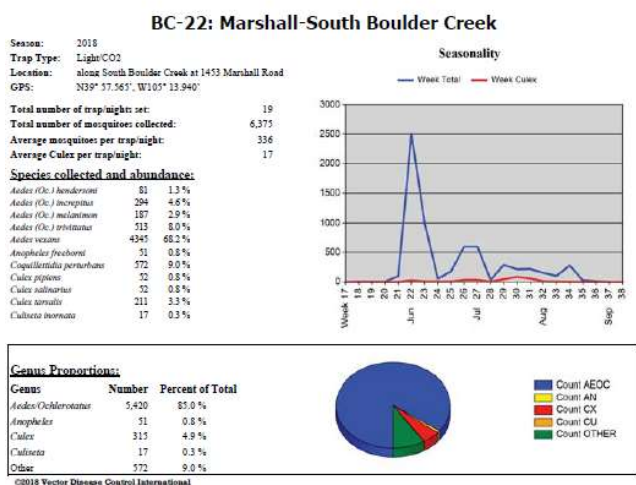
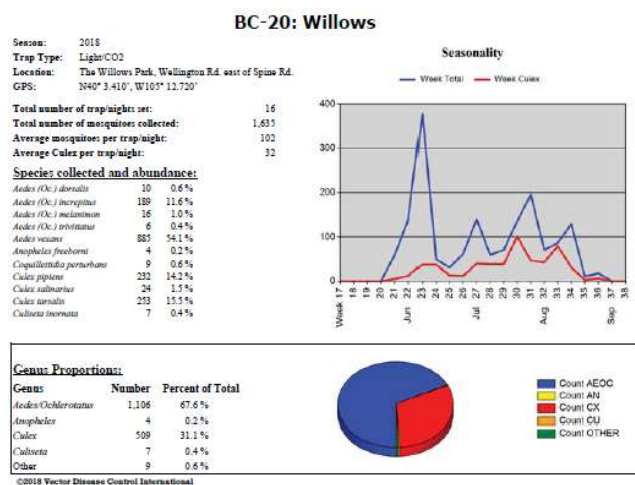
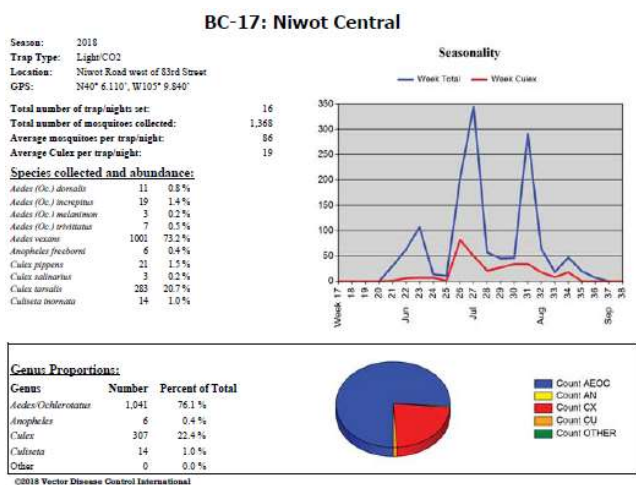
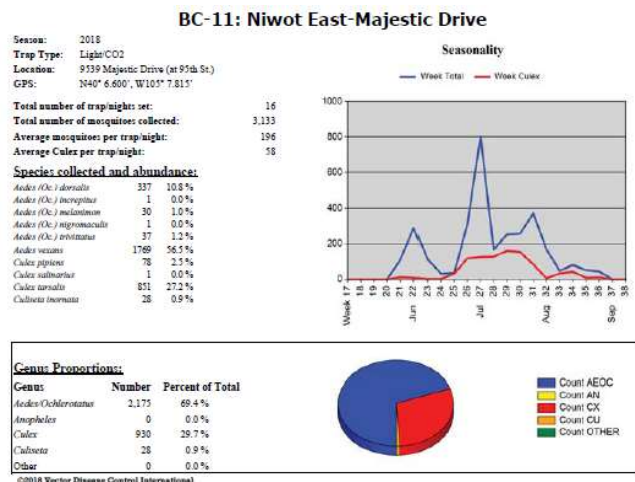
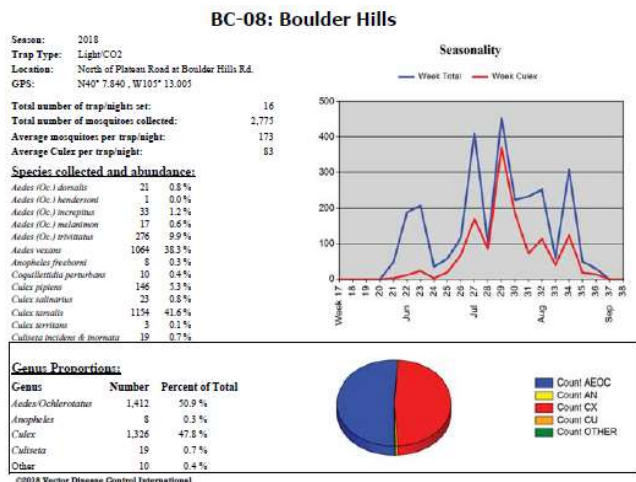
<i>Aedes (Oc.) dorsalis</i>	15	1.0%
<i>Aedes (Oc.) trivittatus</i>	1	0.1%
<i>Aedes (Oc.) hendersoni</i>	4	0.3%
<i>Aedes (Oc.) melanotum</i>	7	0.5%
<i>Aedes (Oc.) trivittatus</i>	250	16.9%
<i>Aedes vexans</i>	637	43.1%
<i>Anopheles (Oc.) sollicitans</i>	1	0.1%
<i>Copellandria pernithana</i>	1	0.1%
<i>Culex pipiens</i>	31	2.1%
<i>Culex salinarius</i>	3	0.2%
<i>Culex tarsalis</i>	214	14.5%
<i>Culiseta inornata</i>	14	0.9%

Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	915	61.9%
<i>Anopheles</i>	0	0.0%
<i>Culex</i>	548	37.1%
<i>Culiseta</i>	14	0.9%
Other	1	0.1%

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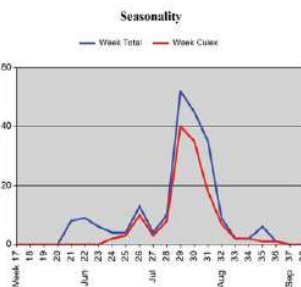
BC-24: Louisville-Wewoka Drive

Season: 2018
Trap Type: Light/CO2
Location: 603 Wewoka Drive
GPS: N39° 58.925', W105° 10.305'

Total number of trap/night: set: 15
Total number of mosquitoes collected: 208
Average mosquitoes per trap/night: 14
Average Culex per trap/night: 9

Species collected and abundance:

<i>Aedes (Oe.) dorsalis</i>	4	1.9%
<i>Aedes (Oe.) inaequalis</i>	2	1.0%
<i>Aedes (Oe.) melanotus</i>	4	1.9%
<i>Aedes vexans</i>	64	30.8%
<i>Anopheles freeborni</i>	1	0.5%
<i>Culex pipiens</i>	9	4.3%
<i>Culex tarsalis</i>	121	58.2%
<i>Culiseta inornata</i>	3	1.4%



Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	74	35.6%
<i>Anopheles</i>	1	0.5%
<i>Culex</i>	130	62.5%
<i>Culiseta</i>	3	1.4%
Other	0	0.0%



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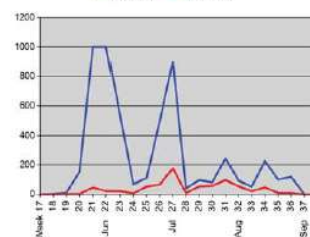
BC-30: Erie - Brownsville Random Court

Season: 2018
Trap Type: Light/CO2
Location: Brownsville neighborhood at 11222 Random Ct., Erie
GPS: N40° 2.840', W105° 5.380'

Total number of trap/night: set: 19
Total number of mosquitoes collected: 5,340
Average mosquitoes per trap/night: 281
Average Culex per trap/night: 40

Species collected and abundance:

<i>Aedes (Oe.) dorsalis</i>	217	4.1%
<i>Aedes (Oe.) hendersoni</i>	1	0.0%
<i>Aedes (Oe.) inaequalis</i>	33	0.6%
<i>Aedes (Oe.) melanotus</i>	75	1.4%
<i>Aedes (Oe.) tritaenatus</i>	3	0.1%
<i>Aedes vexans</i>	4215	78.9%
<i>Anopheles freeborni</i>	3	0.1%
<i>Culex pipiens</i>	107	2.0%
<i>Culex salinarius</i>	35	0.7%
<i>Culex tarsalis</i>	625	11.7%
<i>Culiseta inornata</i>	26	0.5%



Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	4,544	85.1%
<i>Anopheles</i>	3	0.1%
<i>Culex</i>	767	14.4%
<i>Culiseta</i>	26	0.5%
Other	0	0.0%



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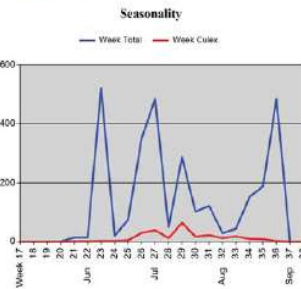
BC-31: Divide Reservoir

