2023

Butte County Mosquito & Vector Control District

Since 1948

Annual Report 2023

BCMVCD ANNUAL REPORT 2023

BUTTE COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT

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CONTACT INFORMATION

Butte County Mosquito and Vector Control District
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Fax (530) 534-9916
Visit us on the web at www.buttemosquito.com

Front Cover: Sutter Buttes and rice photographed near Richvale, CA

This institution is an equal opportunity provider and employer

MANAGER'S FOREWORD

It is my honor to submit the 2023 Annual Report for the Butte County Mosquito and Vector Control District. The District had a very successful year serving the residents of Butte County and Hamilton City by utilizing an integrated vector management (IVM) approach that included public education and outreach, vector surveillance, reduction of breeding grounds by physical and cultural control by altering the environment and/or management practices, and by using sound biological and chemical control methods. This report outlines the work conducted by the District to accomplish its primary goal of protecting public health.

The prevention of vector-borne disease outbreaks remains the District's primary goal and its most important responsibility to the public. West Nile virus (WNV) has long been considered to be endemic in the state of California and remains the District's largest public health concern. The state observed another extremely active WNV season and for the past several years St. Louis encephalitis has again started to become active in parts of the state. The extraordinary efforts to combat the WNV epidemic and St. Louis encephalitis resurgence in California should be credited to the combined efforts of more than 60 mosquito and vector control districts and local health departments, working in close cooperation with the California Department of Public Health and numerous other agencies indirectly related to mosquito and vector control.

For the fourth year in a row, *Aedes aegypti*, a major public health concern and an invasive species, was collected and identified in Butte County. Detections of this mosquito were found in Chico, Oroville, Thermalito, Biggs, Gridley and Hamilton City. Through the challenges of 2023, the District was still able to perform the essential services the public we serve have come to rely on and responded to 2415 service requests.

The District continues to aggressively control unmaintained / abandoned swimming pools, catch basins, storm drains, and retention / detention ponds and works in partnership with other local agencies and governments to maintain improper functioning utilities that could and have bred mosquitoes.

Regardless of drought conditions, the over-watering of landscaped yards and environments continues to add to the mosquito breeding problems in urban mosquito sources and extends the length of our mosquito season. In addition to urban mosquito breeding problems, the District continues surveillance and control in agricultural, rural, and wetland areas that breed mosquitoes. Due to two newly established invasive mosquito species in the state of California and now within Butte County, the District has greatly expanded surveillance efforts to detect either of these two species of mosquitoes. The District continues to conduct surveillance of ticks of medical importance and control of yellowjackets.

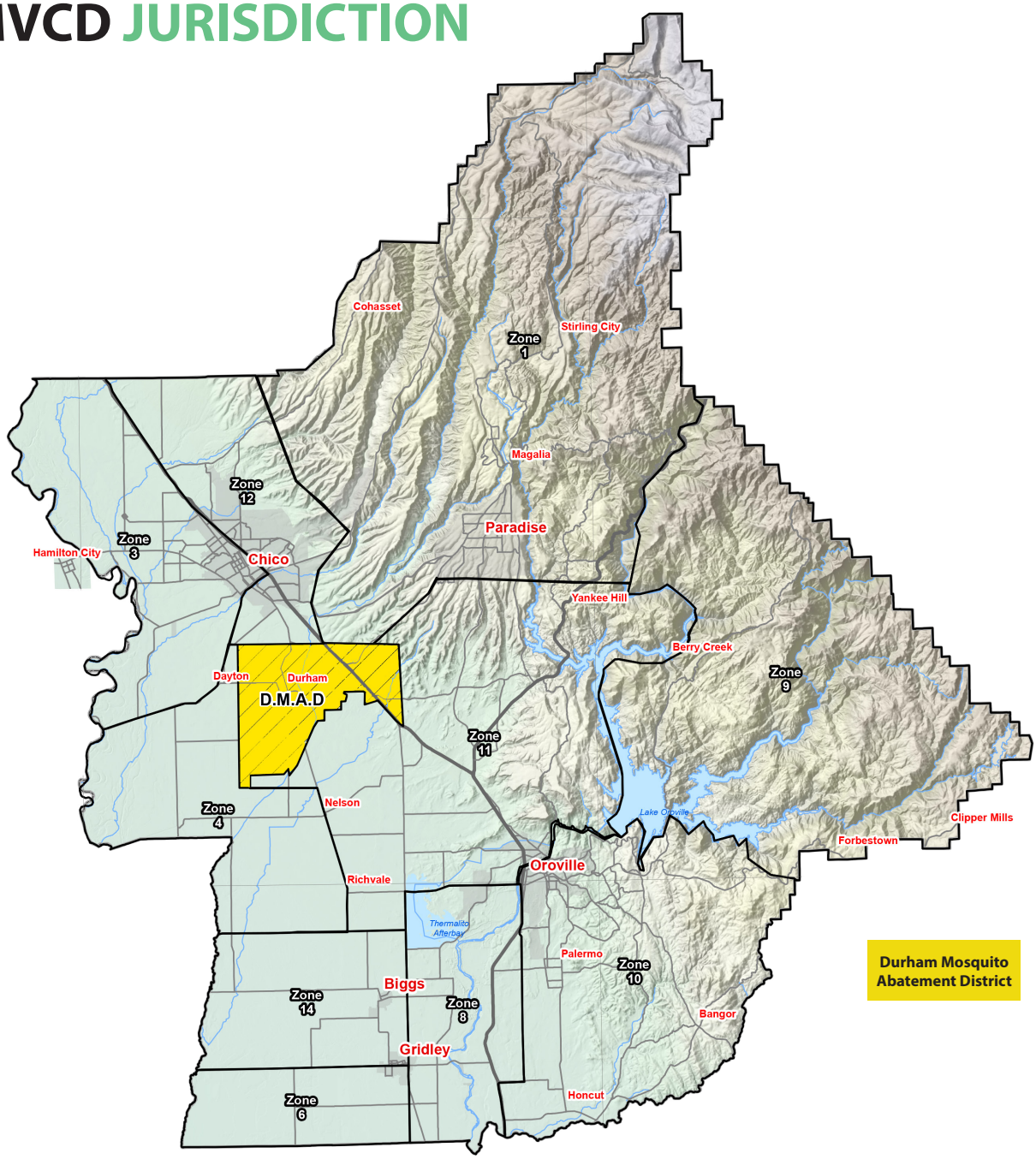
"The Mission of the Butte County Mosquito and Vector Control District is primarily to suppress mosquito-transmitted disease and to also reduce the annoyance levels of mosquitoes and diseases associated with ticks, fleas, and other vectors through environmentally compatible control practices and public education." To achieve this goal the District provides continual surveillance of mosquitoes and other vectors to ascertain the threat of disease transmission and annoyance levels and then uses integrated vector management methods to keep mosquitoes and other vectors below those levels. The District continues to work in cooperation with property owners, residents, social groups, and other governmental agencies to minimize mosquito breeding and to reduce the threat of mosquito-transmitted diseases.

