

PROJECT FOCUS

Surveillance specifically centers around determining mosquito density, distribution, and species composition in Larimer County. This internship involves identifying and counting Colorado and Wyoming mosquito species using a microscope to determine these numbers using CDC Light and Gravid traps.

OBJECTIVES

- Identify WNV carrier species, the genus Culex, as well as non-WNV carriers such as Aedes, Ochlerotatus, and Anopheles
- Set CDC Light and Gravid traps in areas specifically near water and trees, to capture mosquitoes
- Record mosquito numbers and vial Culex species
- Deliver vial Culex species to the Colorado State University's Center for Vector-Borne Infectious Diseases

THE TRAPS



This light trap hangs from a tree roughly 3ft from the ground and is attached to a battery to ensure the light and fan continue throughout the night. Above is a cooler with dry ice inside which emits carbon dioxide that attracts the host-seeking female.

This Gravid trap contains about a gallon of infused alfalfa water which gives off a smell that attracts the mosquitos. Above this sits a PVC pipe about 1ft long with a net, as well as a battery. Both of these traps are set in the late afternoon and collected the following morning.



INTEGRATED MOSQUITO MANAGEMENT THROUGH THE SURVEILLANCE LENS



VECTOR DISEASE CONTROL INTERNATIONAL IS A PUBLIC HEALTH, MOSQUITO MANAGEMENT SERVICE THAT PROTECTS THE PUBLIC FROM WEST NILE VIRUS (WNV) THROUGH EDUCATION, SURVEILLANCE, LARVACIDE APPLICATION, AND ADULT MOSQUITO CONTROL

BEAT THE BUZZ WITH THE FOUR D'S

1. DEFEND

Protect yourself using EPA-approved repellent according to its label



2. DRESS

When spending time outside wear light-colored clothing, long sleeves, closed toes shoes, and long pants to prevent biting.



3. DRAIN

Mosquitos breed in water and need it to complete their life cycle. Drain any standing water in your yard each week.



4. DAWN & DUSK

Dawn and dusk are times when mosquitos are most active, keep yourself and pets indoors during these times.



NEXT STEPS

Once mosquitos have been counted and viald what happens next?

- At the end of every week our viald mosquitos are brought to the CSU Center for Vector-Borne Infectious Diseases where they are tested for WNV
- Weekly reports of numbers and distribution are sent to each city VDCI is contracted through, which includes Cheyenne, Berthoud, Fort Collins, Loveland, Severance, Timnath, Windsor
- Once the Center for Vector-Borne Infectious Diseases obtains a positive WNV mosquito, the city in which it was received, as well as all of Northern Colorado that VDCI is contracted, is informed
- Areas that are sprayed with adulticide are located where mosquito numbers in that area exceed 100 OR 50 Culex species are captured, whichever comes first



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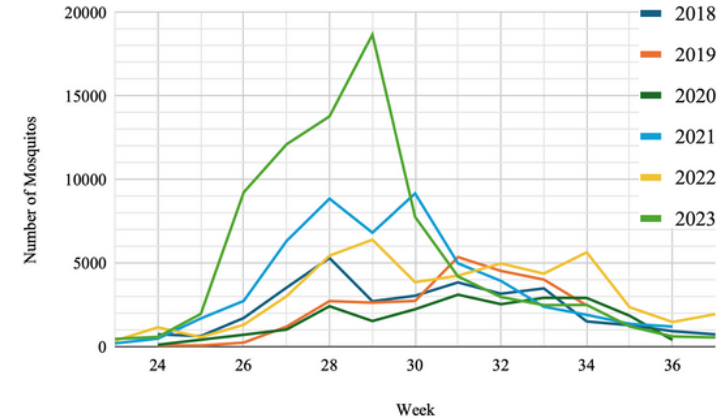


SELECTED REFERENCES

1. VECTOR DISEASE CONTROL INTERNATIONAL. (2024, APRIL 24). [HTTP://WWW.VDCI.NET/](http://www.vdci.net/)
2. CENTER FOR DISEASE CONTROL AND PREVENTION (2024, MAY 14). [HTTPS://WWW.CDC.GOV/MOSQUITOES/PHP/TOOLKIT/MOSQUITO-SURVEILLANCE-TRAPS.HTML](https://www.cdc.gov/mosquitoes/php/toolkit/mosquito-surveillance-traps.html)

NUMBERS OVER THE YEARS

Culex Species Viald Weekly Since 2018-2023



- Depicted here is a graph that shows the numbers of Culex species that were viald in the summer months that mosquitos thrive in most. Weeks 23-27 is roughly the last week in May through June, 28-32 is July, and 33-37 is roughly August to the first week in September
- There are some missing data for 2018, 2019, 2020, and 2021 at either the first or last week of the summer due to fewer traps
- Throughout the years we can see a steady, slightly linear growth from weeks 23 to 28. This is synonymous with large amounts of rain during these weeks, which is the one thing that mosquitos need to reproduce
- The summer of 2023 reported the highest number of Culex species at 18,680 and of that, 1,893 were positive WNV carriers