Season: 2018
Trap Type: Light/CO2
Location: 14587 115th Street/Wapping Willow Ranch Longmont
GPS: N40° 14.340', W105° 5.035'

Total number of trap/night: set: 15
Total number of mosquitoes collected: 2,917
Average mosquitoes per trap/night: 194
Average Culex per trap/night: 16

Species collected and abundance:

<i>Aedes (Oe.) dorsalis</i>	300	10.3%
<i>Aedes (Oe.) melanotus</i>	85	2.9%
<i>Aedes (Oe.) nigromaculis</i>	21	0.7%
<i>Aedes (Oe.) tritaenatus</i>	164	5.6%
<i>Aedes vexans</i>	1096	37.4%
<i>Aedes (Oe.) sollicitans</i>	1	0.0%
<i>Anopheles freeborni</i>	96	3.3%
<i>Copellandella perthensis</i>	4	0.1%
<i>Culex pipiens</i>	18	0.6%
<i>Culex salinarius</i>	11	0.4%
<i>Culex tarsalis</i>	210	7.2%
<i>Culex territans</i>	1	0.0%
<i>Culiseta inornata</i>	10	0.3%



Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	2,567	88.0%
<i>Anopheles</i>	96	3.3%
<i>Culex</i>	240	8.2%
<i>Culiseta</i>	10	0.3%
Other	4	0.1%



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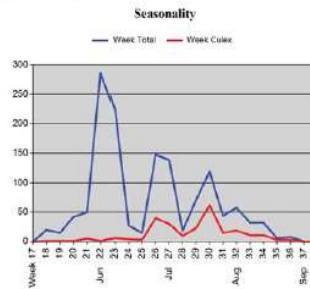
BC-32: Baseline Heights

Season: 2018
Trap Type: Light/CO2
Location: across from 1450 Meadowlark Drive
GPS: N40° 0.735', W105° 11.830'

Total number of trap/night: set: 18
Total number of mosquitoes collected: 1,323
Average mosquitoes per trap/night: 74
Average Culex per trap/night: 13

Species collected and abundance:

<i>Aedes (Oe.) dorsalis</i>	408	30.8%
<i>Aedes (Oe.) inaequalis</i>	23	1.7%
<i>Aedes (Oe.) melanotus</i>	131	9.9%
<i>Aedes (Oe.) nigromaculis</i>	2	0.2%
<i>Aedes (Oe.) tritaenatus</i>	5	0.4%
<i>Aedes vexans</i>	301	22.8%
<i>Anopheles freeborni</i>	2	0.2%
<i>Copellandella perthensis</i>	6	0.5%
<i>Culex pipiens</i>	29	2.2%
<i>Culex salinarius</i>	5	0.4%
<i>Culex tarsalis</i>	203	15.3%
<i>Culiseta inornata</i>	8	0.6%



Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	1,070	80.9%
<i>Anopheles</i>	2	0.2%
<i>Culex</i>	237	17.9%
<i>Culiseta</i>	8	0.6%
Other	6	0.5%



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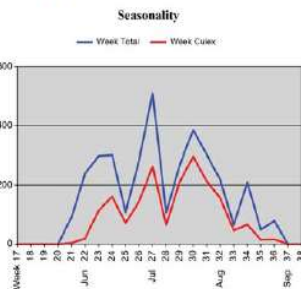
BC-33: Lake Valley Estates

Season: 2018
Trap Type: Light/CO2
Location: NW corner of Loukenen Brothers Reservoir
GPS: N40° 5.380', W105° 15.730'

Total number of trap/night: set: 16
Total number of mosquitoes collected: 3,511
Average mosquitoes per trap/night: 219
Average Culex per trap/night: 116

Species collected and abundance:

<i>Aedes (Oe.) dorsalis</i>	1	0.0%
<i>Aedes (Oe.) inaequalis</i>	56	1.7%
<i>Aedes (Oe.) melanotus</i>	33	0.9%
<i>Aedes (Oe.) tritaenatus</i>	64	1.8%
<i>Aedes cinereus</i>	3	0.1%
<i>Aedes vexans</i>	1410	40.2%
<i>Anopheles freeborni</i>	61	1.7%
<i>Copellandella perthensis</i>	3	0.1%
<i>Culex pipiens</i>	274	7.8%
<i>Culex salinarius</i>	199	5.7%
<i>Culex tarsalis</i>	1307	37.5%
<i>Culiseta inornata</i>	18	0.5%



Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	1,569	44.7%
<i>Anopheles</i>	61	1.7%
<i>Culex</i>	1,860	53.0%
<i>Culiseta</i>	18	0.5%
Other	3	0.1%



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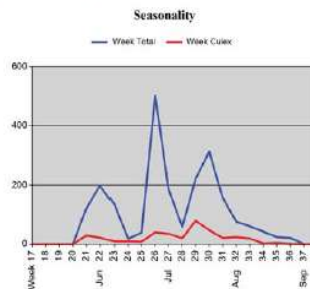
BC-34: Cline Trout Farm

Season: 2018
Trap Type: Light/CO2
Location: 5555 Valmont Rd., Boulder
GPS: N40° 1.980', W105° 13.365'

Total number of trap/night: set: 16
Total number of mosquitoes collected: 2,170
Average mosquitoes per trap/night: 136
Average Culex per trap/night: 22

Species collected and abundance:

<i>Aedes (Oe.) dorsalis</i>	8	0.4%
<i>Aedes (Oe.) fitchii</i>	2	0.1%
<i>Aedes (Oe.) hendersoni</i>	2	0.1%
<i>Aedes (Oe.) inaequalis</i>	81	3.7%
<i>Aedes (Oe.) melanotus</i>	33	1.5%
<i>Aedes (Oe.) nigromaculis</i>	2	0.1%
<i>Aedes (Oe.) tritaenatus</i>	266	12.3%
<i>Aedes vexans</i>	1079	49.7%
<i>Anopheles freeborni</i>	37	1.7%
<i>Copellandella perthensis</i>	287	13.2%
<i>Culex pipiens</i>	36	1.7%
<i>Culex tarsalis</i>	324	14.9%
<i>Culiseta inornata</i>	13	0.6%