The Board of Trustees and employees continue to plan and search for better ways to improve our programs to be prepared for future disease outbreaks that would be a threat to the health of Butte County and Hamilton City residents. We look forward to providing our services to you in the future and if you have any questions or need more information, please visit our website at ButteMosquito.com or call us at 530-533-6038 or 530-342-7350.

Respectfully,

MATTHEW C. BALL
District Manager

BCMVCD JURISDICTION



DISTRICT HISTORY

District Formed

Butte County Mosquito Abatement District formed to manage Malaria epidemic

1948

Relocation

Relocated from Biggs to current location in Oroville

1950s

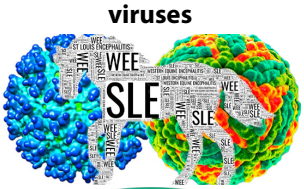
Annex Hamilton City

Annexation of Hamilton City in Glenn County, into the District's Service Area

1986

WEE and SLE

Western Equine and St Louis Encephalitis viruses



1990s

District's Name

District's name changed to Butte County Mosquito and Vector Control District

1993

Mission

The mission of the Butte County Mosquito and Vector Control District is to primarily suppress mosquito-transmitted disease and to also reduce the annoyance levels of mosquitoes and diseases associated with ticks, fleas and other vectors through environmentally compatible control practices and public education.

Main Office Location

5117 Larkin Road
Oroville, CA. 95965

Substation Location

444 Otterson Drive
Chico, CA. 95928

2004

West Nile Virus

West Nile Virus Arrives in Butte County

2011

New Chico Substation

New Substation location opened in south Chico

2014

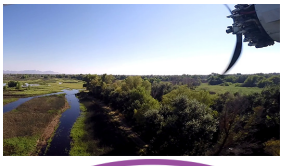
New Benefit Assessment

Special Benefit Assessment to improve all services provided by the District

2018

Annex DMAD Areas

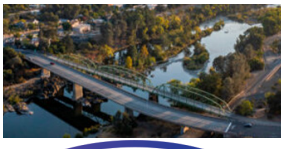
Annexation of Durham Mosquito Abatement's 23 mi² of Rice and Wetlands



2021

Annex OMAD

Annexation of Oroville Mosquito Abatement District's 12 mi² service



BUTTE COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT PERSONNEL

Albert J. Beck, PhD

50 Years of Service

Born in Nyack, New York, but raised in California, Albert Beck learned a love of wildlife and fostered an interest in vector-borne disease from a young age. Growing up in San Mateo County, he pursued his interest in animals with an internship at the San Francisco Zoo while still a teenager. Thanks to the zoo's location, he also spent countless hours at the nearby Academy of Sciences. Soon he headed to the University of California, Davis for his undergraduate studies in zoology. His first job at UC Davis was in Veterinary Public Health, working in part with bats. During this time, he became increasingly interested in the epidemiology of infectious diseases in animal vectors.

His course of study changed briefly while he completed a two-year tour of duty in the U.S. Army before returning to UC Davis to receive his Master's Degree and PhD in zoology. With degrees in hand, he set off for Malaysia where he spent two and a half years working with outbreaks of malaria, cholera, arboviruses and other tropical maladies while serving as the Acting Medical Zoologist at the Institute for Medical Research in Malaysia.

When he returned to California in 1969, Beck settled in Chico to work for William Reeves' research based at UC Berkeley. Four years later, he branched out on his own, establishing the environmental consulting business Eco-Analysts for which he remains the owner and principal partner today. In 1973, he joined the Butte County Mosquito and Vector Control District's Board of Trustees and became President of the Board in 1995.

Dr. Beck has been a vital advocate for the Board of Trustees, the District, the MVCAC, and the mosquito control industry. Along with his years of experience and vast knowledge of medical entomology, mosquito control, vector-borne disease, and local agency governance, Dr. Beck is a vital component to the District, the constituents, and to the duty of Vector Control. His services will be hard to replace, and the District wishes him a wonderful retirement.

BOARD OF TRUSTEES

Name	Title	Represents	Appointed	Expires	Years Served
Dr. Albert Beck*	Trustee	County District 1	12/04/1973	12/31/2023	50
Carl Starkey	Trustee	County District 2	01/08/2013	12/31/2024	11
Philip LaRocca	Trustee	County District 3	02/12/2019	12/31/2026	5
Darlene Fredericks*	Trustee	County District 4	01/01/2022	12/31/2025	2
Michael Barth	Trustee	County District 5	01/01/2020	12/31/2023	4
James Bo Sheppard	President	City of Biggs	12/13/2010	12/31/2026	12
Dr. Larry Kirk	Vice President	City of Chico	02/01/2012	12/31/2025	13
Bruce Johnson	Asst Secretary	City of Gridley	01/01/2016	12/31/2023	8
Melissa Schuster	Secretary	Town of Paradise	12/13/2016	12/31/2026	8
Chuck Reynolds*	Trustee	City of Oroville	02/15/2022	12/31/2023	2
Vacant*	Trustee	Hamilton City	TBD	TBD	TBD

*Not seen in picture

BCMVCD STAFF

ADMINISTRATION

Matt Ball *District Manager* AAron Lumsden *Assistant Manager* Del Boyd *Pilot II*
Maritza Sandoval *Administrative Manager* Sara MacKenzie *Office Assistant* Amanda Bradford *Entomologist II*
Ryan Rothenwander *Vector Ecologist/Fish Biologist* Shane Cassity *Regional Supervisor II* Charlie Favilla *Regional Supervisor*

MOSQUITO & VECTOR CONTROL SPECIALISTS

Shane Robertson *(MVCS III),* Eric Dillard *(MVCS III),* Kenny Armstrong, Kellen Larson
Glen Williams, Jeremy Edwards, Aaron Goff, Frank Lopez, Mike Mattia

MOSQUITO & VECTOR CONTROL ASSISTANT SEASONALS*

Stephanie Burnham, Colton Chenoweth, Erin Carmichael, Daniel Flesher, Sean Kidd, Michael Langley
Daniel Mayer, Ashley Mullins, Jason St. Clair, Corey Slotte, Jim Valk, Elliott Sanders

