

2021 Annual Report City of Fort Collins Mosquito Control Program



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City of Fort Collins Mosquito Management Operations

Annual Report For 2021

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Program Objectives

Vector Disease Control International, LLC (VDCI) completed its 18th year of cost-effective Integrated Mosquito Management (IMM) for the City of Fort Collins in 2021. The primary objective of Fort Collins' IMM Program is to monitor and reduce mosquito populations through the use of specific, environmentally sound, control techniques in order to protect its residents from the threat of mosquito-borne diseases. 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 HOA Residents, Property Management Companies, the Weld and Larimer County Departments of Health & Environment and surrounding municipalities to ensure that the highest level of mosquito control and epizootic response is achieved. This diligent and cooperative communication is important to the Fort Collins 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 Fort Collins, 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.

2021 Season Perspective

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. Precipitation in Northern Colorado was well above average during the spring of 2021, with areas in Larimer and Weld counties receiving precipitation upwards of 4" above average. Due to the excess of precipitation, Northern Colorado experienced a significantly high abundance season for adult mosquitoes that continued on for much of the summer.



Temperatures throughout Northern Colorado seem to increase every summer and 2021 was no different. The 2021 season was hot, with Larimer and Weld counties consistently seeing temperatures above 90 degrees. However, once September came, the nightly lows began to dip into the 50s and even 40s, which greatly reduces both the mosquito life cycle and adult mosquito activity. However, some overwintering species, such as those in the genera Culex can and do move indoors in anticipation for the winter.



Generated 9/19/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers/Generated 9/19/2021 at HPRCC using provisional data

NOAA Regional Climate Centers

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 since its introduction has produced two additional, large nationwide epidemics in 2003 and 2012 (WNv Guidelines, CDC 2013).

As of September 21st, 2021, a total of 42 states and the District of Columbia have reported West Nile virus infections in people, birds, or mosquitoes. Overall, 479 cases of West Nile virus disease in people have been reported to CDC. Of these, 315 (66%) were classified as neuroinvasive disease (such as meningitis or encephalitis) and 164 (34%) were classified as neuroinvasive disease.

West Nile Virus Activity by State – United States, 2021 (as of September 21, 2021)



West Nile Virus Neuroinvasive Disease Incidence by State – United States, 2021 (as of September 21, 2021)



Colorado 2021

As of September 29th, 2021 The Colorado Department of Health and Environment reports a total of 116 human cases of West Nile virus infection from the state of Colorado. In Northern Colorado, 18 human cases are reported from Larimer County, and 16 from Weld County. While we have passed the historical peak of WNv risk these numbers are expected to rise as there is often a delay in onset of symptoms, diagnosis and reporting. Please note that the additional cases reported by CDPHE will also be reported to the Centers for Disease Control.

Fifteen counties across the state of Colorado have reported human West Nile virus infection. These include Adams, Arapahoe, Boulder, Broomfield, Delta, Denver, Douglas, El Paso, Jefferson, Kit Carson, Larimer, Montrose, Pueblo, Weld, and Yuma.



Human West Nile virus cases per 1000 population by county of residence, 2021



Larval Mosquito Control

Larval mosquito control is the foundation of the City of Fort Collins' 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 a pest population to a tolerable level.

Pre-season larval control work involved ground truthing GIS maps and remapping areas where new development or flooding had altered the landscape. VDCI began larval site inspections in many areas mid-April. Hiring of seasonal field technicians began in March and continued into May. VDCI's Annual Field Technician Classroom Training Day took place on May 17th with special online courses this year due to Covid-19. Field training by VDCI management and veteran employees lasted through May and full-time field activities were in full force by early June.

In 2021, Vector Disease Control field technicians performed 6,626 larval site inspections with Fort Collins, of which 4,484 (71.6%) were wet upon inspection, 2,195 (49.0% of wet sites) were producing mosquito larvae. To prevent these larvae from emerging as adult mosquitoes, VDCI applied 4,944.6 lbs. of VectoBac (Bti) and 17.4 gal of BVA 2 mineral oil to 1,191.2 acres of land.

During 2021, VDCI technicians performed site inspections at 108 residences as part of our backyard inspection program. VDCI also performed treatments at approximately 560 stormdrains. Drains that were wet or had the potential to hold water were treated with long term larvicide products including Altosid pellets, briquettes, and VectoLex WSP (Bsph).



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. A broad label allows for the use of the product in the majority of the habitats throughout the service area. Another bacterial product closely related to *Bti* is *Bacillus sphaericus (Bs)*. *BS* provides similar benefits to *Bti* while also providing residual control of certain species of mosquitoes. It is used specifically in difficult to treat areas where *Culex* are the predominant species due to its limitations and high cost.

Other larval control products include the insect growth regulator 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 Surveillance Laboratory

Information about mosquito abundance and species diversity is essential to integrated program. Vector Disease Control International utilizes two kinds of traps to monitor mosquito



populations. The most commonly used 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 CO_{2} , the mosquitoes are lured by a small light to a fan that pulls them into a net for The second type of trap VDCI collection. uses is called a gravid trap. Gravid traps use a tub of highly-organic water as bait to attract female mosquitoes that are looking for a place to lay their eggs. A fan placed close to the water surface forces mosquitoes that come to the water into a collection net. Once back in the laboratory, the contents of the trap nets are counted and speciated by trained technicians.

In 2021, Vector Disease Control International monitored a statewide network of hundreds of weekly trap sites, collecting adult mosquitoes that were counted and identified to species by the VDCI Surveillance Laboratories. While individual traps provide only limited information, trap data is interpreted in the context of historical records for the same trap site, going back in time more than a decade. Individual traps are also compared to other traps from around 2021 Annual Report of Mosquito Management Operations

Vector Disease Control International

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 I&L technicians prior to larviciding being identified to species. 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 kinds 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.

SURVEILLANCE LIGHT TRAP DATA

In 2021, there were 637 CDC light surveillance traps set within the City of Fort Collins, which collected a total of 64,438 mosquitoes. This year there was an average of 101.2 mosquitoes caught per trap per night and an average 56.5 *Culex* mosquitoes per trap per night. The composition of mosquitoes collected was 55.9% (36,005) *Culex spp.*, 40.7% (26,207) *Aedes/Ochlerotatus spp.*, and 1.2% (982) *Culiseta spp.*

2021 Fort Collins Trap Composite Data

Total number of trap/nights set:		637	
Total number of mosquitoes collected:		64,438.0	
Average mosquitoes per trap/night:		101.2	
Average Culex per trap/night:		56.5	10,00
Species collected and abundance:			8,00 7,00 6,00
Aedes cinereus	195.0	0.3%	5,00 4,00
Aedes dorsalis	1,828.0	2.8%	3,00 2,00
Aedes fitchii	9.0	0.0%	1,00
Aedes hendersoni	16.0	0.0%	
Aedes increpitus	2,975.0	4.6%	
Aedes melanimon	1,072.0	1.7%	
Aedes nigromaculis	5.0	0.0%	
Aedes trivittatus	26.0	0.0%	
Aedes vexans	20,081.0	31.2%	
Anopheles earlei	4.0	0.0%	
Anopheles freeborni	473.0	0.7%	
Coquillettidia perturbans	982.0	1.5%	
Culex pipiens	14,651.0	22.7%	
Culex tarsalis	21,354.0	33.1%	
Culiseta inornata	766.0	1.2%	
Culiseta spp.	1.0	0.0%	



Genus Proportions:		
Genus	Number	Percent of Total
Aedes/Ochlerotatus	26,207	40.7%
Anopheles	477	0.7%
Culex	36,005	55.9%
Culiseta	767	1.2%
Other	982	1.5%

Adult Mosquito Surveillance Summary

Start Date: 05/01/2021 End Date: 09/20/2021



CSU WEST NILE VIRUS MOSQUITO SAMPLE TESTING RESULTS - LARIMER COUNTY

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 0.5, 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.

As stated on the CDPHE website, the seasonal variation of West Nile virus risk can change throughout a summer and it is best to assume you have some risk for WNV if you have mosquitoes.