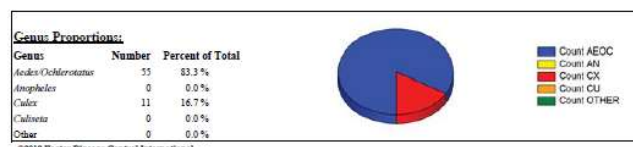
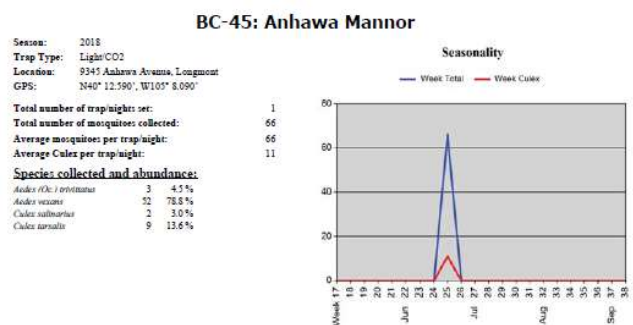
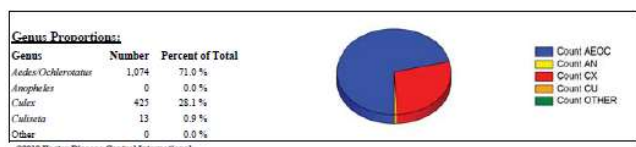
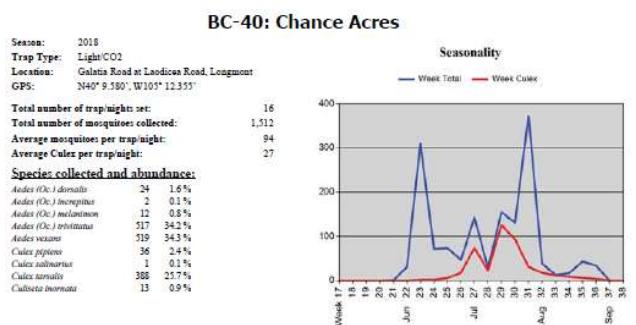
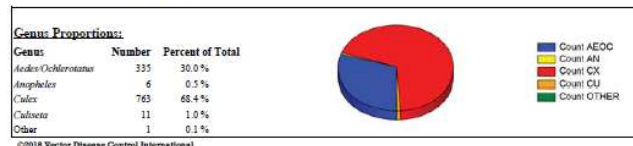
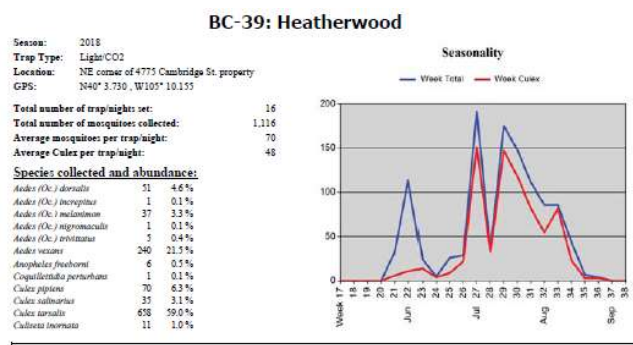
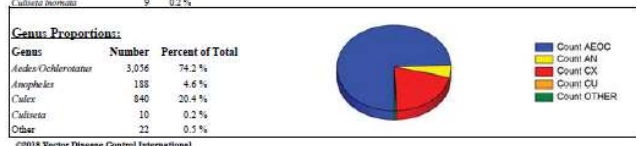
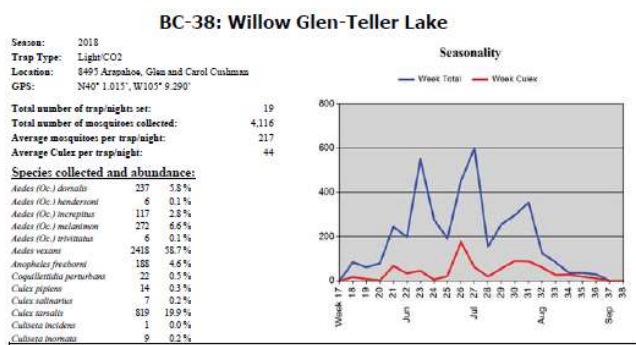
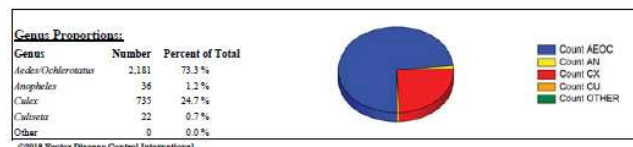
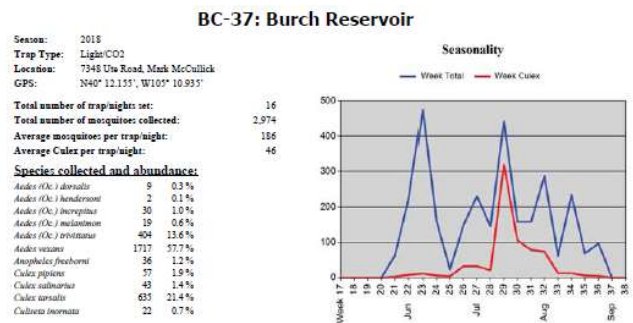
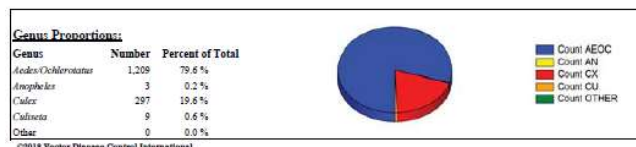
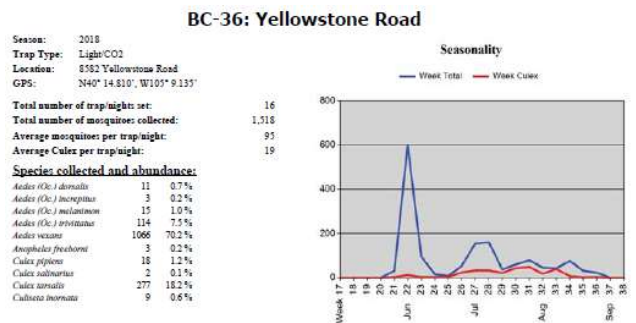


Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	1,475	67.9%
<i>Anopheles</i>	37	1.7%
<i>Culex</i>	360	16.6%
<i>Culiseta</i>	13	0.6%
Other	287	13.2%



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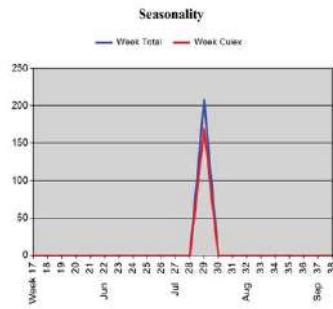
BC-46: Willis Heights

Season: 2018
 Trap Type: Light/CO2
 Location: 12781 Columbus Drive, Longmont
 GPS: N40° 12.360', W105° 6.423'

Total number of trap nights set: 1
 Total number of mosquitoes collected: 207
 Average mosquitoes per trap/night: 207
 Average Culex per trap/night: 169

Species collected and abundance:

<i>Aedes (Oz.) dorsalis</i>	3	1.4 %
<i>Aedes vexans</i>	35	16.9 %
<i>Culex pipiens</i>	8	3.9 %
<i>Culex tritaeniorhynchus</i>	6	2.9 %
<i>Culex tarsalis</i>	153	74.9 %



Genus Proportions:

Genus	Number	Percent of Total
<i>Aedes Ochlerotatus</i>	38	18.4 %
<i>Anopheles</i>	0	0.0 %
<i>Culex</i>	169	81.6 %
<i>Culiseta</i>	0	0.0 %
Other	0	0.0 %



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Appendix B: Adult Sample Pool Test Results for West Nile Virus Positive Location

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Mosquito Pool Testing

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S321117		Boulder						
	07/23/2018	LM-03	55	Culex tarsalis	LIGHT	BCZ2	POSITIVE	0.000
Total in pool							55	
S321130		Boulder						
	07/23/2018	ER-03	54	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
	07/23/2018	LO-01	10	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							64	
S321351		Boulder						
	07/30/2018	LA-11	58	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							58	
S321353		Boulder						
	07/30/2018	LO-08	65	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							65	
S321397		Boulder						
	08/06/2018	LM-17	45	Culex tarsalis	LIGHT	BCZ2	POSITIVE	0.000
	08/06/2018	LM-28	17	Culex tarsalis	LIGHT	BCZ2	POSITIVE	0.000
Total in pool							62	
S321398		Boulder						
	08/06/2018	LM-03	3	Culex pipiens	LIGHT	BCZ2	POSITIVE	0.000
	08/06/2018	LM-17	6	Culex pipiens	LIGHT	BCZ2	POSITIVE	0.000
	08/06/2018	LM-28	5	Culex pipiens	LIGHT	BCZ2	POSITIVE	0.000
	08/06/2018	LM-34	23	Culex pipiens	LIGHT	BCZ2	POSITIVE	0.000
Total in pool							37	
S321400		Boulder						
	08/06/2018	ER-03	65	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							65	
S321402		Boulder						
	08/06/2018	ER-03	10	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
	08/06/2018	LA-11	29	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							39	
S321438		Boulder						
	08/13/2018	LM-03	65	Culex tarsalis	LIGHT	BCZ2	POSITIVE	0.000
Total in pool							65	
S321450		Boulder						
	08/13/2018	ER-03	65	Culex pipiens	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							65	
S321520		Boulder						
	08/28/2018	BO-11	4	Culex tarsalis	LIGHT	BCZ1	POSITIVE	0.000
	08/28/2018	BO-22	39	Culex tarsalis	LIGHT	BCZ1	POSITIVE	0.000

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
	08/28/2018	BO-26	3	Culex tarsalis	LIGHT	BCZ1	POSITIVE	0.000
Total in pool							46	

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S320420		Boulder						
	06/11/2018	LM-03	19	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/11/2018	LM-17	9	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/11/2018	LM-28	7	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/11/2018	LM-34	6	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/11/2018	LM-42	24	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	
S320421		Boulder						
	06/11/2018	ER-03	7	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	06/11/2018	LA-11	32	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	06/11/2018	LO-01	5	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	06/11/2018	LO-08	4	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							48	
S320422		Boulder						
	06/12/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320423		Boulder						
	06/12/2018	BO-24	18	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	06/12/2018	BO-25	47	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320424		Boulder						
	06/12/2018	BO-11	6	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	06/12/2018	BO-22	32	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	06/12/2018	BO-26	4	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							42	
S320425		Boulder						
	06/12/2018	BO-22	6	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	06/12/2018	BO-24	4	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							10	
S320430		Boulder						
	06/18/2018	LM-03	14	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/18/2018	LM-17	2	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/18/2018	LM-28	3	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/18/2018	LM-34	1	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/18/2018	LM-42	2	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							22	
S320431		Boulder						
	06/18/2018	LM-42	5	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							5	
S320432		Boulder						
	06/18/2018	ER-03	13	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000

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Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
	06/18/2018	LA-11	6	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	06/18/2018	LO-08	1	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	06/18/2018	SU-02	1	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							21	
S320433	Boulder							
	06/18/2018	ER-03	4	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	06/18/2018	LA-11	1	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	06/18/2018	SU-02	1	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							6	
S320940	Boulder							
	06/19/2018	BO-11	6	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	06/19/2018	BO-22	13	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	06/19/2018	BO-24	26	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	06/19/2018	BO-25	5	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	06/19/2018	BO-26	9	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							59	
S320941	Boulder							
	06/19/2018	BO-11	1	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	06/19/2018	BO-22	2	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	06/19/2018	BO-24	2	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	06/19/2018	BO-26	3	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							8	
S320952	Boulder							
	06/25/2018	LM-03	10	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/25/2018	LM-17	8	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/25/2018	LM-28	20	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/25/2018	LM-34	8	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	06/25/2018	LM-42	3	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							49	
S320953	Boulder							
	06/25/2018	LM-28	9	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	06/25/2018	LM-34	1	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	06/25/2018	LM-42	9	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							19	
S320954	Boulder							
	06/25/2018	ER-03	19	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	06/25/2018	LA-11	36	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							55	
S320955	Boulder							
	06/25/2018	LO-01	11	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	06/25/2018	LO-08	11	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000