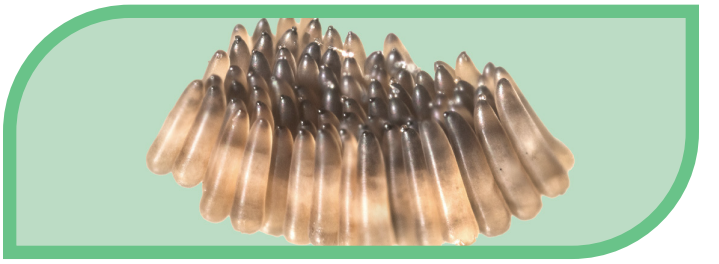
*Not seen in picture

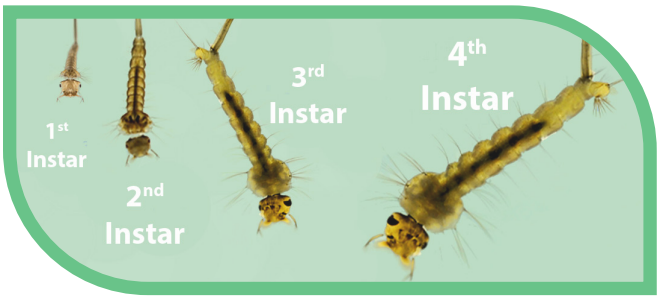
MOSQUITO BIOLOGY

There are more than 3,500 species of mosquitoes around the world and in California we have about 50 species. Only a few Species are considered public health threats due to their potential to transmit mosquito-borne diseases to humans. People who have been bitten by a mosquito infected with viruses such as West Nile, Saint Louis Encephalitis, Dengue, and Zika may develop life-threatening or life-altering diseases. For the District and residents of Butte County to effectively reduce mosquito populations and the chance of getting a mosquito-borne disease, it is important to understand the habits and behaviors of the different mosquito species. This water can range in quality, and it can be in any container imaginable. The mosquito goes through four separate and distinct stages of its lifecycle: egg, larva, pupa, and adult. Some species can go through their entire life cycle in as little as four days. All mosquitoes must have water to complete their lifecycle.

Egg

Eggs are laid on or near water or where water will be. They may be laid one at a time or stuck together in rafts of 100-300 eggs. Most eggs hatch into larvae within 48 hours of coming into contact with water.



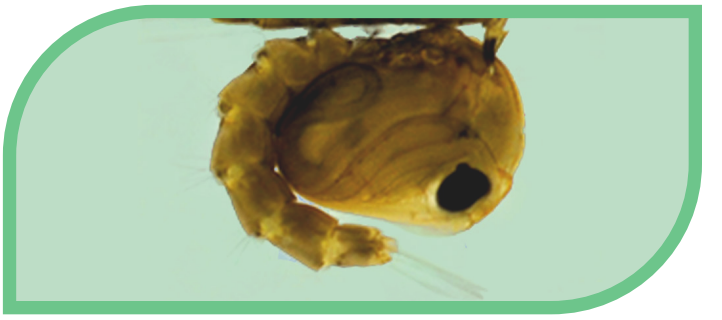


Larva

Larvae live in water and breathe air from the surface. Larvae feed on micro-organisms and organic matter in the water. They shed their skin four times growing larger after each molt. The stages between molts are called instars. When the 4th instar larva molts it becomes a pupa.

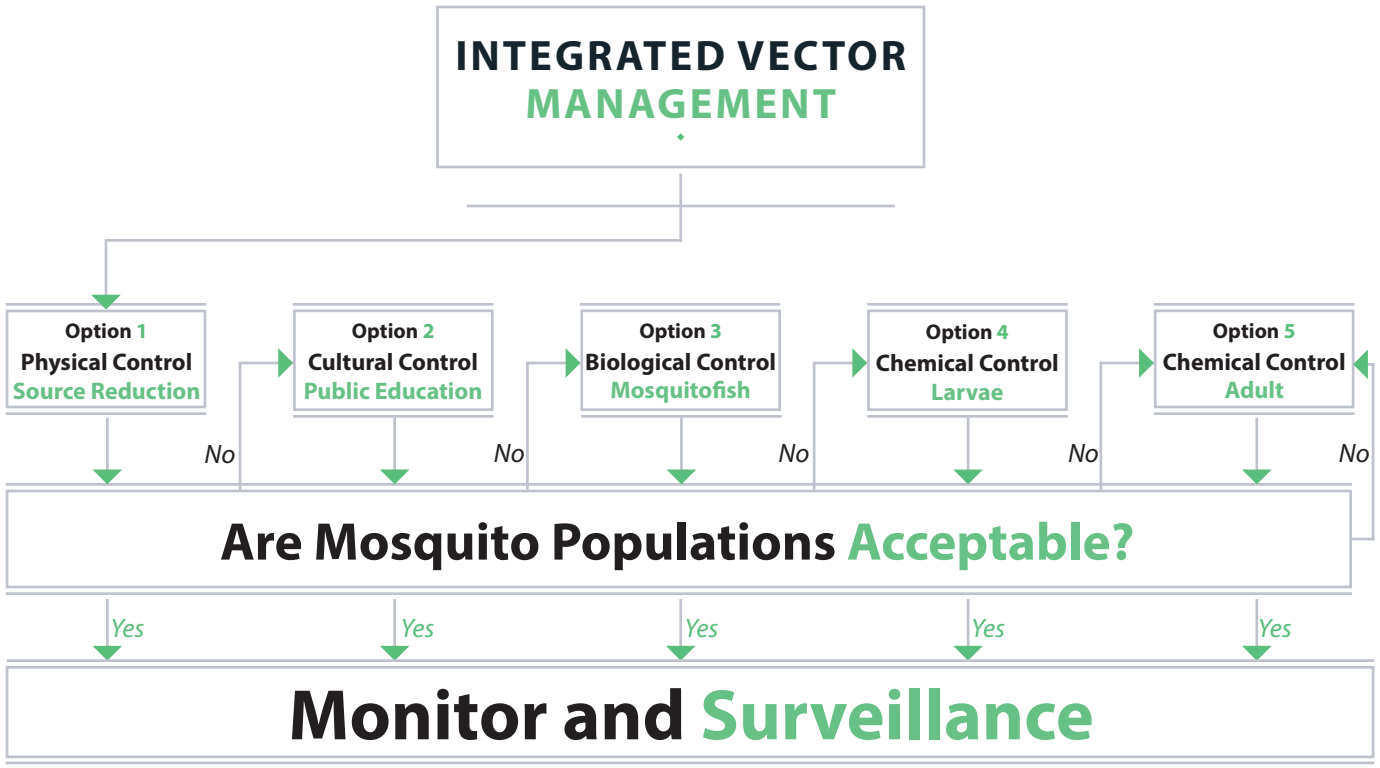
Pupa

Mosquito pupae also float at the water surface and breathe air. When disturbed, they dive in a tumbling motion and then float back to the surface. The pupal stage is a non-feeding stage. This is the time the mosquito turns into an adult. It takes two days before the adult is fully developed.