As of Sept 20th, 2021 Colorado State University's Department of Microbiology, Immunology and Pathology, has tested a total of 1,831 mosquito pools from Larimer County. A total of 122 mosquito pool samples have tested positive for WNv with 9 of those being collected from Berthoud, 15 from Loveland and 98 from the Fort Collins. Testing of these mosquitoes for West Nile virus is paid for by the Town of Berthoud, the City of Fort Collins, and the City of Loveland. It's important to note that the large number of WNv positive sample pools reported from Fort Collins is highly correlated with the fact they test all mosquitoes with the potential for transmitting disease versus just a subset of the population.

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 Fort Collins Mosquito Management Program is to control mosquitoes in the larval stage, using safe biological control products. VDCI uses EPA and CDC approved adulticides to reduce mosquito populations. During the 2021 season a total of 459.5 miles of roads and access paths within Fort Collins were fogged using Aqua Perm-X UL 3030.

*Please see Appendix 2 for Ground Adulticide Application Data

VDCI was also privately contracted to perform adult mosquito control for Countryside HOA, Greenstone HOA, Lindenwood HOA, Ridgewood Hills HOA, and Willow Springs HOA, during the 2021 season. A total of 61.6 miles within these neighborhoods were sprayed via ground based vehicles with Ultra Low Volume (ULV) AquaKontrol mosquito adulticides to reduce adult mosquito populations.

In response to elevated West Nile virus activity in 2021 the City of Fort Collins and Larimer County Department of Health requested emergency ULV truck-based control efforts within Fort Collins and adjacent areas of Larimer County on August 12th, August 15th, August 26th, August 29th, September 9th, and September 12th. Due to inclement weather, applications for August 26th were rescheduled for September 1st although this application was ultimately cancelled due to inclement weather.

*Please see Appendix 4 for Scheduled Emergency Application Maps

VDCI uses state of the art technology, calibrated application timing, and least-toxic products to minimize non-target impacts. All adult mosquito control is accomplished using Ultra Low Volume (ULV) fogging equipment and performed after dusk when the majority of mosquito species are most active. This type of equipment produces droplets averaging 12 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 greater 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.

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 Fort Collins (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 (877-276-4306) and local line to the Northern Colorado Office (970-278-9977) at no cost to the customer. This service can be utilized to accept calls from the public concerning:

- * Information about mosquito biology and source reduction of mosquito habitats
- ℜ information on program components, operations and monitoring
- ℜ 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 via a shut-off list
- * Request notification when adulticide spraying is planned in their neighborhood
- Request health and safety information about mosquito control operations and pesticide products used

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.

VDCI received 18 phone calls from Fort Collins residents in 2021. VDCI received 6 calls from residents reporting larval mosquito sites in their area. VDCI inspected all of the reported sites and added new sites if found producing mosquito larvae and were not already part of our regular inspection program. VDCI received 12 mosquito annoyance calls from residents of the City of Fort Collins, who were requesting information on how the decisions on adulticiding are made. VDCI provided the relevant information and directed them to the city's website for further information.

Appendix 1: Individual Light Trap Summaries FC-001

19.9

05/01/2021 - 09/20/2021 Season: Trap Type: CDC Light Trap Location: Magic Carpet GPS: 40.49087011315602, -105.08256990462542 Total number of trap/nights set: 12.0 Total number of mosquitoes collected: 265.0 22.1

Average mosquitoes per trap/night:
Average Culex per trap/night:
Species collected and abundance:

Aedes dorsalis	2.0	0.8%
Aedes melanimon	1.0	0.4%
Aedes vexans	19.0	7.2%
Anopheles freeborni	3.0	1.1%
Culex pipiens	68.0	25.7%
Culex tarsalis	171.0	64.5%
Culiseta inornata	1.0	0.4%









Aedes dorsalis	46.0	5.5%
Aedes increpitus	11.0	1.3%
Aedes melanimon	21.0	2.5%
Aedes vexans	113.0	13.6%
Anopheles freeborni	2.0	0.2%
Culex pipiens	142.0	17.1%
Culex tarsalis	487.0	58.6%
Culiseta inornata	9.0	1.1%



Season:	05/01/2021 - 09/20/2021	
Trap Type:	CDC Light Trap	
Location:	N. Linden	
GPS:	40.592327859908366, -105.06629	9493087529
Total numbe	er of trap/nights set:	12.0
Total numbe	er of mosquitoes collected:	637.0

Total number of mosquitoes collected:	637.0
Average mosquitoes per trap/night:	53.1
Average Culex per trap/night:	31.0

Species collected and abundance:

Aedes dorsalis	20.0	3.1%	
Aedes increpitus	5.0	0.8%	
Aedes melanimon	14.0	2.2%	
Aedes nigromaculis	1.0	0.2%	
Aedes vexans	207.0	32.5%	
Culex pipiens	108.0	17.0%	
Culex tarsalis	264.0	41.4%	
Culiseta inornata	18.0	2.8%	



Genus Proportions: Aedes-Oc Anopheles Number Percent of Total Genus Culex Aedes/Ochlerotatus 247.0 38.8% Culiseta Anopheles 0.0 0.0% Other 372.0 Culex 58.4% Culiseta 18.0 2.8% 0.0 0.0% Other



Season:	05/01/2021 - 09/20/2021	
Trap Type:	CDC Light Trap	
Location:	Golden Current	
GPS:	40.56947993409379, -105.1360	3001832962
Total numbe	er of trap/nights set:	12.0
Total numbe	er of mosquitoes collected:	1,496.0
Average mosquitoes per trap/night:		124.7
Average mos	quitoes per trap/night.	124.7

Species collected and abundance:

Aedes cinereus	31.0	2.1%
Aedes dorsalis	13.0	0.9%
Aedes increpitus	47.0	3.1%
Aedes melanimon	2.0	0.1%
Aedes vexans	1,133.0	75.7%
Anopheles freeborni	41.0	2.7%
Coquillettidia perturbans	2.0	0.1%
Culex pipiens	86.0	5.7%
Culex tarsalis	102.0	6.8%
Culiseta inornata	39.0	2.6%





Season:	05/01/2021 - 09/20/2021
Trap Type:	CDC Light Trap
Location:	FC Visitor Center
GPS:	40.56509442567909, -105.00627581030129

Total number of trap/nights set:	12.0
Total number of mosquitoes collected:	2,674.0
Average mosquitoes per trap/night:	222.8
Average Culex per trap/night:	171.9

Species collected and abundance:

Aedes dorsalis	260.0	9.7%
Aedes fitchii	1.0	0.0%
Aedes increpitus	77.0	2.9%
Aedes melanimon	47.0	1.8%
Aedes nigromaculis	1.0	0.0%
Aedes vexans	145.0	5.4%
Anopheles earlei	4.0	0.1%
Anopheles freeborni	42.0	1.6%
Coquillettidia perturbans	8.0	0.3%
Culex pipiens	1,192.0	44.6%
Culex tarsalis	871.0	32.6%
Culiseta inornata	26.0	1.0%



Genus Proportions: Number Genus Percent of Total Aedes/Ochlerotatus 531.0 19.9% Anopheles 46.0 1.7% Culex 2,063.0 77.2% Culiseta 26.0 1.0% Other 0.3% 8.0



Season:	05/01/2021 - 09/20/2021		
Trap Type:	CDC Light Trap		
Location:	Stuart and Dorset		
GPS:	40.5600827919436, -105.	12403752654	4791
Total numbe	r of trap/nights set:		12.0
Total numbe	r of mosquitoes collected:		354.0
Average mos	quitoes per trap/night:		29.5
			6.3
Average Cule	x per trap/night:		0.3
, in the second s	llected and abundance	2:	6.3
Species co	llected and abundance	2: 7.0	
Species co Aedes dorsal	llected and abundance		2.0%
Species co Aedes dorsal Aedes increp	llected and abundance	7.0	2.0%
Species co Aedes dorsal Aedes increp	llected and abundance is itus imon	7.0 2.0	2.0% 0.6% 0.8%
Species co Aedes dorsal Aedes increp Aedes melan Aedes vexans	llected and abundance is itus imon	7.0 2.0 3.0	2.0% 0.6% 0.8% 74.3%
Species co Aedes dorsal Aedes increp Aedes melan	Ilected and abundance is itus imon s	7.0 2.0 3.0 263.0	2.0% 0.6% 0.8% 74.3% 2.5% 18.6%