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Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
	06/25/2018	SU-02	2	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							24	
S320956		Boulder						
	06/25/2018	ER-03	15	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	06/25/2018	LA-11	2	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	06/25/2018	LO-01	4	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	06/25/2018	LO-08	15	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							36	
S320957		Boulder						
	06/26/2018	BO-11	46	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	06/26/2018	BO-25	19	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320958		Boulder						
	06/26/2018	BO-25	29	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	06/26/2018	BO-26	36	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320959		Boulder						
	06/26/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320960		Boulder						
	06/26/2018	BO-24	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320961		Boulder						
	06/26/2018	BO-25	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320962		Boulder						
	06/26/2018	BO-25	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320976		Boulder						
	07/02/2018	BO-11	48	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/02/2018	BO-22	17	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320977		Boulder						
	07/02/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320978		Boulder						
	07/02/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S320979		Boulder						
	07/02/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320980		Boulder						
	07/02/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320981		Boulder						
	07/02/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320982		Boulder						
	07/02/2018	BO-24	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320983		Boulder						
	07/02/2018	BO-24	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320984		Boulder						
	07/02/2018	BO-25	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320985		Boulder						
	07/02/2018	BO-25	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320986		Boulder						
	07/02/2018	BO-22	27	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/02/2018	BO-26	38	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S320987		Boulder						
	07/02/2018	BO-11	3	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/02/2018	BO-22	21	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/02/2018	BO-24	2	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/02/2018	BO-25	1	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/02/2018	BO-26	2	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							29	
S320988		Boulder						
	07/02/2018	LM-03	59	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							59	
S320989		Boulder						
	07/02/2018	LM-03	58	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							58	

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S320990		Boulder						
	07/02/2018	LM-17	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	
S320991		Boulder						
	07/02/2018	LM-28	51	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							51	
S320992		Boulder						
	07/02/2018	LM-17	4	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	07/02/2018	LM-34	47	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							51	
S320993		Boulder						
	07/02/2018	LM-42	58	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							58	
S320994		Boulder						
	07/02/2018	LM-03	4	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/02/2018	LM-17	1	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/02/2018	LM-28	10	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/02/2018	LM-34	10	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/02/2018	LM-42	11	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							36	
S320995		Boulder						
	07/02/2018	ER-03	65	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	
S320996		Boulder						
	07/02/2018	LA-11	65	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	
S320997		Boulder						
	07/02/2018	LA-11	65	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	
S320998		Boulder						
	07/02/2018	LO-01	65	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	
S320999		Boulder						
	07/02/2018	LO-08	65	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	
S321000		Boulder						
	07/02/2018	LO-08	65	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S321001		Boulder						
	07/02/2018	ER-03	35	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	07/02/2018	LO-08	15	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	07/02/2018	SU-02	14	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							64	
S321002		Boulder						
	07/02/2018	LA-11	7	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	07/02/2018	LO-01	54	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							61	
S321003		Boulder						
	07/02/2018	ER-03	3	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/02/2018	LO-01	3	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/02/2018	LO-08	13	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							19	
S321023		Boulder						
	07/09/2018	LM-03	63	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							63	
S321024		Boulder						
	07/09/2018	LM-03	63	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							63	
S321025		Boulder						
	07/09/2018	LM-03	63	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							63	
S321026		Boulder						
	07/09/2018	LM-17	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	
S321027		Boulder						
	07/09/2018	LM-28	61	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							61	
S321028		Boulder						
	07/09/2018	LM-28	61	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							61	
S321029		Boulder						
	07/09/2018	LM-28	62	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							62	
S321030		Boulder						
	07/09/2018	LM-42	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	
S321031		Boulder						
	07/09/2018	LM-17	6	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
	07/09/2018	LM-42	26	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							32	
S321032		Boulder						
	07/09/2018	LM-03	15	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/09/2018	LM-17	5	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/09/2018	LM-28	21	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/09/2018	LM-34	1	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/09/2018	LM-42	21	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							63	
S321033		Boulder						
	07/09/2018	ER-03	53	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							53	
S321034		Boulder						
	07/09/2018	LA-11	64	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							64	
S321035		Boulder						
	07/09/2018	LO-01	5	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	07/09/2018	LO-08	39	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	07/09/2018	SU-02	3	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							47	
S321036		Boulder						
	07/09/2018	ER-03	1	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/09/2018	LA-11	2	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/09/2018	LO-08	2	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/09/2018	SU-02	1	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							6	
S321037		Boulder						
	07/10/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321038		Boulder						
	07/10/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321039		Boulder						
	07/10/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321040		Boulder						
	07/10/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S321041		Boulder						
	07/10/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
						Total in pool	65	
S321042		Boulder						
	07/10/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
						Total in pool	65	
S321043		Boulder						
	07/10/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
						Total in pool	65	
S321044		Boulder						
	07/10/2018	BO-25	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
						Total in pool	65	
S321045		Boulder						
	07/10/2018	BO-26	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
						Total in pool	65	
S321046		Boulder						
	07/10/2018	BO-11	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
						Total in pool	65	
S321047		Boulder						
	07/10/2018	BO-11	17	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/10/2018	BO-24	19	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/10/2018	BO-25	12	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/10/2018	BO-26	17	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
						Total in pool	65	
S321048		Boulder						
	07/10/2018	BO-11	4	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/10/2018	BO-22	28	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/10/2018	BO-24	2	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/10/2018	BO-25	2	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/10/2018	BO-26	1	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
						Total in pool	37	
S321073		Boulder						
	07/16/2018	LM-03	9	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	07/16/2018	LM-17	34	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
						Total in pool	43	
S321074		Boulder						
	07/16/2018	LM-28	62	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
						Total in pool	62	

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S321075		Boulder						
	07/16/2018	LM-34	17	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	07/16/2018	LM-42	44	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							61	
S321076		Boulder						
	07/16/2018	LM-03	3	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/16/2018	LM-28	31	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							34	
S321077		Boulder						
	07/16/2018	LM-17	8	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/16/2018	LM-34	8	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/16/2018	LM-42	32	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							48	
S321078		Boulder						
	07/16/2018	ER-03	42	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							42	
S321079		Boulder						
	07/16/2018	LA-11	19	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	07/16/2018	LO-01	5	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	07/16/2018	LO-08	5	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	07/16/2018	SU-02	8	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							37	
S321080		Boulder						
	07/16/2018	ER-03	10	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/16/2018	LA-11	3	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/16/2018	LO-01	2	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/16/2018	LO-08	5	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/16/2018	SU-02	5	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							25	
S321081		Boulder						
	07/17/2018	BO-11	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321082		Boulder						
	07/17/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321083		Boulder						
	07/17/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S321084		Boulder						
	07/17/2018	BO-24	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321085		Boulder						
	07/17/2018	BO-26	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321086		Boulder						
	07/17/2018	BO-25	46	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							46	
S321087		Boulder						
	07/17/2018	BO-11	1	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/17/2018	BO-26	37	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							38	
S321088		Boulder						
	07/17/2018	BO-22	20	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/17/2018	BO-24	31	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							51	
S321089		Boulder						
	07/17/2018	BO-22	10	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/17/2018	BO-24	7	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/17/2018	BO-25	4	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/17/2018	BO-26	3	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							24	
S321117		Boulder						
	07/23/2018	LM-03	55	Culex tarsalis	LIGHT	BCZ2	POSITIVE	0.000
Total in pool							55	
S321118		Boulder						
	07/23/2018	LM-03	54	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							54	
S321119		Boulder						
	07/23/2018	LM-17	47	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							47	
S321120		Boulder						
	07/23/2018	LM-28	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	
S321121		Boulder						
	07/23/2018	LM-34	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S321122		Boulder						
	07/23/2018	LM-34	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	
S321123		Boulder						
	07/23/2018	LM-42	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	
S321124		Boulder						
	07/23/2018	LM-28	26	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	07/23/2018	LM-34	17	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	07/23/2018	LM-42	2	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							45	
S321125		Boulder						
	07/23/2018	LM-28	29	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							29	
S321126		Boulder						
	07/23/2018	LM-03	18	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/23/2018	LM-34	10	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/23/2018	LM-42	16	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							44	
S321127		Boulder						
	07/23/2018	ER-03	65	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	
S321128		Boulder						
	07/23/2018	ER-03	65	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	
S321129		Boulder						
	07/23/2018	LA-11	65	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	
S321130		Boulder						
	07/23/2018	ER-03	54	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
	07/23/2018	LO-01	10	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							64	
S321131		Boulder						
	07/23/2018	LA-11	56	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	07/23/2018	SU-02	8	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							64	
S321132		Boulder						
	07/23/2018	LO-01	21	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
	07/23/2018	LO-08	44	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	
S321133		Boulder						
	07/23/2018	ER-03	38	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/23/2018	LA-11	6	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/23/2018	LO-01	6	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/23/2018	LO-08	13	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							63	
S321134		Boulder						
	07/24/2018	BO-22	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321135		Boulder						
	07/24/2018	BO-11	11	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/24/2018	BO-22	11	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/24/2018	BO-24	42	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							64	
S321136		Boulder						
	07/24/2018	BO-25	58	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							58	
S321137		Boulder						
	07/24/2018	BO-26	52	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							52	
S321138		Boulder						
	07/24/2018	BO-11	5	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/24/2018	BO-22	3	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/24/2018	BO-24	3	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/24/2018	BO-25	19	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/24/2018	BO-26	15	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							45	
S321345		Boulder						
	07/30/2018	LM-03	23	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	07/30/2018	LM-17	39	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							62	
S321346		Boulder						
	07/30/2018	LM-28	22	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	07/30/2018	LM-34	21	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							43	