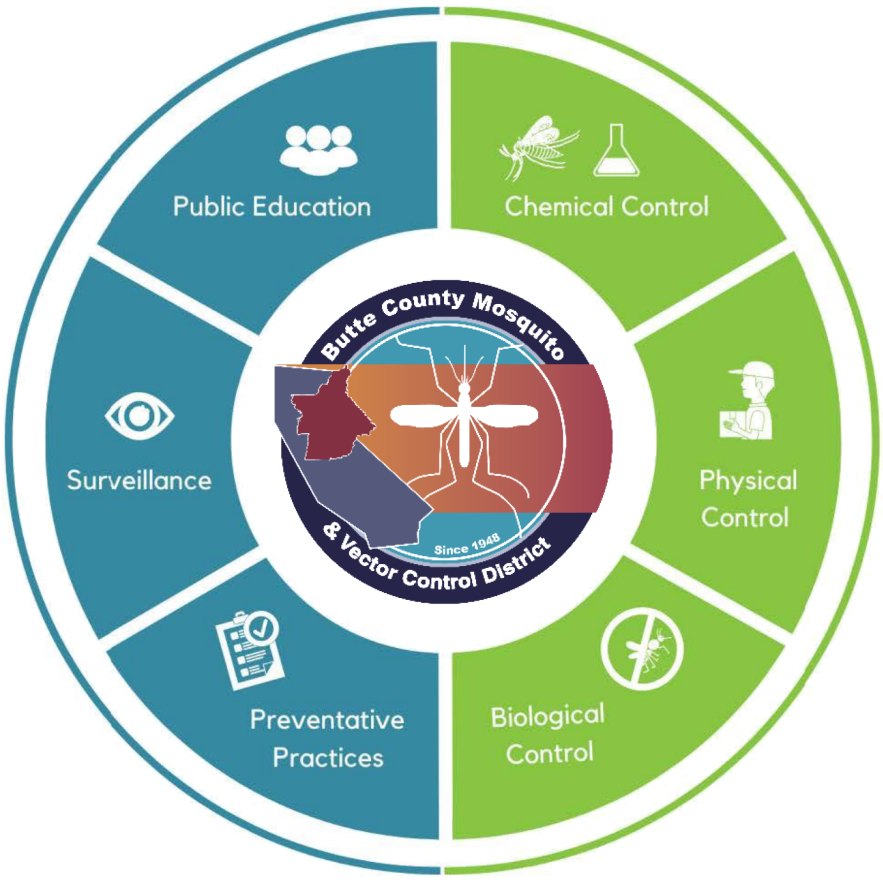


Adult

Newly emerged adults rest on the surface of the water for a short time to allow itself to dry before taking flight. Female mosquitoes feed to get a sufficient blood meal to develop eggs. Male mosquitoes feed only on plant nectar. The life span of the adult mosquito usually depends on several factors: species, temperature, humidity, gender, and time of year. Males live shorter lives.



Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of common sense practices. The District's IPM program uses current and comprehensive information on the life cycles of pests and their interaction with the environment. This information, along with available pest control methods, is used to manage pest nuisance and public health threats by the most economical means and with the least possible hazard to people, property, and the environment. The District's IPM includes public education, physical control, biological control, chemical control, and continuous monitoring. Each time one of the District's state certified vector control technicians locates a mosquito breeding source, the flow chart above is followed.



Simply cleaning up around the yard, dumping containers and storing things properly can eliminate mosquito breeding sources.

Using materials such as sand or a water absorbing polymer, can fill in tree holes, excluding them from holding water and preventing mosquito breeding.

PHYSICAL CONTROL
SOURCE REDUCTION

The best method of mosquito control is source elimination (the complete removal of standing water). All mosquitoes need water to breed, unfortunately water is vital to keep lawns green, to grow crops, to sustain life, and to provide habitat for other aquatic insects and animals. District Mosquito and Vector Control Specialists actively work with property owners, land managers, and municipalities to reduce the amount of water needed for irrigation, to observe or consider best management practices, to actively participate in the design of new developments, and the overall reduction of standing water on a property.

PUBLIC EDUCATION OUTREACH

BEST MANAGMENT PRACTICES

The District's mission is to protect residents from mosquitoes and other vectors that transmit disease. Public education and information are important parts to the success of combating diseases such as West Nile virus and Lyme disease. The District's education program consists of public appearances at local city and county fairs, participation in the state Mosquito and Vector Awareness week, and presentations at schools and local civic groups. In addition to the above, the District strives to find new and more effective ways of better educating the public by arming residents with knowledge to prevent mosquito bites and reduce or eliminate mosquito-breeding through informational pamphlets, website information, best management practice manuals, repellent suggestions, one on one interaction, and homeowner safeguards. In 2010, the District and the Board of Trustees adopted a final version of a 'Best Management Practices to Reduce Mosquitoes' (BMP) manual. The manual provides property owners with tools and techniques to minimize mosquito populations through the proper use of land management practices while reducing the use of pesticides. The BMP manual is assembled from a number of sources including scientific literature, state and inter-agency documents, and from experienced vector control professionals. The BMP manual includes general guidance to all properties that can, have, and will breed mosquitoes. A copy of the BMP manual can be viewed on the District's website at buttemosquito.com. The manual has successfully been used to reduce mosquito populations/public health threats without the need of additional pesticides.

PUBLIC EDUCATION HIGHLIGHTS

The District believes that through public education, residents of Butte County learn the importance of avoiding/preventing mosquito bites to avoid getting a mosquito-borne illness. The District suggests that residents prevent mosquito bites by staying inside at dusk and dawn when mosquitoes are most active, wearing repellent and long sleeves and pants when outside during peak mosquito activity, and making sure their door and window screens are in good working condition. Residents are also asked to check their property for mosquito breeding sources and drain any unnecessary standing water.

The District was able to continue its billboard campaign and partnered with Lamar Advertising. The 2023 slogan was "Fight the Bite: Cover up. Repel. Eliminate." Eight billboards rotated throughout the county and ran from May through September.

With the detection of *Aedes aegypti* mosquitoes in Chico, Oroville, Biggs, Gridley, Thermalito and Hamilton City in 2023, the District responded with invasive *Aedes* brochures, door hangers, and mailers. The mailers were sent out to all residences and businesses within a two to three mile radius of the *Aedes* detections. The District sent out 3,994 mailers to Hamilton City and South Oroville. The mailers included a detailed description of the *Aedes* mosquito, where they can be found, and how to report any findings to the District.