Aedes-Oc Anopheles

Culex

Culiseta

Other

Genus Proportions: Aedes-Oc Anopheles Percent of Total Genus Number Culex 275.0 Aedes/Ochlerotatus 77.7% Culiseta Anopheles 0.0 0.0% Other Culex 75.0 21.2% Culiseta 4.0 1.1% Other 0.0 0.0%

Season:	05/01/2021 - 09/20/2021	
Trap Type:	CDC Light Trap	
Location:	Edora Park	
GPS:	40.565556701715764, -105.05251	139402388
Total numbe	er of trap/nights set:	12.0

Total number of mosquitoes collected:	1,045.0
Average mosquitoes per trap/night:	87.1
Average Culex per trap/night:	48.3

Species collected and abundance:

Aedes dorsalis	9.0	0.9%
Aedes hendersoni	5.0	0.5%
Aedes increpitus	192.0	18.4%
Aedes melanimon	1.0	0.1%
Aedes vexans	210.0	20.1%
Anopheles freeborni	4.0	0.4%
Coquillettidia perturbans	5.0	0.5%
Culex pipiens	138.0	13.2%
Culex tarsalis	441.0	42.2%
Culiseta inornata	40.0	3.8%



Genus	Number	Percent of Total	
Aedes/Ochlerotatus	417.0	39.9%	
Anopheles	4.0	0.4%	
Culex	579.0	55.4%	
Culiseta	40.0	3.8%	
Other	5.0	0.5%	



05/01/2021 - 09/20/2021 Season: Trap Type: CDC Light Trap Location: Boltz GPS: 40.54436640664932, -105.06441771984099 Total number of trap/nights set: 12.0 Total number of mosquitoes collected: 545.0 Average mosquitoes per trap/night: 45.4 Average Culex per trap/night: 39.0 Species collected and abundance: Aedes dorsalis 25.0 4.6% Aedes increpitus 2.0 0.4% Aedes melanimon 3.0 0.6%



2.0	
2.0	0.4%
5.0	0.9%
87.0	16.0%
381.0	69.9%
5.0	0.9%
	87.0 381.0



Season:	05/01/2021 - 09/20/2021	
Trap Type:	CDC Light Trap	
Location:	3001 San Luis	
GPS:	40.546510068398455, -105.033	59008580445
Total numbe	er of trap/nights set:	12.0
Total numbe	er of mosquitoes collected:	2,568.0

Total number of mosquitoes collected:	2,568.0
Average mosquitoes per trap/night:	214.0
Average Culex per trap/night:	182.7

Species collected and abundance:

Culex tarsalis

Aedes dorsalis	28.0	1.1%
Aedes increpitus	48.0	1.9%
Aedes melanimon	9.0	0.4%
Aedes trivittatus	8.0	0.3%
Aedes vexans	264.0	10.3%
Coquillettidia perturbans	5.0	0.2%
Culex pipiens	593.0	23.1%
Culex tarsalis	1,599.0	62.3%
Culiseta inornata	14.0	0.5%









Genus Proportions:		
Genus	Number	Percent of Total
Aedes/Ochlerotatus	93.0	18.6%
Anopheles	0.0	0.0%
Culex	407.0	81.4%
Culiseta	0.0	0.0%
Other	0.0	0.0%

69.2%

346.0

FC-029gr

Season:	Season: 05/01/2021 - 09/20/2021				
Trap Type:	Gravid Trap	Gravid Trap			
Location:	Ben's Park Gravid				
GPS:	40.51136309344342, -105.071155093610	029			
Total number of trap/nights set: 11.0					
Total number of mosquitoes collected: 949.0					
Average mosquitoes per trap/night: 86.3					
Average Culex per trap/night: 85.9					
Species collected and abundance:					

Culex pipiens	941.0	99.2%
Culex tarsalis	4.0	0.4%
Culiseta inornata	4.0	0.4%







Season:	05/01/2021 - 09/20/2021		
Trap Type:	CDC Light Trap		
Location:	Willow Springs		
GPS:	40.50608996726513, -105	.0394198670	9833
Total numbe	r of trap/nights set:		11.0
Total numbe	r of mosquitoes collected:		552.0
Average mos	quitoes per trap/night:		50.2
Average Cule	ex per trap/night:		39.4
Species co	llected and abundance	e:	
Aedes dorsa	lis	51.0	9.2%
Aedes melan	imon	3.0	0.5%
Aedes vexan	S	58.0	10.5%
Culex pipien	s	29.0	5.3%
Culex tarsali	s	404.0	73.2%
Culiseta inor	mata	7.0	1.3%



Genus Proportions:		
Genus	Number	Percent of Total
edes/Ochlerotatus	112.0	20.3%
Anopheles	0.0	0.0%
Culex	433.0	78.4%
Culiseta	7.0	1.3%
Other	0.0	0.0%

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Season:	05/01/2021 - 09/20/2021		
Trap Type:	CDC Light Trap		
Location:	Country Club		
GPS:	40.62669924225406, -105.05218	368467331	
Total number	of trap/nights set:	12.0	
Total number of mosquitoes collected: 1,707			
Average mosquitoes per trap/night: 142.3			

Average mosquitoes per trap/night:						142.3		
Average Culex per trap/night:			96.7					

Species collected and abundance:

Aedes dorsalis	112.0	6.6%
Aedes increpitus	1.0	0.1%
Aedes melanimon	37.0	2.2%
Aedes vexans	329.0	19.3%
Anopheles freeborni	57.0	3.3%
Culex pipiens	26.0	1.5%
Culex tarsalis	1,134.0	66.4%
Culiseta inornata	11.0	0.6%



Genus Proportions:		
Genus	Number	Percent of Total
Aedes/Ochlerotatus	479.0	28.1%
Anopheles	57.0	3.3%
Culex	1,160.0	68.0%
Culiseta	11.0	0.6%
Other	0.0	0.0%



93.3

Season:	05/01/2021 - 09/20/2021		
Trap Type:	CDC Light Trap		
Location:	Hemlock		
GPS:	40.60076561609448, -105.07983673363923		
Total numbe	r of trap/nights set:	12.0	
Total number of mosquitoes collected:		2,593.0	
Average mosquitoes per trap/night:		216.1	



Average Culex per trap/night:

Aedes cinereus	1.0	0.0%
Aedes dorsalis	43.0	1.7%
Aedes hendersoni	1.0	0.0%
Aedes increpitus	573.0	22.1%
Aedes melanimon	39.0	1.5%
Aedes vexans	753.0	29.0%
Anopheles freeborni	10.0	0.4%
Culex pipiens	169.0	6.5%
Culex tarsalis	950.0	36.6%
Culiseta inornata	54.0	2.1%





Season:	05/01/2021 - 09/20/2021	
Trap Type:	CDC Light Trap	
Location:	Chelsea Ridge	
GPS:	40.51667989969775, -105.09808011353	017
Total numbe	r of trap/nights set:	12.0

rotai number of trap/nights set.	12.0
Total number of mosquitoes collected:	604.0
Average mosquitoes per trap/night:	50.3
Average Culex per trap/night:	35.3

Species collected and abundance:

Aedes dorsalis	73.0	12.1%
Aedes hendersoni	4.0	0.7%
Aedes increpitus	26.0	4.3%
Aedes vexans	70.0	11.6%
Anopheles freeborni	1.0	0.2%
Coquillettidia perturbans	1.0	0.2%
Culex pipiens	48.0	7.9%
Culex tarsalis	375.0	62.1%
Culiseta inornata	6.0	1.0%









Aedes dorsalis	26.0	3.1%
Aedes increpitus	42.0	5.0%
Aedes melanimon	26.0	3.1%
Aedes trivittatus	2.0	0.2%
Aedes vexans	195.0	23.4%
Anopheles freeborni	1.0	0.1%
Coquillettidia perturbans	4.0	0.5%
Culex pipiens	58.0	7.0%
Culex tarsalis	471.0	56.6%
Culiseta inornata	7.0	0.8%



enus Proportions:		
Genus	Number	Percent of Total
Aedes/Ochlerotatus	291.0	35.0%
Anopheles	1.0	0.1%
Culex	529.0	63.6%
Culiseta	7.0	0.8%
Other	4.0	0.5%