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S321347		Boulder						
	07/30/2018	LM-34	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	
S321348		Boulder						
	07/30/2018	LM-42	47	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							47	
S321349		Boulder						
	07/30/2018	LM-03	12	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/30/2018	LM-17	4	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/30/2018	LM-34	21	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	07/30/2018	LM-42	11	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							48	
S321350		Boulder						
	07/30/2018	LM-28	31	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							31	
S321351		Boulder						
	07/30/2018	LA-11	58	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							58	
S321352		Boulder						
	07/30/2018	LO-01	44	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	07/30/2018	LO-08	10	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							54	
S321353		Boulder						
	07/30/2018	LO-08	65	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							65	
S321354		Boulder						
	07/30/2018	SU-02	31	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							31	
S321355		Boulder						
	07/30/2018	LA-11	12	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/30/2018	LO-01	9	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/30/2018	LO-08	8	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	07/30/2018	SU-02	5	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							34	
S321356		Boulder						
	07/31/2018	BO-11	23	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/31/2018	BO-22	42	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S321357		Boulder						
	07/31/2018	BO-11	17	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	07/31/2018	BO-26	48	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321358		Boulder						
	07/31/2018	BO-24	52	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							52	
S321359		Boulder						
	07/31/2018	BO-25	62	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							62	
S321360		Boulder						
	07/31/2018	BO-25	62	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							62	
S321361		Boulder						
	07/31/2018	BO-11	3	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/31/2018	BO-22	9	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	07/31/2018	BO-25	26	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							38	
S321362		Boulder						
	07/31/2018	BO-24	33	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							33	
S321393		Boulder						
	08/06/2018	LM-34	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	
S321394		Boulder						
	08/06/2018	LM-42	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	
S321395		Boulder						
	08/06/2018	LM-42	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							65	
S321396		Boulder						
	08/06/2018	LM-03	31	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	08/06/2018	LM-34	15	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	08/06/2018	LM-42	15	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							61	
S321397		Boulder						
	08/06/2018	LM-17	45	Culex tarsalis	LIGHT	BCZ2	POSITIVE	0.000
	08/06/2018	LM-28	17	Culex tarsalis	LIGHT	BCZ2	POSITIVE	0.000
Total in pool							62	

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S321398		Boulder						
	08/06/2018	LM-03	3	Culex pipiens	LIGHT	BCZ2	POSITIVE	0.000
	08/06/2018	LM-17	6	Culex pipiens	LIGHT	BCZ2	POSITIVE	0.000
	08/06/2018	LM-28	5	Culex pipiens	LIGHT	BCZ2	POSITIVE	0.000
	08/06/2018	LM-34	23	Culex pipiens	LIGHT	BCZ2	POSITIVE	0.000
Total in pool							37	
S321399		Boulder						
	08/06/2018	LM-42	40	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							40	
S321400		Boulder						
	08/06/2018	ER-03	65	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							65	
S321401		Boulder						
	08/06/2018	LA-11	65	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	
S321402		Boulder						
	08/06/2018	ER-03	10	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
	08/06/2018	LA-11	29	Culex tarsalis	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							39	
S321403		Boulder						
	08/06/2018	LO-01	10	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	08/06/2018	LO-08	32	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	08/06/2018	SU-02	8	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							50	
S321404		Boulder						
	08/06/2018	ER-03	15	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/06/2018	LA-11	3	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/06/2018	LO-01	3	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/06/2018	LO-08	28	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/06/2018	SU-02	1	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							50	
S321405		Boulder						
	08/07/2018	BO-25	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321406		Boulder						
	08/07/2018	BO-11	19	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	08/07/2018	BO-22	10	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							29	
S321407		Boulder						
	08/07/2018	BO-24	23	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S321408	08/07/2018	BO-26	24	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	Total in pool						47	
S321408		Boulder						
S321408	08/07/2018	BO-25	60	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	Total in pool						60	
S321409		Boulder						
S321409	08/07/2018	BO-11	1	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/07/2018	BO-22	16	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
S321409	08/07/2018	BO-24	13	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/07/2018	BO-26	21	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool						51		
S321438		Boulder						
S321438	08/13/2018	LM-03	65	Culex tarsalis	LIGHT	BCZ2	POSITIVE	0.000
	Total in pool						65	
S321439		Boulder						
S321439	08/13/2018	LM-28	65	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	Total in pool						65	
S321440		Boulder						
S321440	08/13/2018	LM-34	63	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	Total in pool						63	
S321441		Boulder						
S321441	08/13/2018	LM-42	58	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	Total in pool						58	
S321442		Boulder						
S321442	08/13/2018	LM-03	19	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	08/13/2018	LM-17	24	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
S321442	08/13/2018	LM-28	16	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	Total in pool						59	
S321443		Boulder						
S321443	08/13/2018	LM-28	53	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	Total in pool						53	
S321444		Boulder						
S321444	08/13/2018	LM-03	4	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	08/13/2018	LM-17	3	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
S321444	08/13/2018	LM-34	14	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	08/13/2018	LM-42	34	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool						55		

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
S321445		Boulder						
	08/13/2018	ER-03	56	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							56	
S321446		Boulder						
	08/13/2018	ER-03	56	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							56	
S321447		Boulder						
	08/13/2018	LA-11	65	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							65	
S321448		Boulder						
	08/13/2018	LA-11	32	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	08/13/2018	SU-02	16	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							48	
S321449		Boulder						
	08/13/2018	LO-01	9	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	08/13/2018	LO-08	36	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							45	
S321450		Boulder						
	08/13/2018	ER-03	65	Culex pipiens	LIGHT	BCZ3	POSITIVE	0.000
Total in pool							65	
S321451		Boulder						
	08/13/2018	ER-03	7	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/13/2018	LA-11	15	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/13/2018	LO-01	3	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/13/2018	LO-08	18	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/13/2018	SU-02	2	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							45	
S321452		Boulder						
	08/14/2018	BO-22	56	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							56	
S321453		Boulder						
	08/14/2018	BO-24	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321454		Boulder						
	08/14/2018	BO-25	65	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							65	
S321455		Boulder						
	08/14/2018	BO-11	27	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	08/14/2018	BO-24	3	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000

Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
	08/14/2018	BO-25	3	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	08/14/2018	BO-26	13	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							46	
S321456		Boulder						
	08/14/2018	BO-24	26	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/14/2018	BO-25	28	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							54	
S321457		Boulder						
	08/14/2018	BO-11	2	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/14/2018	BO-22	15	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/14/2018	BO-26	6	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							23	
S321484		Boulder						
	08/20/2018	LM-03	10	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	08/20/2018	LM-17	7	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	08/20/2018	LM-28	18	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	08/20/2018	LM-34	17	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	08/20/2018	LM-42	10	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							62	
S321485		Boulder						
	08/20/2018	LM-03	4	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	08/20/2018	LM-17	1	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	08/20/2018	LM-28	16	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	08/20/2018	LM-34	9	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	08/20/2018	LM-42	26	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							56	
S321486		Boulder						
	08/20/2018	ER-03	29	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							29	
S321487		Boulder						
	08/20/2018	LA-11	23	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	08/20/2018	LO-01	1	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	08/20/2018	LO-08	15	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	08/20/2018	SU-02	5	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							44	
S321488		Boulder						
	08/20/2018	ER-03	58	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							58	
S321489		Boulder						
	08/20/2018	LA-11	17	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/20/2018	LO-01	1	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000

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Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
	08/20/2018	LO-08	4	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/20/2018	SU-02	2	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							24	
S321490		Boulder						
	08/21/2018	BO-11	8	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	08/21/2018	BO-22	34	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	08/21/2018	BO-24	8	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							50	
S321491		Boulder						
	08/21/2018	BO-25	32	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	08/21/2018	BO-26	28	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							60	
S321492		Boulder						
	08/21/2018	BO-11	3	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/21/2018	BO-22	20	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/21/2018	BO-24	1	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/21/2018	BO-25	39	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/21/2018	BO-26	1	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							64	
S321514		Boulder						
	08/27/2018	LM-03	20	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	08/27/2018	LM-17	3	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	08/27/2018	LM-28	15	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							38	
S321515		Boulder						
	08/27/2018	LM-34	24	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
	08/27/2018	LM-42	16	Culex tarsalis	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							40	
S321516		Boulder						
	08/27/2018	LM-03	2	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	08/27/2018	LM-28	12	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	08/27/2018	LM-34	3	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
	08/27/2018	LM-42	15	Culex pipiens	LIGHT	BCZ2	NEGATIVE	0.000
Total in pool							32	
S321517		Boulder						
	08/27/2018	ER-03	44	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							44	
S321518		Boulder						
	08/27/2018	LA-11	28	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	08/27/2018	LO-01	14	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
	08/27/2018	LO-08	11	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000