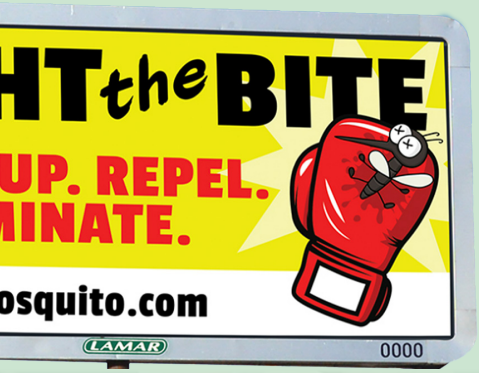
The District also renewed its contract with Action News Now and ran a television public service announcement (PSA) and a broadcast announcement on KIXE-PBS. The PSA and broadcast announcement ran from May through the end of September.

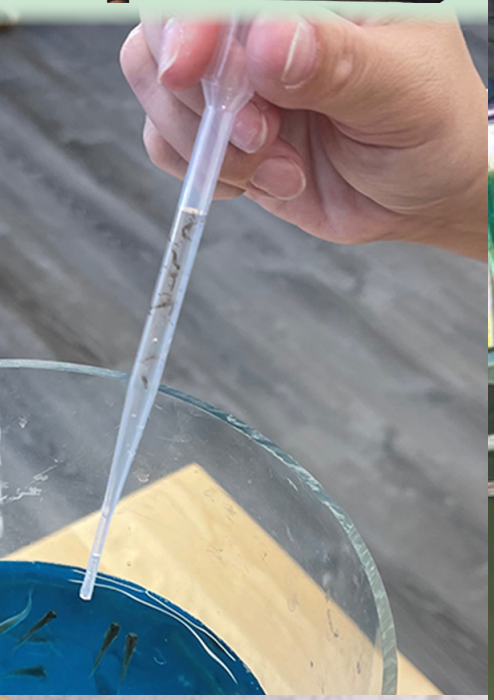
Radio advertising continued this year with Deer Creek Broadcasting and Results Radio. These programs ran through the end of September.

Newsprint advertising with the Enterprise-Record, Chico News and Review and Upgraded Living magazine ran from May through September.

District Public Relations Highlights 2023

- Billboard Advertising
- Chico News & Review
- Enterprise-Record
- Upgraded Living Magazine
- Television Public Service Announcements
  - -Action News Now
  - -KIXE-PBS
- Print, Radio, and Television Interviews
- Radio Advertising
  - -Deer Creek Broadcasting
  - -Results Radio
- Invasive *Aedes* Brochures, Mailers, and Door Hangers
- Home & Garden Show- Chico
- Gold Nugget Craft Faire- Paradise
- Red Suspenders Days- Gridley
- Salmon Festival- Oroville





PUBLIC HEALTH WARNING: REPORT DAY-BITING MOSQUITOES

Please call the BUTTE COUNTY MOSQUITO & VECTOR CONTROL DISTRICT to schedule an inspection at (530) 533-6038

INVASIVE MOSQUITOES FOUND IN YOUR AREA

Actual Size: About ¼ inch long

WHY THE CONCERN?

Aedes aegypti is an invasive mosquito in California that is capable of transmitting several diseases including Zika, dengue, and chikungunya. While there have been no local transmissions detected to date, the identification and control of this invasive mosquito is important to protect public health.

About *Aedes aegypti* mosquitoes

- Small dark mosquito that bites during the day.
- Prefers to dwell in urban areas indoors and outdoors.
- They especially like to bite ankles, wrists and elbows.
- They lay eggs in small sources of water around homes.
- They are very difficult to control.
- They complete their life cycle in 7-10 days. The adults live for about 3 weeks.
- Invasive *Aedes* are "container breeders". Individual eggs are glued to the sides of containers. Eggs are resistant to drying out and can survive for many months until water covers them.

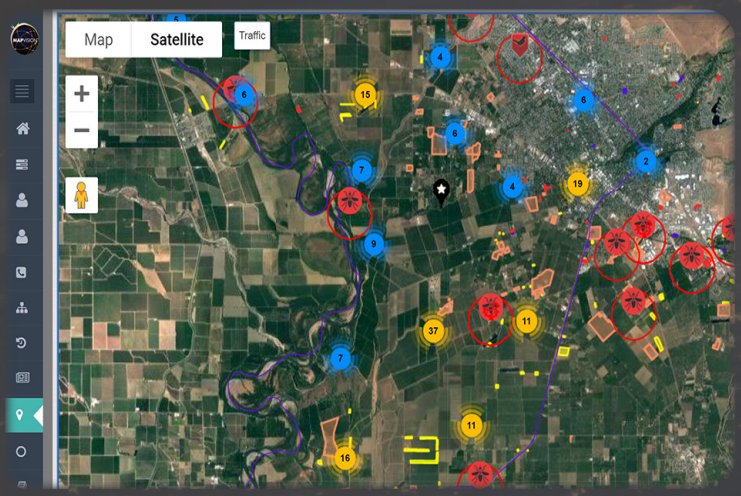
Butte County Mosquito & Vector Control District