Season:	05/01/2021 - 09/20/2021
Trap Type:	CDC Light Trap
Location:	Fossil Creek South
GPS:	40.4808101171896, -105.03934007138014

14.0
1,009.0
72.1
42.4

Species collected and abundance:

Aedes dorsalis	174.0	17.2%
Aedes increpitus	11.0	1.1%
Aedes melanimon	31.0	3.1%
Aedes nigromaculis	2.0	0.2%
Aedes vexans	164.0	16.3%
Anopheles freeborni	1.0	0.1%
Culex pipiens	30.0	3.0%
Culex tarsalis	563.0	55.8%
Culiseta inornata	33.0	3.3%









Aedes dorsalis	123.0	9.5%
Aedes increpitus	5.0	0.4%
Aedes melanimon	7.0	0.5%
Aedes vexans	200.0	15.4%
Anopheles freeborni	2.0	0.2%
Culex pipiens	97.0	7.5%
Culex tarsalis	829.0	63.8%
Culiseta inornata	36.0	2.8%





FC-040gr

Season:	05/01/2021 - 09/20/2021		
Trap Type:	Gravid Trap		
Location:	Redwood Gravid		
GPS:	40.60309558721682, -105.066507831215	86	
Total number of trap/nights set: 12.0			
Total number of mosquitoes collected: 528.0			
Average mosquitoes per trap/night: 44.0			
Average Culex per trap/night: 43.3			
Species collected and abundance:			

1.0	0.2%
7.0	1.3%
519.0	98.3%
1.0	0.2%
	519.0



Genus Proportions:

Genus	Number	Percent of Total
Aedes/Ochlerotatus	1.0	0.2%
Anopheles	7.0	1.3%
Culex	520.0	98.5%
Culiseta	0.0	0.0%
Other	0.0	0.0%



Season:	05/01/2021 - 09/20/2021		
Trap Type:	CDC Light Trap		
Location:	Fishback		
GPS:	40.58794002990494, -105	.1048600673	6755
Total numbe	r of trap/nights set:		12.0
Total numbe	r of mosquitoes collected:		841.0
Average mos	quitoes per trap/night:		70.1
Average Cule	ex per trap/night:		56.2
Species co	llected and abundance	:	
Aedes cinere	us	1.0	0.1%
Aedes dorsa	lis	8.0	1.0%
Aedes fitchii		2.0	0.2%
Aedes hende	rsoni	1.0	0.1%
Aedes increp	vitus	9.0	1.1%
Aedes melan	imon	5.0	0.6%
Aedes vexan	S	130.0	15.5%
Anopheles fr	eeborni	6.0	0.7%
Culex pipien	S	133.0	15.8%
Culex tarsali	s	541.0	64.3%
Culiseta inor	nata	5.0	0.6%



Aedes-Oc Anopheles Culex Culiseta Other



Genus Proportions: Aedes-Oc Anopheles Number Percent of Total Genus Culex Aedes/Ochlerotatus 156.0 18.5% Culiseta Anopheles 6.0 0.7% Other Culex 674.0 80.1% Culiseta 5.0 0.6% Other 0.0 0.0%

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Season:	05/01/2021 - 09/20/2021	
Trap Type:	CDC Light Trap	
Location:	Westshore Ct	
GPS:	40.52954284354251, -105.065	1342049241
Total numbe	r of trap/nights set:	12.0
200 200 20	NO NO NOST 71 20	

Total number of mosquitoes collected:	1,245.0
Average mosquitoes per trap/night:	103.8
Average Culex per trap/night:	90.1

Species collected and abundance:

Aedes dorsalis	15.0	1.2%
Aedes increpitus	5.0	0.4%
Aedes melanimon	5.0	0.4%
Aedes vexans	134.0	10.8%
Anopheles freeborni	1.0	0.1%
Culex pipiens	223.0	17.9%
Culex tarsalis	858.0	68.9%
Culiseta inornata	4.0	0.3%



Genus Proportions: Aedes-Oc Anopheles Percent of Total Genus Number Culex Aedes/Ochlerotatus 159.0 12.8% Culiseta Anopheles 1.0 0.1% Other Culex 1,081.0 86.8% Culiseta 4.0 0.3% 0.0% Other 0.0



Season:	05/01/2021 - 09/20/2021			
Trap Type:	CDC Light Trap			
Location:	Keeneland And Twin Oak			
GPS:	40.51511286336567, -105	.0528560578	823	140
Total numbe	r of trap/nights set:		12.0	100
Total numbe	r of mosquitoes collected:		381.0	60
Average mos	quitoes per trap/night:		31.8	40
Average Cule	ex per trap/night:		26.0	20
Species co	llected and abundance			Junto
Aedes dorsal	is	8.0	2.1%	
Aedes increp	itus	7.0	1.8%	
Aedes vexan	5	53.0	13.9%	
Culex pipien	s	30.0	7.9%	

282.0

1.0

Culex tarsalis

Culiseta inornata



Genus Proportions:		
Genus	Number	Percent of Total
Aedes/Ochlerotatus	68.0	17.8%
Anopheles	0.0	0.0%
Culex	312.0	81.9%
Culiseta	1.0	0.3%
Other	0.0	0.0%

74.0%

0.3%

Season:	05/01/2021 - 09/20/2021		
Trap Type:	CDC Light Trap		
Location:	Casa Grande and Downing		
GPS:	40.573239949533054, -105.13949006795883		
Total numbe	er of trap/nights set:	12.0	
Total numbe	er of mosquitoes collected:	220.0	
Average mos	squitoes per trap/night:	18.3	
Average Cul	ex per trap/night:	13.8	

Species collected and abundance:

Aedes dorsalis	1.0	0.5%
Aedes increpitus	1.0	0.5%
Aedes vexans	47.0	21.4%
Culex pipiens	45.0	20.5%
Culex tarsalis	121.0	55.0%
Culiseta inornata	5.0	2.3%



Genus Proportions:

Genus

Culex

Other

Genus	Number	Percent of Total
Aedes/Ochlerotatus	49.0	22.3%
Anopheles	0.0	0.0%
Culex	166.0	75.5%
Culiseta	5.0	2.3%
Other	0.0	0.0%









Aedes vexans	236.0	15.6%	
Anopheles freeborni	2.0	0.1%	
Culex pipiens	642.0	42.4%	
Culex tarsalis	559.0	36.9%	
Culiseta inornata	45.0	3.0%	



Season:	05/01/2021 - 09/20/2021
Trap Type:	CDC Light Trap
Location:	603 Gilgalad Way
GPS:	40.5616299281039, -105.08703008294106

Total number of trap/nights set:	12.0
Total number of mosquitoes collected:	1,189.0
Average mosquitoes per trap/night:	99.1
Average Culex per trap/night:	14.9

Species collected and abundance:

Aedes cinereus	85.0	7.1%
Aedes dorsalis	12.0	1.0%
Aedes fitchii	3.0	0.3%
Aedes increpitus	57.0	4.8%
Aedes melanimon	9.0	0.8%
Aedes trivittatus	5.0	0.4%
Aedes vexans	816.0	68.6%
Anopheles freeborni	1.0	0.1%
Coquillettidia perturbans	2.0	0.2%
Culex pipiens	20.0	1.7%
Culex tarsalis	159.0	13.4%
Culiseta inornata	20.0	1.7%



Genus Proportions: Percent of Total Number Genus Aedes/Ochlerotatus 987.0 83.0% Anopheles 1.0 0.1% 179.0 15.1% Culex Culiseta 20.0 1.7% Other 2.0 0.2%





Season:	05/01/2021 - 09/20/2021			
Trap Type:	CDC Light Trap			
Location:	Egret and Rookery			
GPS:	40.4994200898768, -105.0	118299946188	38	
Total numbe	r of trap/nights set:	1	2.0	
Total numbe	r of mosquitoes collected:	1	,245.0	
Average mos	quitoes per trap/night:	1	103.8	
Average Culex per trap/night:		62.4		
Aedes dorsal	llected and abundance:	26.0	2.1%	
Aedes melanimon		14.0	1.1%	
Aedes vexans		426.0	34.2%	
Anopheles fr	eeborni	2.0	0.2%	
Coquillettidia	a perturbans	7.0	0.6%	
Culex pipien	s	9.0	0.7%	
Culex tarsali	s	740.0	59.4%	
Culiseta inor	nata	21.0	1.7%	