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POOL-001

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Sample	Collection	Trap	Quantity	Species	Type	Notes	Results	MIR
	08/27/2018	SU-02	2	Culex tarsalis	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							55	
S321519		Boulder						
	08/27/2018	ER-03	21	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/27/2018	LA-11	1	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/27/2018	LO-01	5	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
	08/27/2018	LO-08	4	Culex pipiens	LIGHT	BCZ3	NEGATIVE	0.000
Total in pool							31	
S321520		Boulder						
	08/28/2018	BO-11	4	Culex tarsalis	LIGHT	BCZ1	POSITIVE	0.000
	08/28/2018	BO-22	39	Culex tarsalis	LIGHT	BCZ1	POSITIVE	0.000
	08/28/2018	BO-26	3	Culex tarsalis	LIGHT	BCZ1	POSITIVE	0.000
Total in pool							46	
S321521		Boulder						
	08/28/2018	BO-24	10	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
	08/28/2018	BO-25	24	Culex tarsalis	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							34	
S321522		Boulder						
	08/28/2018	BO-22	13	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/28/2018	BO-24	1	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/28/2018	BO-25	6	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
	08/28/2018	BO-26	7	Culex pipiens	LIGHT	BCZ1	NEGATIVE	0.000
Total in pool							27	

Appendix C: Boulder County Public Health Sentinel Zones 1-3 Light Trap Summaries

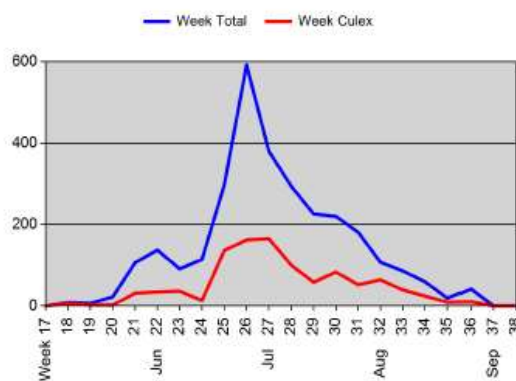
2018 BCZ1 Sentinel Zone Trap Composite Data

Total number of trap/nights set: 85
Total number of mosquitoes collected: 14,809
Average mosquitoes per trap/night: 174
Average Culex per trap/night: 60

Species collected and abundance:

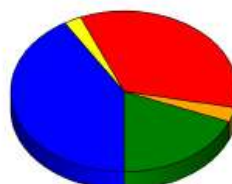
<i>Aedes (Oc.) dorsalis</i>	244	1.6 %
<i>Aedes (Oc.) hendersoni</i>	4	0.0 %
<i>Aedes (Oc.) inaeptus</i>	204	1.4 %
<i>Aedes (Oc.) melanimon</i>	247	1.7 %
<i>Aedes (Oc.) nigromaculis</i>	2	0.0 %
<i>Aedes (Oc.) trivittatus</i>	322	2.2 %
<i>Aedes cinereus</i>	1	0.0 %
<i>Aedes vexans</i>	5080	34.3 %
<i>Aedes (Oc.) sollicitans</i>	1	0.0 %
<i>Anopheles freeborni</i>	371	2.5 %
<i>Coquillettidia perturbans</i>	2791	18.8 %
<i>Culex pipiens</i>	574	3.9 %
<i>Culex salinarius</i>	167	1.1 %
<i>Culex tarsalis</i>	4360	29.4 %
<i>Culex territans</i>	4	0.0 %
<i>Culiseta inornata</i>	437	3.0 %

Seasonality



Genus proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	6,105	41.2 %
<i>Anopheles</i>	371	2.5 %
<i>Culex</i>	5,105	34.5 %
<i>Culiseta</i>	437	3.0 %
Other	2,791	18.8 %



Count AEOC
Count AN
Count CX
Count CU
Count OTHER

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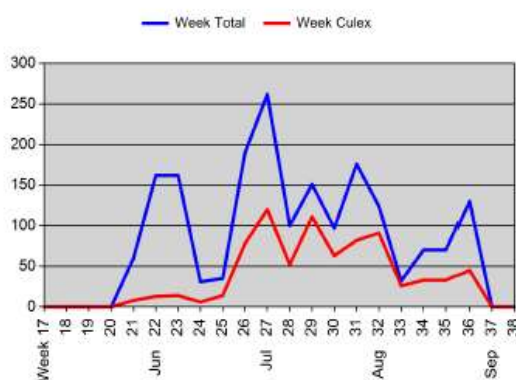
2018 BCZ2 Sentinel Zone Trap Composite Data

Total number of trap/nights set: 75
Total number of mosquitoes collected: 8,903
Average mosquitoes per trap/night: 119
Average Culex per trap/night: 50

Species collected and abundance:

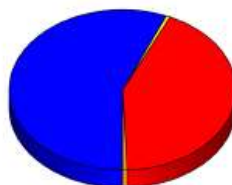
<i>Aedes (Oc.) dorsalis</i>	474	5.3 %
<i>Aedes (Oc.) inaeptus</i>	50	0.6 %
<i>Aedes (Oc.) melanimon</i>	71	0.8 %
<i>Aedes (Oc.) trivittatus</i>	36	0.4 %
<i>Aedes cinereus</i>	14	0.2 %
<i>Aedes vexans</i>	4368	49.1 %
<i>Anopheles freeborni</i>	51	0.6 %
<i>Culex pipiens</i>	720	8.1 %
<i>Culex salinarius</i>	312	3.5 %
<i>Culex tarsalis</i>	2749	30.9 %
<i>Culiseta inornata</i>	58	0.7 %

Seasonality



Genus proportions:

Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	5,013	56.3 %
<i>Anopheles</i>	51	0.6 %
<i>Culex</i>	3,781	42.5 %
<i>Culiseta</i>	58	0.7 %
Other	0	0.0 %



Count AEOC
Count AN
Count CX
Count CU
Count OTHER

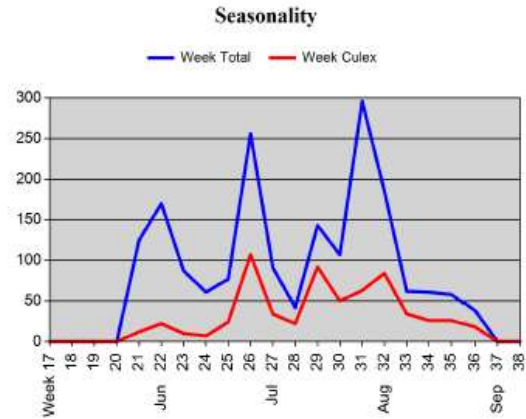
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2018 BCZ3 Sentinel Zone Trap Composite Data

Total number of trap/nights set: 73
 Total number of mosquitoes collected: 9,009
 Average mosquitoes per trap/night: 123
 Average Culex per trap/night: 41

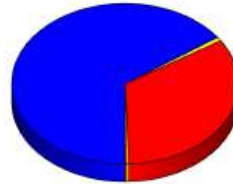
Species collected and abundance:

<i>Aedes (Oc.) dorsalis</i>	76	0.8 %
<i>Aedes (Oc.) hendersoni</i>	1	0.0 %
<i>Aedes (Oc.) inaeptus</i>	51	0.6 %
<i>Aedes (Oc.) melanimon</i>	253	2.8 %
<i>Aedes (Oc.) nigromaculis</i>	2	0.0 %
<i>Aedes (Oc.) trivittatus</i>	132	1.5 %
<i>Aedes vexans</i>	5356	59.5 %
<i>Anopheles freeborni</i>	71	0.8 %
<i>Coquillettidia perturbans</i>	5	0.1 %
<i>Culex pipiens</i>	535	5.9 %
<i>Culex salinarius</i>	137	1.5 %
<i>Culex tarsalis</i>	2345	26.0 %
<i>Culiseta incidens</i>	3	0.0 %
<i>Culiseta inornata</i>	42	0.5 %



Genus proportions:

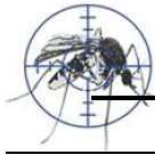
Genus	Number	Percent of Total
<i>Aedes/Ochlerotatus</i>	5,871	65.2 %
<i>Anopheles</i>	71	0.8 %
<i>Culex</i>	3,017	33.5 %
<i>Culiseta</i>	45	0.5 %
Other	5	0.1 %



Count AEOC
 Count AN
 Count CX
 Count CU
 Count OTHER

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Appendix D: Boulder County Mosquito Control District Adulticide Application Data