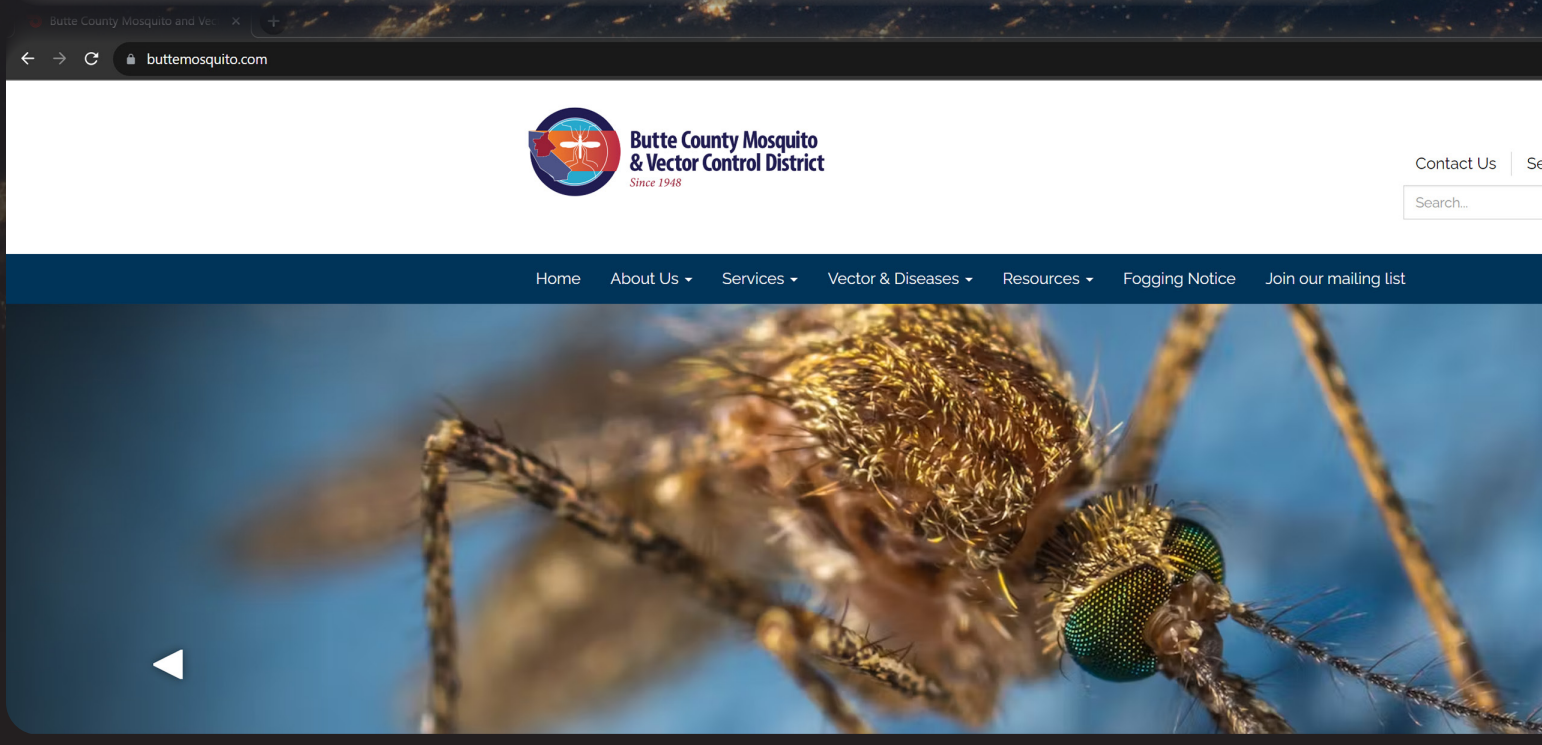
www.buttemosquito.com

TECHNOLOGICAL APPLICATIONS

MapVision®

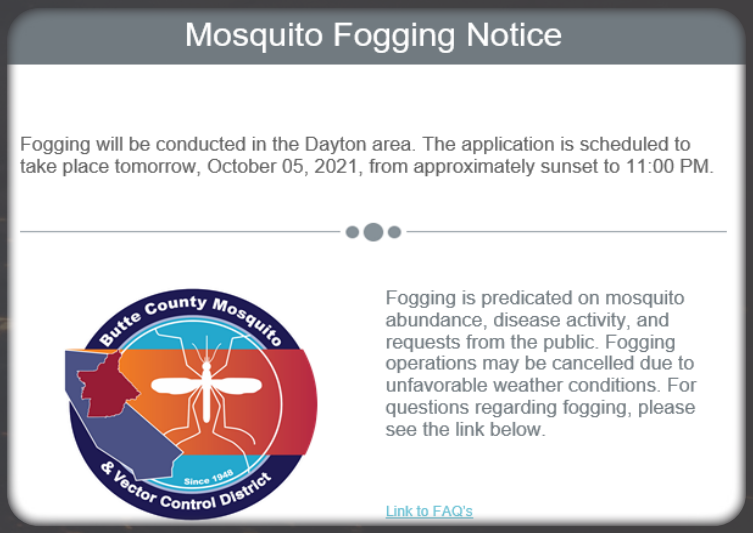
The District continues to use the Geographical Information System (GIS) that first went live in 2018. The new system, MapVision®, is a geospatial web-based data management system. Every workflow associated with each department within a vector control agency is automated, streamlined and results in cross department enterprise data sharing and data integrity. Management, finance/billing, employee time tracking, inventory, operations, treatment applications, field technician activities, laboratory processes, maintenance, vehicles, equipment, and reporting are a few of the core features MapVision® Enterprise offers. Examples include: inter-agency/commercial invoicing, employee time card tracking/payroll, and real time synchronization with state reporting databases such as CalSurv Gateway. Three unique components available in MapVision® Enterprise are a 'Heightened Surveillance' feature designed to monitor for invasive species and newly emerging pathogens in mosquitoes, ticks, and wildlife. The team concentric 'Parcel Inspection' program is based off of the heightened surveillance feature and the 'Resistance Management' module. MapVision® Enterprise dynamically bridges all vector control departments in real time, resulting in the most efficient, effective, and resourceful geospatial data management solution available.

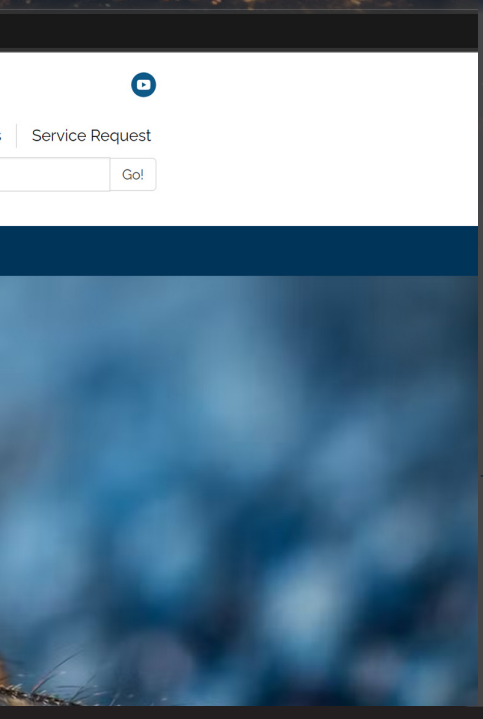




E-mail Notifications

Since 2011, the District has been using a mosquito fogging email notification system. The email notification system was created to meet public concerns and expectations, to enhance media coverage, and to help inform other agencies that need to know when and where the District is mosquito fogging. The Chico Enterprise Record uses these fogging notifications in their newspaper to inform their readers of the planned fogging operations. To meet these needs, the District used Constant Contact software modeled after the award-winning Contra Costa Mosquito and Vector Control District's email notification system, to compose and send out the fogging notifications via email. These email notifications are sent out, in most cases, 24 hours before a fogging operation takes place. The notifications include maps of the areas to be fogged, links to the labels and material safety data sheets of the public health pesticides used, the dates and times of the scheduled fogging operations, and a link to the District website. The public can sign up for email notifications on the District website, www.buttemosquito.com. The District website also has the links to the public health pesticides. The District also makes phone calls to notify residents and agencies that do not use email or have access to a computer.