Genus Proportions: Aedes-Oc Anopheles Percent of Total Genus Number Culex Aedes/Ochlerotatus 466.0 37.4% Culiseta Anopheles 2.0 0.2% Other Culex 749.0 60.2% 21.0 Culiseta 1.7% Other 7.0 0.6%

79.8

Season:	05/01/2021 - 09/20/2021	
Trap Type:	CDC Light Trap	
Location:	737 Parliament	
GPS:	40.49997995372379, -105.0631	9999694824
Total numbe	r of trap/nights set:	12.0
Total number of mosquitoes collected:		1,185.0
Average mosquitoes per trap/night:		98.8



Species collected and abundance:

Average Culex per trap/night:

Culex

Other

Aedes cinereus	4.0	0.3%
Aedes dorsalis	33.0	2.8%
Aedes increpitus	6.0	0.5%
Aedes melanimon	5.0	0.4%
Aedes vexans	161.0	13.6%
Anopheles freeborni	3.0	0.3%
Culex pipiens	120.0	10.1%
Culex tarsalis	837.0	70.6%
Culiseta inornata	16.0	1.4%





Season:	05/01/2021 - 09/20/2021		
Trap Type:	CDC Light Trap		
Location:	Registry Ridge		
GPS:	40.48438997678501, -105.10523993521929		300
Total number of trap/nights set: 12.0		200	
Total number of mosquitoes collected: 342.0			
Average mosquitoes per trap/night:		28.5	100
Average Cul	ex per trap/night:	21.2	
			0

Species collected and abundance:

Aedes dorsalis	4.0	1.2%
Aedes increpitus	26.0	7.6%
Aedes vexans	45.0	13.2%
Culex pipiens	14.0	4.1%
Culex tarsalis	240.0	70.2%
Culiseta inornata	12.0	3.5%
Culiseta spp.	1.0	0.3%





Season:	05/01/2021 - 09/20/2021
Trap Type:	CDC Light Trap
Location:	Spring Creek Trail Michener Dr
GPS:	40.54883989155028, -105.12533001601697

	Total number of trap/nights set:	12.0
	Total number of mosquitoes collected:	992.0
	Average mosquitoes per trap/night:	82.7
34	Average Culex per trap/night:	10.0

Species collected and abundance:

Anopheles freeborni

Culex pipiens

Culex tarsalis

Culiseta inornata

Coquillettidia perturbans

Aedes dorsalis	3.0	0.3%
Aedes hendersoni	1.0	0.1%
Aedes increpitus	260.0	26.2%
Aedes trivittatus	3.0	0.3%
Aedes vexans	596.0	60.1%
Anopheles freeborni	1.0	0.1%
Culex pipiens	26.0	2.6%
Culex tarsalis	94.0	9.5%
Culiseta inornata	8.0	0.8%









4.0

1.0

98.0

140.0

7.0

1.0%

0.3%

25.1%

35.9%

1.8%



Culex

Genus Proportions:		
Genus	Number	Percent of Total
Aedes/Ochlerotatus	140.0	35.9%
Anopheles	4.0	1.0%
Culex	238.0	61.0%
Culiseta	7.0	1.8%
Other	1.0	0.3%

Total number of mosquitoes collected: 345.0			
Total number of trap/nights set: 12.0			
GPS:	40.548700028018544, -105.12018989771605		
Location:	808 Ponderosa		
Trap Type:	CDC Light Trap		
Season:	05/01/2021 - 09/20/2021		

Species collected and abundance:	
Average Culex per trap/night:	18.2
Average mosquitoes per trap/night:	28.8
rotal number of mosquitoes concetea.	545.0

Aedes dorsalis	7.0	2.0%
Aedes melanimon	1.0	0.3%
Aedes vexans	107.0	31.0%
Anopheles freeborni	9.0	2.6%
Culex pipiens	87.0	25.2%
Culex tarsalis	131.0	38.0%
Culiseta inornata	3.0	0.9%



Genus Proportions: Aedes-Oc Anopheles Number Percent of Total Genus Culex Aedes/Ochlerotatus 115.0 33.3% Culiseta Anopheles 9.0 2.6% Other Culex 63.2% 218.0 Culiseta 3.0 0.9% 0.0% Other 0.0







Seasonality

ex spp

Species collected and abundance:

Aedes dorsalis	7.0	0.6%
Aedes increpitus	16.0	1.4%
Aedes melanimon	3.0	0.3%
Aedes trivittatus	4.0	0.4%
Aedes vexans	577.0	50.7%
Anopheles freeborni	3.0	0.3%
Culex pipiens	71.0	6.2%
Culex tarsalis	447.0	39.2%
Culiseta inornata	11.0	1.0%



Season:	05/01/2021 - 09/20/2021	
Trap Type:	CDC Light Trap	
Location:	Water's Edge at Blue Mesa	
GPS:	40.542779889722866, -105.0874	0995079279
Total numbe	er of trap/nights set:	12.0
Total numbe	er of mosquitoes collected:	285.0
Average mos	quitoes per trap/night:	23.8
Average Cul	ex per trap/night:	20.2
Species co	llected and abundance:	

Aedes dorsalis	7.0	2.5%
Aedes melanimon	1.0	0.4%
Aedes vexans	35.0	12.3%
Culex pipiens	52.0	18.2%
Culex tarsalis	190.0	66.7%



Aedes-Oc Anopheles

Culex

Culiseta

Other





05/01/2021 - 09/20/2021		
CDC Light Tran		
Red Fox Meadows		
40.565679974786285, -105.	10485000908	375
of trap/nights set:	1	12.0
of mosquitoes collected:	5	7,018.0
quitoes per trap/night:	5	584.8
x per trap/night:	(5.7
llected and abundance:		
us	65.0	0.9%
is	4.0	0.1%
	1.0	0.0%
rsoni	1.0	0.0%
	40.565679974786285, -105. of trap/nights set: of mosquitoes collected: quitoes per trap/night: x per trap/night: llected and abundance: is	Red Fox Meadows 40.565679974786285, -105.10485000908 of trap/nights set: of mosquitoes collected: gittices per trap/night: gittices per trap/night: uitoes is 65.0 is 40.0 1.0

98.0

1.0

22.0

58.0

6,766.0



Aedes increpitus

Aedes vexans Anopheles freeborni

Culex pipiens

Culex tarsalis

Culiseta inornata		2.0 0.0	%
Come Descentions			
Genus Proportions:			
Genus	Number	Percent of Tot	al
Aedes/Ochlerotatus	6,935.0	98.8%	_
Anopheles	1.0	0.0%	
Culex	80.0	1.1%	
Culiseta	2.0	0.0%	
Other	0.0	0.0%	

1.4%

96.4%

0.0%

0.3%

0.8%

FC-063gr

Season:	05/01/2021 - 09/20/2021		
Trap Type:	Gravid Trap		
Location:	Red Fox Meadows Gravid		
GPS:	40.565679974786285, -105	5.1050498336	5536
Total numbe	er of trap/nights set:		12.0
Total numbe	er of mosquitoes collected:		655.0
Average mos	quitoes per trap/night:		54.6
Average Cul	ex per trap/night:		54.0
Species co	ollected and abundance	:	
Aedes vexan	s	6.0	0.9%
Anopheles fr	reeborni	1.0	0.2%
Culex pipier	15	647.0	98.8%
Culex tarsal	is	1.0	0.2%



Aedes-Oc Anopheles

Culex Culiseta Other

Genus Proportions:

Genus	Number	Percent of Total
Aedes/Ochlerotatus	6.0	0.9%
Anopheles	1.0	0.2%
Culex	648.0	98.9%
Culiseta	0.0	0.0%
Other	0.0	0.0%



Season:	05/01/2021 - 09/20/2021			
Trap Type:	CDC Light Trap			
Location:	West Chase			
GPS:	40.49867997125427, -105	.0298001244	664	80
Total numbe	r of trap/nights set:		12.0	60 50
Total numbe	r of mosquitoes collected:		1,614.0	40
Average mos	quitoes per trap/night:		134.5	30
Average Cule	ex per trap/night:		79.5	10
Species co	llected and abundance	:		2
Aedes cinere	us	6.0	0.4%	
Aedes dorsal	is	77.0	4.8%	
Aedes increp	itus	21.0	1.3%	
Aedes melan	imon	11.0	0.7%	
Aedes vexan	5	523.0	32.4%	
Anopheles fr	eeborni	3.0	0.2%	
Culex pipien	s	72.0	4.5%	
Culex tarsali	s	882.0	54.6%	
Culiseta inor	nata	19.0	1.2%	