Ground Adulticide Applications

Start Date: 6/1/2018 End Date: 9/30/2018

Boulder County								
Month	Date	Municipality	Chemical	Mix Ratio	Trip Miles	Spray Miles	Spray Acres	Gallons Sprayed
Treatment Area Anhawa Applications								
July 2018	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	2.5	81.4	0.7
<i>Total Aqua-Kontrol 30-30 Applied:</i>								0.7
<i>Zone Anhawa Totals:</i>					4.0	2.5	81.4	0.7
Treatment Area Boulder Hills Applications								
June 2018	6/6/2018		Aqualuer 20-20 (769-985)	1:3	12.0	3.3	117.9	1.0
	6/13/2018		Aqualuer 20-20 (769-985)	1:3	11.0	4.7	171.2	1.4
<i>Total Aqualuer 20-20 Applied:</i>								2.3
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	3.7	135.3	1.1
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	12.0	3.8	138.2	1.1
	7/18/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	3.8	138.5	1.1
	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	6.0	3.6	129.4	1.0
<i>Total Aqua-Kontrol 30-30 Applied:</i>								4.4
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	15.0	4.2	153.9	1.2
	8/8/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	26.0	3.7	135.8	1.1
	8/15/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	26.0	3.6	131.5	1.1
	8/29/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	3.8	137.1	1.1
<i>Total Aqua-Kontrol 30-30 Applied:</i>								4.5
<i>Zone Boulder Hills Totals:</i>					123.0	38.2	1,388.8	11.2
Treatment Area Brigadoon Glen/Rangeview/Oriole Applications								
June 2018	6/20/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	18.0	5.4	194.9	1.6
	6/27/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	14.0	8.1	295.1	2.4
<i>Total Aqua-Kontrol 30-30 Applied:</i>								3.9
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	12.0	5.3	192.9	1.6
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	13.0	5.7	206.3	1.6
	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	9.0	5.4	196.6	1.6
<i>Total Aqua-Kontrol 30-30 Applied:</i>								4.8
<i>Glen/Rangeview/Oriole Totals:</i>					66.0	29.8	1,085.7	8.7

Month	Date	Municipality	Chemical	Mix Ratio	Trip Miles	Spray Miles	Spray Acres	Gallons Sprayed		
Treatment Area Brownsville/Canfield Applications										
June 2018	6/6/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	7.0	4.6	167.3	1.4		
	6/13/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	7.0	4.9	179.9	1.4		
	6/27/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	20.0	4.7	172.3	1.4		
					Total Aqua-Kontrol 30-30 Applied:			4.2		
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	22.0	4.6	166.4	1.3		
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	16.0	5.3	192.2	1.6		
						Total Aqua-Kontrol 30-30 Applied:			2.9	
August 2018	8/8/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	8.0	5.1	186.4	1.5		
						Total Aqua-Kontrol 30-30 Applied:			1.5	
	e Brownsville/Canfield Totals:					80.0	29.2	1,064.5	8.6	
Treatment Area Chance Acres Applications										
June 2018	6/13/2018		Aqualuer 20-20 (769-985)	1:3	6.0	1.4	52.1	0.4		
						Total Aqualuer 20-20 Applied:			0.4	
	July 2018		7/25/2018	Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	1.5	54.5	0.4	
					Total Aqua-Kontrol 30-30 Applied:			0.4		
August 2018		8/8/2018	Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	1.5	55.2	0.4		
						Total Aqua-Kontrol 30-30 Applied:			0.4	
	Zone Chance Acres Totals:					16.0	4.4	161.7	1.3	
Treatment Area Divide Reservoir Applications										
June 2018	6/13/2018		Aqualuer 20-20 (769-985)	1:3	35.0	1.1	41.0	0.3		
						Total Aqualuer 20-20 Applied:			0.3	
	July 2018		7/3/2018	Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.2	42.4	0.3	
					Total Aqua-Kontrol 30-30 Applied:			0.3		
Zone Divide Reservoir Totals:					37.0	2.3	83.4	0.7		
Treatment Area Gaynor Lake Applications										
June 2018	6/6/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	1.6	58.3	0.5		
						Total Aqua-Kontrol 30-30 Applied:			0.5	
	Zone Gaynor Lake Totals:					4.0	1.6	58.3	0.5	
Treatment Area Gunbarrel Green Applications										
June 2018	6/6/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	3.2	116.4	1.1		
	6/13/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	7.0	3.6	131.9	1.1		
	6/20/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	3.1	112.2	0.9		

Month	Date	Municipality	Chemical	Mix Ratio	Trip Miles	Spray Miles	Spray Acres	Gallons Sprayed
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	3.9	140.0	1.0
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	3.5	127.3	1.1
	7/18/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	22.0	6.5	126.9	1.0
	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	3.5	126.4	1.0
<i>Total Aqua-Kontrol 30-30 Applied:</i>								4.2
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	7.0	3.4	124.6	1.0
	8/8/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	8.0	3.5	127.3	1.0
	8/15/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	8.0	3.5	127.7	1.0
<i>Total Aqua-Kontrol 30-30 Applied:</i>								3.1
<i>Zone Gunbarrel Green Totals:</i>					76.0	37.6	1,260.6	10.3
Treatment Area Heatherwood Applications								
June 2018	6/6/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	7.0	4.0	146.8	1.2
<i>Total Aqua-Kontrol 30-30 Applied:</i>								1.2
July 2018	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	6.0	3.9	141.8	1.1
	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	6.0	4.2	153.0	1.2
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	7.0	4.1	149.6	1.2
<i>Total Aqua-Kontrol 30-30 Applied:</i>								1.2
<i>Zone Heatherwood Totals:</i>					26.0	16.2	591.3	4.7
Treatment Area Hillcrest Heights Applications								
June 2018	6/6/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	2.4	86.1	0.7
	6/13/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	2.4	87.4	0.7
<i>Total Aqua-Kontrol 30-30 Applied:</i>								1.4
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	6.0	6.0	218.2	1.0
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	22.0	2.3	83.6	0.7
	7/18/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	14.0	2.9	106.5	0.9
	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	2.3	85.3	0.7
<i>Total Aqua-Kontrol 30-30 Applied:</i>								3.2
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	20.0	2.6	94.8	0.8
	8/8/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	2.4	88.1	0.7
<i>Total Aqua-Kontrol 30-30 Applied:</i>								1.5
<i>Zone Hillcrest Heights Totals:</i>					79.0	23.4	850.0	6.1

Month	Date	Municipality	Chemical	Mix Ratio	Trip Miles	Spray Miles	Spray Acres	Gallons Sprayed
Treatment Area Hygiene Applications								
June 2018	6/20/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	6.0	4.2	152.7	1.2
					<i>Total Aqua-Kontrol 30-30 Applied:</i>			1.2
June 2018	6/6/2018		Aqualuer 20-20 (769-985)	1:3	13.0	4.0	146.2	1.2
	6/13/2018		Aqualuer 20-20 (769-985)	1:3	19.0	4.7	171.1	1.4
					<i>Total Aqualuer 20-20 Applied:</i>			2.6
July 2018	7/3/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	6.0	4.2	151.5	1.2
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	7.0	4.2	152.7	1.3
	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	11.0	4.3	155.8	1.2
					<i>Total Aqua-Kontrol 30-30 Applied:</i>			3.7
Zone Hygiene Totals:					62.0	25.6	929.9	7.5
Treatment Area Lookout Drive Applications								
August 2018	8/9/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	13.0	0.6	23.1	0.2
					<i>Total Aqua-Kontrol 30-30 Applied:</i>			0.2
Zone Lookout Drive Totals:					13.0	0.6	23.1	0.2
Treatment Area Marshall Road Applications								
June 2018	6/7/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	1.0	1.0	38.0	0.3
June 2018	6/14/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	6.0	1.2	43.6	0.4
					<i>Total Aqua-Kontrol 30-30 Applied:</i>			0.7
July 2018	7/3/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	8.0	1.0	37.0	0.3
					<i>Total Aqua-Kontrol 30-30 Applied:</i>			0.3
Zone Marshall Road Totals:					15.0	3.3	118.7	1.0
Treatment Area McCall Lake Applications								
June 2018	6/20/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	2.1	75.8	0.6
					<i>Total Aqua-Kontrol 30-30 Applied:</i>			0.6
July 2018	7/3/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	11.0	2.1	75.7	0.6
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	2.0	72.7	0.6
					<i>Total Aqua-Kontrol 30-30 Applied:</i>			1.2
Zone McCall Lake Totals:					16.0	6.2	224.3	1.9
Treatment Area Niwot Applications								
June 2018	6/13/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	26.0	13.2	481.5	3.9
					<i>Total Aqua-Kontrol 30-30 Applied:</i>			3.9
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	30.0	14.4	521.9	4.2
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	29.0	13.0	472.7	3.8
					<i>Total Aqua-Kontrol 30-30 Applied:</i>			8.0
Zone Niwot Totals:					85.0	40.6	1,476.1	11.9