WWW.BUTTEMOSQUITO.COM

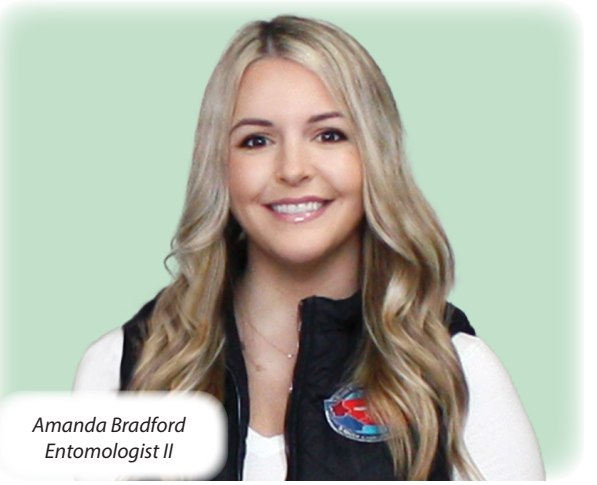
On the website, the user can make a service request, sign up for email notification of upcoming fogging operations, view vector-borne disease activity in the District, and view maps of where the District will be fogging and where the District has fogged in the past. The user can also view Board of Trustee agendas and minutes, read the latest news that affects the District and their constituents, and view information on viruses and other diseases that are transmitted by mosquitoes and other vectors such as ticks. Visitors to the website may also be interested in the mosquitofish page and the services page which lists the locations in Butte County and Hamilton City where residents can pick up free mosquitofish. The services page also includes yellowjacket and wasp nest removal, tick and insect identification, and a public education section where interested parties can find out how to request the District come to their school or service group for a presentation. The website also has links to the pesticide labels and SDS sheets for the public health pesticides that it uses as well as a frequently asked questions page and a "Contact Us" page.

VECTOR AND VECTORBORNE DISEASE SURVEILLANCE

The definition of a vector is any animal capable of producing discomfort or injury, including, but not limited to, mosquitoes, flies, other insects, ticks, mites, and rats but not including domestic animals according to the California State Health and Safety Code, Section 2002(K). Surveillance of vectors is a vital component of the District's Integrated Vector Management Program, and a considerable amount of time and effort is devoted to conducting vector surveillance. The District's surveillance program consists of a scientific approach in locating vector populations by focusing on mosquito-breeding sources, monitoring mosquito populations, and mosquito-borne disease. Data collected from the surveillance program is analyzed to determine maximum and minimum risk periods of public exposure to mosquito-borne disease, evaluates control efforts, and seasonal changes in relative abundance of mosquito species. Surveillance data is gathered in the District's database which provides historical information on mosquito dynamics and mosquito-borne disease within the District.


Gravid Trap


Tick Identification


Amanda Bradford
Entomologist II

The District has an entomology department (Lab) that is staffed with an Entomologist, Vector Ecologist, and a Lab Assistant. The District's entomology department is responsible for the identification of the trapped mosquito collections and reporting the population numbers to the California Department of Public Health. The Lab conducts virus testing on live mosquitoes, dead birds, and sentinel chicken flocks. These tests are the District's eyes to monitor and detect mosquito-borne viruses in and around the county. The Lab also conducts scientific pesticide trials to monitor the chemicals effectiveness on targeted mosquitoes and to assess the possible effects on non-targets and trials on new chemical methodology and/or new chemicals. The Lab is also at your service to identify ticks, arachnids, and other insects/ arthropods of public health significance.

The District utilizes an extensive surveillance program for both adult and larval mosquitoes. Throughout Butte County and the Hamilton City area of Glenn County, the District uses 28 New Jersey light traps, 31 gravid traps, 48 CO2 traps, and 7 sentinel chicken flocks to monitor adult mosquito populations and virus activity. District Mosquito and Vector Control Specialists (MVCS) monitor larval mosquito populations utilizing a standard one-pint dipper. District MVCS spend the majority of their day inspecting standing water such as rice, wetlands, storm drains, ponds, ditches, swimming pools, bird baths, fountains, seasonal and/or other man-made containers for larvae.

VIRUS SURVEILLANCE

2023 VIRUS SURVEILLANCE REPORT

The District monitors for Western equine encephalitis (WEEV), St. Louis encephalitis (SLEV), and West Nile virus (WNV) activity by collecting blood samples from sentinel chicken flocks, collecting live mosquitoes, and collecting dead wild birds Districtwide.

SENTINEL CHICKEN FLOCKS

Annually, the District maintains 7 sentinel chicken flocks of 6 birds each. Chickens are replaced if they are found dead. The flocks are located in Palermo, Honcut, Gridley, Biggs, South Chico, West Chico, and Hamilton City. Bi-weekly blood samples are taken from the sentinel chickens by the entomology staff and sent to CDPH for testing. The blood sample is tested for SLEV, WEEV, and WNV. In 2023, 33 of the 44 sentinel chickens from all 7 District flocks tested positive for WNV. Seropositive chickens are always delayed at least two weeks from positive mosquito pools in the same location. Therefore, in the upcoming year, future research efforts will be needed to investigate the costs and surveillance efficiency of this program.

DEAD BIRD SURVEILLANCE

The District has participated in the California Department of Public Health's (CDPH) WNV dead bird testing program. County residents participate in the program by calling CDPH's dead bird hotline (1-877-WNV-BIRD) or by submitting an online form at www.westnile.ca.gov or www.ButteMosquito.com. After a dead bird has been reported, CDPH notifies the District and District staff retrieves the bird and submits it for WNV testing. In 2023, the District identified 2 WNV positive dead birds.