Genus Proportions: Aedes-Oc Anopheles Number Percent of Total Genus Culex Aedes/Ochlerotatus 638.0 39.5% Culiseta Anopheles 3.0 0.2% Other Culex 954.0 59.1% Culiseta 19.0 1.2% Other 0.0 0.0%

Season:	05/01/2021 - 09/20/2021
Trap Type:	CDC Light Trap
Location:	Prospect Ponds
GPS:	40.55846837302044, -105.02281665802002

Total number of trap/nights set:	12.0
Total number of mosquitoes collected:	8,816.0
Average mosquitoes per trap/night:	734.7
Average Culex per trap/night:	289.8

Species collected and abundance:

Aedes cinereus	1.0	0.0%	
Aedes dorsalis	92.0	1.0%	
Aedes fitchii	2.0	0.0%	
Aedes increpitus	1,001.0	11.4%	
Aedes melanimon	673.0	7.6%	
Aedes nigromaculis	1.0	0.0%	
Aedes trivittatus	1.0	0.0%	
Aedes vexans	2,368.0	26.9%	
Anopheles freeborni	196.0	2.2%	
Coquillettidia perturbans	908.0	10.3%	
Culex pipiens	2,639.0	29.9%	
Culex tarsalis	838.0	9.5%	
Culiseta inornata	96.0	1.1%	











Seasonality

Genus Proportions: Aedes-Oc Anopheles Genus Number Percent of Total Culex Aedes/Ochlerotatus 5.0 1.5% Culiseta 5.0 1.5% Anopheles Other Culex 320.0 95.2% Culiseta 6.0 1.8% Other 0.0 0.0%

Season:	05/01/2021 - 09/20/2021
Trap Type:	CDC Light Trap
Location:	Poudre River Trail
GPS:	40.57749479750878, -105.05568780004978

Total number of trap/nights set:	12.0
Total number of mosquitoes collected:	1,158.0
Average mosquitoes per trap/night:	96.5
Average Culex per trap/night:	50.3

Species collected and abundance:

Aedes dorsalis	22.0	1.9%
Aedes increpitus	10.0	0.9%
Aedes melanimon	22.0	1.9%
Aedes trivittatus	1.0	0.1%
Aedes vexans	448.0	38.7%
Coquillettidia perturbans	25.0	2.2%
Culex pipiens	100.0	8.6%
Culex tarsalis	503.0	43.4%
Culiseta inornata	27.0	2.3%









Aedes increpitus	5.0	1.9%
Aedes melanimon	2.0	0.7%
Aedes vexans	57.0	21.2%
Anopheles freeborni	25.0	9.3%
Culex pipiens	20.0	7.4%
Culex tarsalis	147.0	54.6%
Culiseta inornata	10.0	3.7%



Genus Proportions:		
Genus	Number	Percent of Total
Aedes/Ochlerotatus	67.0	24.9%
Anopheles	25.0	9.3%
Culex	167.0	62.1%
Culiseta	10.0	3.7%
Other	0.0	0.0%

Season:	05/01/2021 - 09/20/2021	
Trap Type:	CDC Light Trap	
Location:	Linden Lake Rd	
GPS:	40.61451923788414, -105.0531	4875394106
Total numbe	er of trap/nights set:	14.0
Total numb	ar of mosquitoos collected.	2 025 0

Total number of mosquitoes collected:	2,025.0
Average mosquitoes per trap/night:	144.6
Average Culex per trap/night:	55.8

Species collected and abundance:

Aedes cinereus	1.0	0.0%
Aedes dorsalis	103.0	5.1%
Aedes hendersoni	2.0	0.1%
Aedes increpitus	373.0	18.4%
Aedes melanimon	28.0	1.4%
Aedes vexans	707.0	34.9%
Culex pipiens	17.0	0.8%
Culex tarsalis	764.0	37.7%
Culiseta inornata	30.0	1.5%







Season:	05/01/2021 - 09/20/2021				Seasonality
Trap Type:	CDC Light Trap				Seasonanty
Location:	Silvergate Rd				Total Mosquitoes
GPS:	40.52733008634481, -105.1	10821014642	715	30	
Total number	r of trap/nights set:		12.0	20	
Total number	of mosquitoes collected:		76.0		
Average mose	quitoes per trap/night:		6.3	10	
Average Cule	x per trap/night:		3.2		
Species col	llected and abundance:			1. 20 Jul 20 25	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
Aedes dorsali	is	1.0	1.3%		Week

1.0	1.3%
5.0	6.6%
30.0	39.5%
1.0	1.3%
6.0	7.9%
32.0	42.1%
1.0	1.3%
	5.0 30.0 1.0 6.0 32.0





Season:	05/01/2021 - 09/20/2021	
Trap Type:	CDC Light Trap	
Location:	422 Lake Dr	
GPS:	40.569530106375986, -105.0711698	4575985
Total numbe	er of trap/nights set:	12.0

Total number of mosquitoes collected:	1,095.0
Average mosquitoes per trap/night:	91.3
Average Culex per trap/night:	79.0

Species collected and abundance:

Aedes dorsalis	12.0	1.1%
Aedes hendersoni	1.0	0.1%
Aedes melanimon	3.0	0.3%
Aedes vexans	110.0	10.0%
Culex pipiens	121.0	11.1%
Culex tarsalis	827.0	75.5%
Culiseta inornata	21.0	1.9%



Genus Proportions: Genus Number Percent of Total

Aedes/Ochlerotatus Anopheles Culex Culiseta Other	126.0	11.5%
Anopheles	0.0	0.0%
Culex	948.0	86.6%
Culiseta	21.0	1.9%
Other	0.0	0.0%







Aedes dorsalis	11.0	1.8%
Aedes increpitus	6.0	1.0%
Aedes melanimon	1.0	0.2%
Aedes vexans	92.0	14.9%
Culex pipiens	140.0	22.7%
Culex tarsalis	346.0	56.2%
Culiseta inornata	20.0	3.2%



Genus Proportions: Aedes-Oc Anopheles Genus Number Percent of Total Culex Aedes/Ochlerotatus 110.0 17.9% Culiseta Anopheles 0.0 0.0% Other Culex 486.0 78.9% Culiseta 20.0 3.2% Other 0.0 0.0%
FC-074

Season:	05/01/2021 - 09/20/2021	
Trap Type:	CDC Light Trap	
Location:	Rock Creek	
GPS:	40.513749705683445, -105.003	38338315488
Total numbe	er of trap/nights set:	12.0
Total numbe	er of mosquitoes collected:	2,241.0
Averademov	quitees per trap/night	100 0

Average mosquitoes per trap/night:	18	6.8
Average Culex per trap/night:	11	2.4
Species collected and abundance:		
Aedes dorsalis	281.0	12.5%

Aedes increpitus	12.0	0.5%
Aedes melanimon	37.0	1.7%
Aedes vexans	524.0	23.4%
Anopheles freeborni	18.0	0.8%
Coquillettidia perturbans	2.0	0.1%
Culex pipiens	76.0	3.4%
Culex tarsalis	1,273.0	56.8%
Culiseta inornata	18.0	0.8%



Aedes-Oc Anopheles

Genus Proportions:			Aedes-C
Genus	Number	Percent of Total	Anophel
Aedes/Ochlerotatus	854.0	38.1%	Culex
Anopheles	18.0	0.8%	Culiseta
Culex	1,349.0	60.2%	Other
Culiseta	18.0	0.8%	
Other	2.0	0.1%	





15.2%

0.4%

Aedes/Ochlerotatus	182.0	18	0%	
Genus	Number	Percent	of Total	
Genus Proportions:				
Culiseta inornata		31.0	3.1%	
Culex tarsalis		607.0	60.0%	
Culex pipiens		187.0	18.5%	
Coquillettidia perturbans		1.0	0.1%	