Month	Date	Municipality	Chemical	Mix Ratio	Trip Miles	Spray Miles	Spray Acres	Gallons Sprayed
Treatment Area Nivot Walking Path Applications								
August 2018	8/8/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	1.0	1.1	38.6	0.3
<i>Total Aqua-Kontrol 30-30 Applied:</i>								<i>0.3</i>
<i>Nivot Walking Path Totals:</i>					<i>1.0</i>	<i>1.1</i>	<i>38.6</i>	<i>0.3</i>
Treatment Area North Rim/Lake Valley Estates Applications								
June 2018	6/20/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	12.0	4.7	171.3	1.4
	6/27/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	13.0	4.9	176.0	1.4
<i>Total Aqua-Kontrol 30-30 Applied:</i>								<i>2.8</i>
June 2018	6/6/2018		Aqualuer 20-20 (769-985)	1:3	13.0	4.6	167.4	1.3
	6/13/2018		Aqualuer 20-20 (769-985)	1:3	13.0	4.4	159.1	1.3
<i>Total Aqualuer 20-20 Applied:</i>								<i>2.6</i>
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	8.0	4.5	164.0	1.3
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	12.0	4.7	170.9	1.4
	7/18/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	12.0	4.6	167.5	1.4
July 2018	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	8.0	4.3	157.9	1.3
<i>Total Aqua-Kontrol 30-30 Applied:</i>								<i>5.3</i>
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	13.0	4.7	169.4	1.4
	8/8/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	16.0	4.7	171.3	1.4
	8/15/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	13.0	4.6	168.3	1.4
<i>Total Aqua-Kontrol 30-30 Applied:</i>								<i>4.1</i>
<i>North Rim/Lake Valley Estates Totals:</i>					<i>133.0</i>	<i>50.7</i>	<i>1,843.2</i>	<i>14.9</i>
Treatment Area Orange Orchard/Pleasant Ridge Applications								
June 2018	6/20/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	1.6	58.2	0.5
<i>Total Aqua-Kontrol 30-30 Applied:</i>								<i>0.5</i>
June 2018	6/6/2018		Aqualuer 20-20 (769-985)	1:3	11.0	1.3	48.8	0.4
	6/13/2018		Aqualuer 20-20 (769-985)	1:3	11.0	1.5	55.5	0.4
<i>Total Aqualuer 20-20 Applied:</i>								<i>0.8</i>
July 2018	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	10.0	1.8	65.5	0.5
	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	2.0	71.8	0.6
<i>Total Aqua-Kontrol 30-30 Applied:</i>								<i>1.1</i>
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	11.0	1.9	70.1	0.6
<i>Total Aqua-Kontrol 30-30 Applied:</i>								<i>0.6</i>
<i>Orange Orchard/Pleasant Ridge Totals:</i>					<i>49.0</i>	<i>10.2</i>	<i>369.9</i>	<i>3.0</i>

Month	Date	Municipality	Chemical	Mix Ratio	Trip Miles	Spray Miles	Spray Acres	Gallons Sprayed
Treatment Area Park Lake Applications								
June 2018	6/6/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	1.8	65.3	0.5
	6/13/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	8.0	2.0	73.2	0.6
	6/20/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	1.9	68.4	0.5
	6/27/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	1.9	69.4	0.6
Total Aqua-Kontrol 30-30 Applied:								2.2
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	2.0	72.8	0.6
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	1.9	69.1	0.6
Total Aqua-Kontrol 30-30 Applied:								1.1
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.8	66.7	0.5
	8/8/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	1.8	63.7	0.4
Total Aqua-Kontrol 30-30 Applied:								1.0
Zone Park Lake Totals:					30.0	15.1	548.4	4.3
Treatment Area Red Fox Hills Applications								
June 2018	6/13/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	1.2	44.6	0.4
Total Aqua-Kontrol 30-30 Applied:								0.4
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.2	43.3	0.4
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.1	40.0	0.3
	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.2	45.4	0.4
Total Aqua-Kontrol 30-30 Applied:								1.1
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.1	39.6	0.3
	8/8/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.1	40.7	0.3
	8/15/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.2	43.7	0.4
	8/29/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.1	41.2	0.3
Total Aqua-Kontrol 30-30 Applied:								1.3
Zone Red Fox Hills Totals:					19.0	9.3	338.5	2.8
Treatment Area Red Fox Hills/Twin Lakes Applications								
June 2018	6/6/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	7.0	2.8	108.1	0.8
1 Fox Hills/Twin Lakes Totals:					7.0	2.8	108.1	0.8
Treatment Area Ridglea Hills Applications								
June 2018	6/14/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	7.0	1.2	42.8	0.3
Total Aqua-Kontrol 30-30 Applied:								0.3
Zone Ridglea Hills Totals:					7.0	1.2	42.8	0.3
Treatment Area San Lazaro/Cline Trout farm Applications								
July 2018	7/3/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	0.8	30.3	0.2
Total Aqua-Kontrol 30-30 Applied:								0.2
San Lazaro/Cline Trout farm Totals:					3.0	0.8	30.3	0.2

Month	Date	Municipality	Chemical	Mix Ratio	Trip Miles	Spray Miles	Spray Acres	Gallons Sprayed
Treatment Area South Meadows Applications								
June 2018	6/6/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	1.9	69.6	0.6
	6/13/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	2.1	75.8	0.6
	6/20/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	1.8	65.1	0.5
					Total Aqua-Kontrol 30-30 Applied:			1.7
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	1.8	64.8	0.5
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	2.0	72.7	0.6
	7/18/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	6.0	1.9	68.1	0.5
July 2018	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	3.0	2.0	73.9	0.6
						Total Aqua-Kontrol 30-30 Applied:		
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	1.9	68.7	0.6
	8/8/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	6.0	2.0	72.0	0.6
	8/15/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	1.9	70.4	0.6
					Total Aqua-Kontrol 30-30 Applied:			1.7
Zone South Meadows Totals:					41.0	19.3	701.0	5.7
Treatment Area Twin Lakes Applications								
June 2018	6/13/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	2.1	78.0	0.6
						Total Aqua-Kontrol 30-30 Applied:		
Zone Twin Lakes Totals:					4.0	2.1	78.0	0.6
Treatment Area Twin Lakes Regional Trail Applications								
August 2018	8/22/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	35.0	0.9	33.3	0.3
						Total Aqua-Kontrol 30-30 Applied:		
n Lakes Regional Trail Totals:					35.0	0.9	33.3	0.3
Treatment Area Valmont & 61st Applications								
July 2018	7/3/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	6.0	1.6	58.7	0.5
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	0.0	0.2	7.2	0.1
						Total Aqua-Kontrol 30-30 Applied:		
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	2.0	72.6	0.6
						Total Aqua-Kontrol 30-30 Applied:		
Zone Valmont & 61st Totals:					8.0	3.8	138.4	1.1
Treatment Area Valmont & 75th Applications								
June 2018	6/6/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	2.1	77.2	0.6
	6/13/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	2.2	81.4	0.7
	6/27/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	7.0	2.3	82.1	0.7
					Total Aqua-Kontrol 30-30 Applied:			1.9

Month	Date	Municipality	Chemical	Mix Ratio	Trip Miles	Spray Miles	Spray Acres	Gallons Sprayed
July 2018	7/3/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	17.0	2.0	71.8	0.6
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	2.7	98.2	0.8
	7/18/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	2.1	76.0	0.6
<i>Total Aqua-Kontrol 30-30 Applied:</i>								2.0
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	2.0	72.2	0.6
	<i>Total Aqua-Kontrol 30-30 Applied:</i>							0.6
Zone Valmont & 75th Totals:					46.0	15.3	558.8	4.5
Treatment Area Willis Heights Applications								
July 2018	7/25/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	4.0	1.7	63.6	0.5
<i>Total Aqua-Kontrol 30-30 Applied:</i>								0.5
Zone Willis Heights Totals:					4.0	1.7	63.6	0.5
Treatment Area Willow Glen/Fox Run Applications								
June 2018	6/6/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.2	42.9	0.3
	6/13/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.2	44.2	0.4
	6/20/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.2	43.4	0.3
	6/27/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.2	42.4	0.3
<i>Total Aqua-Kontrol 30-30 Applied:</i>								1.4
July 2018	7/5/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.2	43.7	0.4
	7/11/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	9.0	1.2	43.6	0.4
<i>Total Aqua-Kontrol 30-30 Applied:</i>								0.7
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.2	43.3	0.3
	8/8/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	2.0	1.2	43.3	0.3
<i>Total Aqua-Kontrol 30-30 Applied:</i>								0.7
Willow Glen/Fox Run Totals:					23.0	9.5	346.8	2.8
Treatment Area Willows Applications								
June 2018	6/6/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	1.2	43.5	0.4
	6/13/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	5.0	0.9	33.8	0.3
<i>Total Aqua-Kontrol 30-30 Applied:</i>								0.6
Zone Willows Totals:					10.0	2.1	77.3	0.6
Treatment Area Woodbourne Hollow Rd Applications								
August 2018	8/1/2018		Aqua-Kontrol 30-30 (73748-11)	1:5	19.0	0.5	18.9	0.2
<i>Total Aqua-Kontrol 30-30 Applied:</i>								0.2
Woodbourne Hollow Rd Totals:					19.0	0.5	18.9	0.2
Treatment Area Yellowstone Road Applications								
June 2018	6/6/2018		Aqualuer 20-20 (769-985)	1:3	5.0	4.1	149.3	1.2
<i>Total Aqualuer 20-20 Applied:</i>								1.2
Zone Yellowstone Road Totals:					5.0	4.1	149.3	1.2
Grand Totals:					1,154.0	412.0	14,882.6	119.4

Appendix E: 2018 BCMCD Program Elements by Hours

Program Category	Approximate Hours	Percentage
Larval Surveillance & Control	9,268	87%
Adult Surveillance & Laboratory	635	6%
Adult ULV Control	232	2%
Public Education/Relations and Reporting	525	5%
Total	10,661	100%