154.0

4.0

Aedes vexans

Anopheles freeborni

 Central
 Fercence
 Fercence
 Central
 Culex
 Culex
 Culex
 Culex
 Other
 Other

FC-075gr

Season:	05/01/2021 - 09/20/2021		
Trap Type:	Gravid Trap		
Location:	Sage Creek North Gravid		
GPS:	40.511379917024655, -105.0293	6996519566	
Total numbe	er of trap/nights set:	12.0	
Total numbe	er of mosquitoes collected:	461.0	
Average mos	quitoes per trap/night:	38.4	
Average Cule	ex per trap/night:	38.1	
Species co	llected and abundance:		

98.9%	
0.2%	
0.9%	







Season: Trap Type:	05/01/2021 - 09/20/2021 Gravid Trap		Seasonality
Location:	English Ranch Park Gravid		Total Mosquitoes Culex spp.
GPS:	40.53330994364783, -105.03053	00205946	400
Total number Average moso Average Cule:	of trap/nights set: of mosquitoes collected: uitoes per trap/night: c per trap/night: lected and abundance:	12.0 1,317.0 109.8 109.3	300 200 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Aedes vexans	:	3.0 0.2%	Week
Culex pipiens	1,31	1.0 99.5%	1
Culiseta inorr	ata	3.0 0.2%	1



FC-089gr

Season:	05/01/2021 - 09/20/2021			
Trap Type:	Gravid Trap			
Location:	Kunz Ct. and Brook Dr. Gravid			
GPS:	40.53631011931944, -105.1005601	5104055		
Total numbe	r of trap/nights set:	12.0		
Total number of mosquitoes collected: 1,440.				
Average mosquitoes per trap/night: 120.0				
Average Culex per trap/night: 119.7				
Species collected and abundance:				

Anopheles freeborni	4.0	0.3%
Culex pipiens	1,435.0	99.7%
Culex tarsalis	1.0	0.1%



Aedes-Oc Anopheles

Culex

Culiseta

Other





Season:	05/01/2021 - 09/20/2021		Seasonality
Trap Type:	Gravid Trap		Seasonanty
Location:	Mountain Grandview Cemetery G	ravid	Total Mosquitoes Culex spp.
GPS:	40.58195995773713, -105.11136	0065639	180
Total numbe	r of trap/nights set:	12.0	
Total numbe	r of mosquitoes collected:	624.0	
Average mos	quitoes per trap/night:	52.0	60
Average Cule	ex per trap/night:	51.8	
Species co	llected and abundance:		Jen to say to the say say and say
Aedes vexans	5 2.0	0.3%	Week
Culex pipien:	s 620.0	99.4%	E SUSSE
Culex tarsali	s 2.0	0.3%	



FC-091gr

Season:	05/01/2021 - 09/20/2021		
Trap Type:	Gravid Trap		
Location:	PVH Gravid		
GPS:	40.570520046200166, -105.0545	6998944281	
Total numbe	er of trap/nights set:	12.0	
Total numbe	er of mosquitoes collected:	240.0	
Average mos	quitoes per trap/night:	20.0	
Average Cul	ex per trap/night:	18.8	
Species co	ellected and abundance:		

Aedes vexans	2.0	0.8%
Anopheles freeborni	7.0	2.9%
Coquillettidia perturbans	4.0	1.7%
Culex pipiens	222.0	92.5%
Culex tarsalis	4.0	1.7%
Culiseta inornata	1.0	0.4%



Genus Proportions:

Genus	Number	Percent of Total
Aedes/Ochlerotatus	2.0	0.8%
Anopheles	7.0	2.9%
Culex	226.0	94.2%
Culiseta	1.0	0.4%
Other	4.0	1.7%











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FC-093

4.7%

28.2%

0.6%

Season:	05/01/2021 - 09/20/2021		
Trap Type:	CDC Light Trap		
Location:	Lopez Elementary		
GPS:	40.53186000594886, -105	5.0882501527	667
Total numbe	r of trap/nights set:		12.0
Total number	r of mosquitoes collected:		855.0
Average mos	quitoes per trap/night:		71.3
Average Cule	x per trap/night:		23.4
Species co	llected and abundance	e:	
Aedes dorsal	is	4.0	0.5%
Aedes increp	itus	4.0	0.5%
Aedes vexans	1	561.0	65.6%



Aedes-Oc Anopheles Culex Culiseta Other

Genus Proportions:

Culex pipiens

Culex tarsalis

Culiseta inornata

Genus	Number	Percent of Total
Aedes/Ochlerotatus	569.0	66.5%
Anopheles	0.0	0.0%
Culex	281.0	32.9%
Culiseta	5.0	0.6%
Other	0.0	0.0%

40.0

241.0

5.0

Appendix 2: Larimer County Adult Sample Pool Positive Results and Locations



2021 WNV Positive Pools

Start Date: 05/01/2021 End Date: 09/20/2021

Loveland

Trap Location	Total Positive Pools	
9th and DesMoines	5	
Big Thompson	0	
Boyd Lake	1	
Cattail Pond	4	
Cr 20 and 9	1	
Horseshoe Pennninsula	4	

Total Positive: 15



2021 WNV Positive Pools

Start Date: 05/01/2021 End Date: 09/20/2021

Berthoud

Trap Location	Total Positive Pools	
Berthoud East	0	
Berthoud North	1	
Berthoud Park	2	
Berthoud Point	2	
Berthoud West	4	

Total Positive: 9



2021 WNV Positive Pools

Start Date: 05/01/2021 End Date: 09/20/2021

Fort Collins

Trap Location	Total Positive Pools
118 S Grant	0
3001 San Luis	4
422 Lake Dr	0
5029 Crest Dr	1
603 Gilgalad Way	1
737 Parliament	1
808 Ponderosa	2
Ben's Park	1
Ben's Park Gravid	11
Big Horn	2
Boltz	0
Casa Grande and Downing	0
Chelsea Ridge	1
Country Club	3
Edora Park	0
Egret and Rookery	1
English Ranch Park Gravid	7
FC Visitor Center	3
Fishback	0
Fossil Creek South	2
Golden Current	1
Golden Meadows Ditch	2
Hemlock	1
Holley Plant Research Center	0
Keeneland And Twin Oak	0
Kunz Ct. and Brook Dr. Gravid	10
Linden Lake Rd	1
Lochside Lane	2
Lopez Elementary	1
Magic Carpet	2
Mountain Grandview Cemetery Gravid	3
N. Linden	1
Poudre River Trail	0
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Trap Location	Total Positive Pools	
Prospect Ponds	2	
Prospect Ponds Gravid	1	
PVH Gravid	1	
Red Fox Meadows	0	
Red Fox Meadows Gravid	6	
Redwood	1	
Redwood Gravid	4	
Registry Ridge	0	
Rock Creek	4	
Sage Creek North	3	
Sage Creek North Gravid	4	
Silvergate Rd	0	
Spring Creek Trail Michener Dr	0	
Spring wood and Lochwood	0	
Stuart and Dorset	0	
Udall Natural Gravid	1	
Water's Edge at Blue Mesa	1	
West Chase	2	
Westshore Ct	3	
Willow Springs	1	

Total Positive: 98

Appendix 3: Ground Adult Mosquito Control Application Data Ground Adulticide Applications

Start Date: 05/01/2021

5/01/2021 End Date: 09/20/2021

Fort Collins

Month	Date	Municipality	Chemical	Mix Ratio	T rip Miles	Spray Miles	Spray Acres	Gallon Spraye
C1_0821 Applicatio	ns							
August 2021	08/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	21.1	14.1	510.9	3.9
	08/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	14.9	10.8	392.0	3.0
	08/15/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	16.5	10.9	395.2	5.0
September 2021	09/09/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	14.8	11.2	406.5	3.1
	09/09/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	19.8	13.1	477.8	3.6
	09/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:4	19.9	12.4	452.0	3.6
	09/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:4	13.4	9.1	332.0	2.7
				Total	Aqua Peri	m-X UL 30-3	30 Applied:	24.9
		-	FC1	_0821 Totals:	120.4	81.6	2,966.2	24.9
C2_0821 Applicatio	ns							
August 2021	08/15/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	20.4	13.8	503.2	6.8
September 2021	09/09/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	25.0	17.2	623.6	4.8
	09/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:4	23.4	18.2	660.3	5.2
				Total	Aqua Per	m-X UL 30-	30 Applied:	16.8
			EC	0 AP21 Totale	69 7	40.2	1 787 1	16.9
C3_0821 Applicatio	ns							
August 2021	08/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	17.5	12.6	457.8	3.6
	08/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	13.7	11.1	404.3	3.1
	08/15/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	14.1	11.7	424.7	3.3
	08/15/2021		Aqua Perm-X UL 30-30 (89459-76)	1:4	17.1	14.6	531.6	4.2
September 2021	09/09/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	17.2	13.4	485.8	3.7
	09/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:4	16.6	14.3	518.1	4.1
		-		Total	Aqua Peri	m-X UL 30-3	30 Applied:	22.1
			PC3	3_0821 Totals:	96.1	77.6	2,822.3	22.1

Month	Date	Municipality	Chemical	Mix Ratio	T rip Miles	Spray Miles	Spray Acres	Gallo Spray
C4_0821 Applicati	ons							
August 2021	08/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	8.1	5.9	214.2	1.6
	08/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	22.8	12.2	444.0	3.5
	08/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	4.9	3.8	137.8	1.0
	08/15/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	7.9	5.6	202.9	1.5
	08/15/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	22.6	14.7	534.9	4.1
	08/15/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	4.6	3.6	130.9	1.0
September 2021	09/09/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	23.5	14.0	509.8	3.9
	09/09/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	8.2	5.7	206.9	1.6
	09/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	23.5	15.8	574.1	4.4
	09/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	8.5	6.3	228.0	1.8
C5_0821 Applicatio	ons	:	FC4	Total	Aqua Peri 134.7	n-X UL 30 87.6	30 Applied: 3,183.3	
C5_0821 Application August 2021	ons 08/12/2021	-	FC4 Aqua Perm-X UL 30-30 (89459-76)					24.4
		-	Aqua Perm-X UL 30-30	_0821 Totals:	134.7	87.6	3,183.3	24, 4.1
	08/12/2021		Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76)	_0821 Totals: 1:5 1:5 Total	134.7 20.8 20.2 Aqua Perr	87.6 14.9 16.0 n-X UL 30-	3,183.3 540.7 581.4 30 Applied:	24. 4.1 4.6 8.7
C6_0821 Application	08/12/2021 08/15/2021	-	Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) FC5	_0821 Totals: 1:5 1:5 Total _0821 Totals:	134.7 20.8 20.2 Aqua Perr 41.0	87.6 14.9 16.0 <i>n-X UL 30-</i> 30.9	3,183.3 540.7 581.4 30 Applied: 1,122.1	24,4 4.1 4.6 8.7 8.7
August 2021	08/12/2021 08/15/2021	-	Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76)	_0821 Totals: 1:5 1:5 Total	134.7 20.8 20.2 Aqua Perr	87.6 14.9 16.0 n-X UL 30-	3,183.3 540.7 581.4 30 Applied:	24,4 4.1 4.6 8.7 8.7
August 2021 C6_0821 Applicatio	08/12/2021 08/15/2021	-	Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) FC5 Aqua Perm-X UL 30-30	_0821 Totals: 1:5 1:5 Total _0821 Totals:	134.7 20.8 20.2 Aqua Perr 41.0	87.6 14.9 16.0 <i>n-X UL 30-</i> 30.9	3,183.3 540.7 581.4 30 Applied: 1,122.1	24,4 4,1 4,6 8,7 8,7 4,5
August 2021 C6_0821 Application	08/12/2021 08/15/2021 08/12/2021	-	Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) FC5 Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30	_0821 Totals: 1:5 1:5 Total _0821 Totals: 1:5	134.7 20.8 20.2 Aqua Perr 41.0 20.7	87.6 14.9 16.0 <i>m-X UL 30-</i> 30.9 16.0	3,183.3 540.7 581.4 30 Applied: 1,122.1 581.0	24,4 4.1 4.6 8.7 8.7 4.5 2.9
August 2021 C6_0821 Application	08/12/2021 08/15/2021 08/12/2021 08/12/2021 08/12/2021 08/15/2021	- - -	Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) FCS Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76)	1:5 1:5 7otal 0821 Totals: 1:5 1:5 1:5 1:5	134.7 20.8 20.2 Aqua Perr 41.0 20.7 12.9 17.4 13.0	87.6 14.9 16.0 <i>n-X UL 30-</i> 30.9 16.0 10.2 13.0 10.5	3,183.3 540.7 581.4 30 Applied: 1,122.1 581.0 369.1 474.1 380.0	24,4 4.1 4.6 8.7 4.5 2.9 3.7 2.9
August 2021 C6_0821 Application	08/12/2021 08/15/2021 08/12/2021 08/12/2021 08/12/2021	- - -	Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) FCS Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30	1:5 1:5 <i>Total</i> 0821 Totals: 1:5 1:5 1:5	134.7 20.8 20.2 Aqua Perr 41.0 20.7 12.9 17.4	87.6 14.9 16.0 <i>n-X UL 30-</i> 30.9 16.0 10.2 13.0	3,183.3 540.7 581.4 30 Applied: 1,122.1 581.0 369.1 474.1	24,4 4.1 4.6 8.7 4.5 2.9 3.7 2.9
August 2021 C6_0821 Application	08/12/2021 08/15/2021 08/12/2021 08/12/2021 08/12/2021 08/15/2021	-	Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) <i>FC5</i> Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30 (89459-76) Aqua Perm-X UL 30-30	1:5 1:5 7otal 0821 Totals: 1:5 1:5 1:5 1:5	134.7 20.8 20.2 Aqua Perr 41.0 20.7 12.9 17.4 13.0	87.6 14.9 16.0 <i>n-X UL 30-</i> 30.9 16.0 10.2 13.0 10.5	3,183.3 540.7 581.4 30 Applied: 1,122.1 581.0 369.1 474.1 380.0	24.4 24.4 4.1 4.6 8.7 8.7 4.5 2.9 3.7 2.9 4.4 3.8

Month	Date	Municipality	Chemical	Mix Ratio	T rip Miles	Spray Miles	Spray Acres	Gallor Spray
C_Spray_07 Appli	cations							
August 2021	08/29/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	7.0	5.1	186.5	1.5
	08/29/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	29.0	19.6	713.4	5.5
	08/29/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	10.3	7.1	258.9	2.0
	08/29/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	5.3	3.9	141.4	1.1
	08/29/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	6.4	4.4	160.7	1.2
	08/29/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	9.0	5.3	191.6	1.5
	08/29/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	12.9	8.5	309.1	2.4
		-		Total	Aqua Peri	m-X UL 30-3	30 Applied:	15.1
		-	FC_Sp	ray_07 Totals:	79.9	54.0	1,961.6	15.1
C1_0821 Applicati	ons							
August 2021	08/12/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	23.9	16.9	612.7	4.7
	08/16/2021		Aqua Perm-X UL 30-30 (89459-76)	1:5	15.8	12.5	454.5	3.5
	08/16/2021	_	Aqua Perm-X UL 30-30 (89459-76)	1:5	2.5	2.5	89.8	0.7
				Total	Aqua Perr	n-X UL 30-3	80 Applied:	8.9
			LCI	_0821 Totals:	42.2	31.8	1,157.0	8.9
C_Spray_01 Appli	cations							
August 2021	08/29/2021	N/A	Aqua Perm-X UL 30-30 (89459-76)	1:5	21.1	14.0	508.0	3.9
	08/29/2021	N/A	Aqua Perm-X UL 30-30 (89459-76)	1:5	19.7	14.2	517.8	4.0
	08/29/2021	N/A	Aqua Perm-X UL 30-30 (89459-76)	1:5	18.3	11.2	407.2	3.2
	08/29/2021	N/A	Aqua Perm-X UL 30-30 (89459-76)	1:5	9.3	7.8	282.2	2.2
	08/29/2021	N/A	Aqua Perm-X UL 30-30 (89459-76)	1:5	3.4	2.4	86.5	0.7
				Total	Aqua Perr	n-X UL 30-3	80 Applied:	14.0
		-	LC_Spi	ay_01 Totals:	71.7	49.6	1,801.6	14.0

Appendix 4: Scheduled Emergency Application Maps





**Please note that no application occurred on August 26th