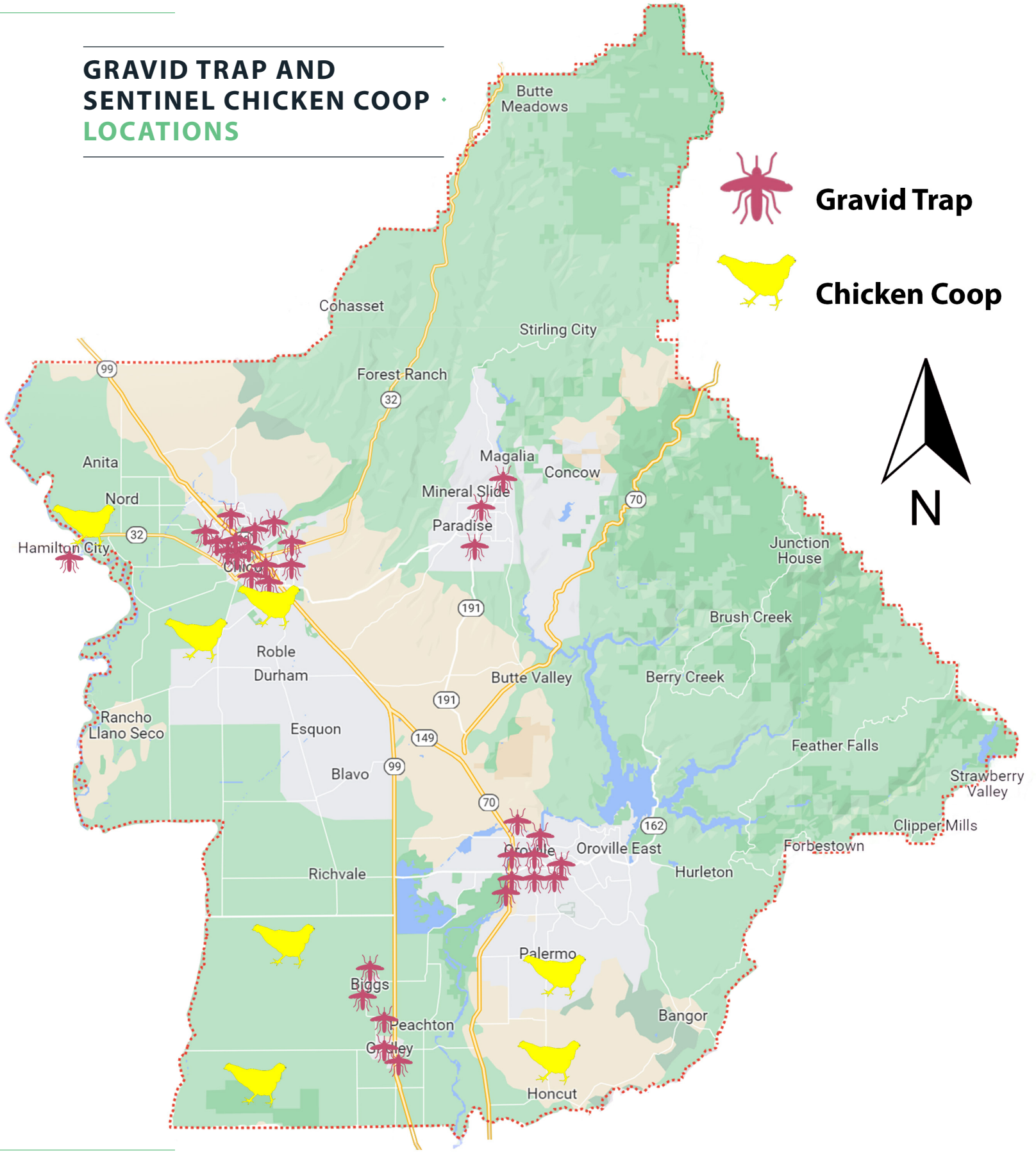
Sentinel Chickens

Chicken Coop Palermo, CA

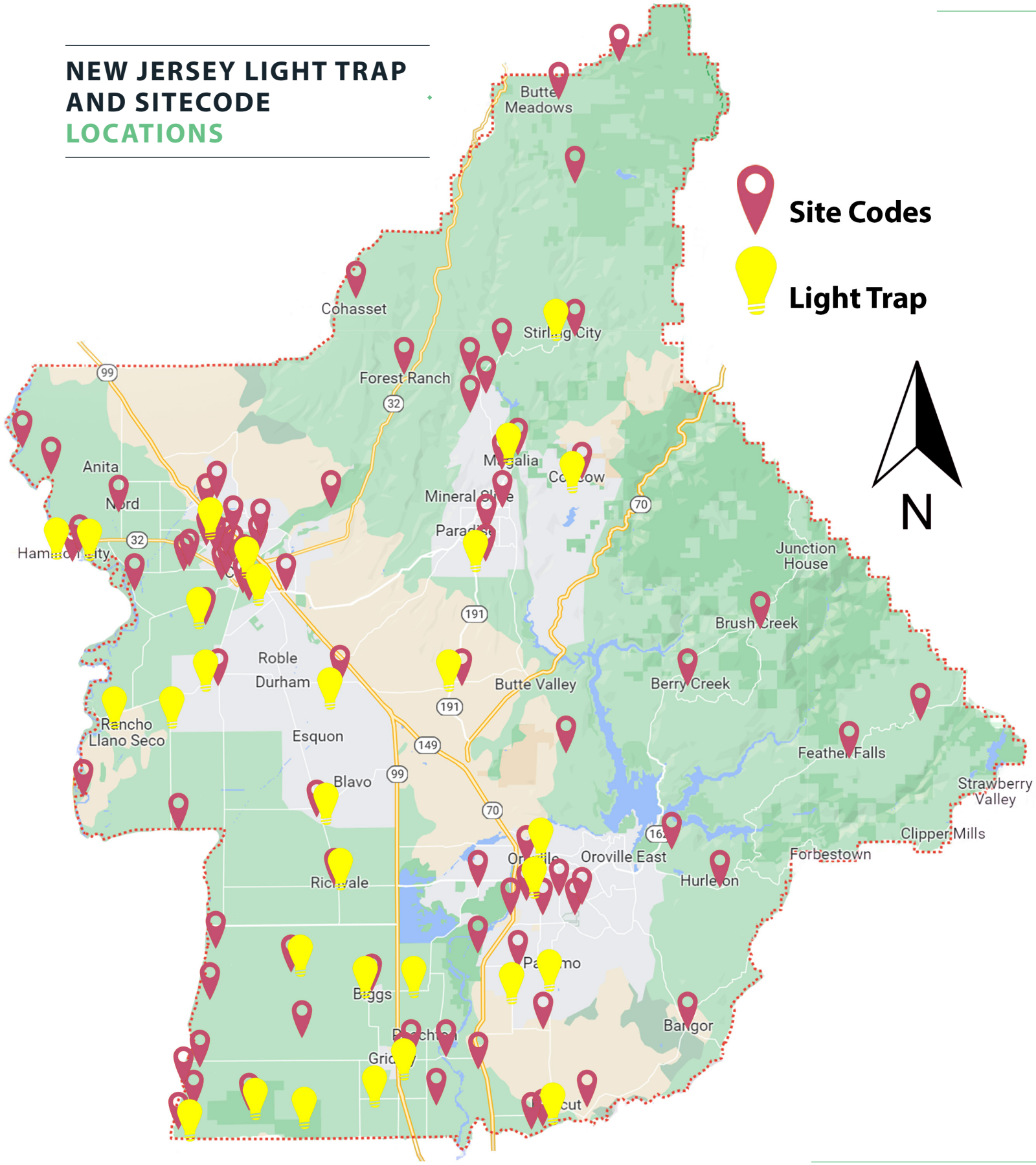
MOSQUITO POOLS

Each week the District's entomology staff strategically places traps known as encephalitis virus surveillance (EVS) traps around the District. The entomology staff will identify and sort the trapped mosquitoes and pool the collections for virus testing. A pool consists of 1 to 50 adult female mosquitoes of the same species. Pooled mosquitoes are transferred to numbered vials and sent to the Center for Vector-Borne Disease Research (CVBDR)at the University of California, Davis and are tested for WEEV, SLEV, and WNV. In 2023, the District sent 505 mosquito pool samples with 70 returning positive for WNV.

GRAVID TRAP AND SENTINEL CHICKEN COOP LOCATIONS

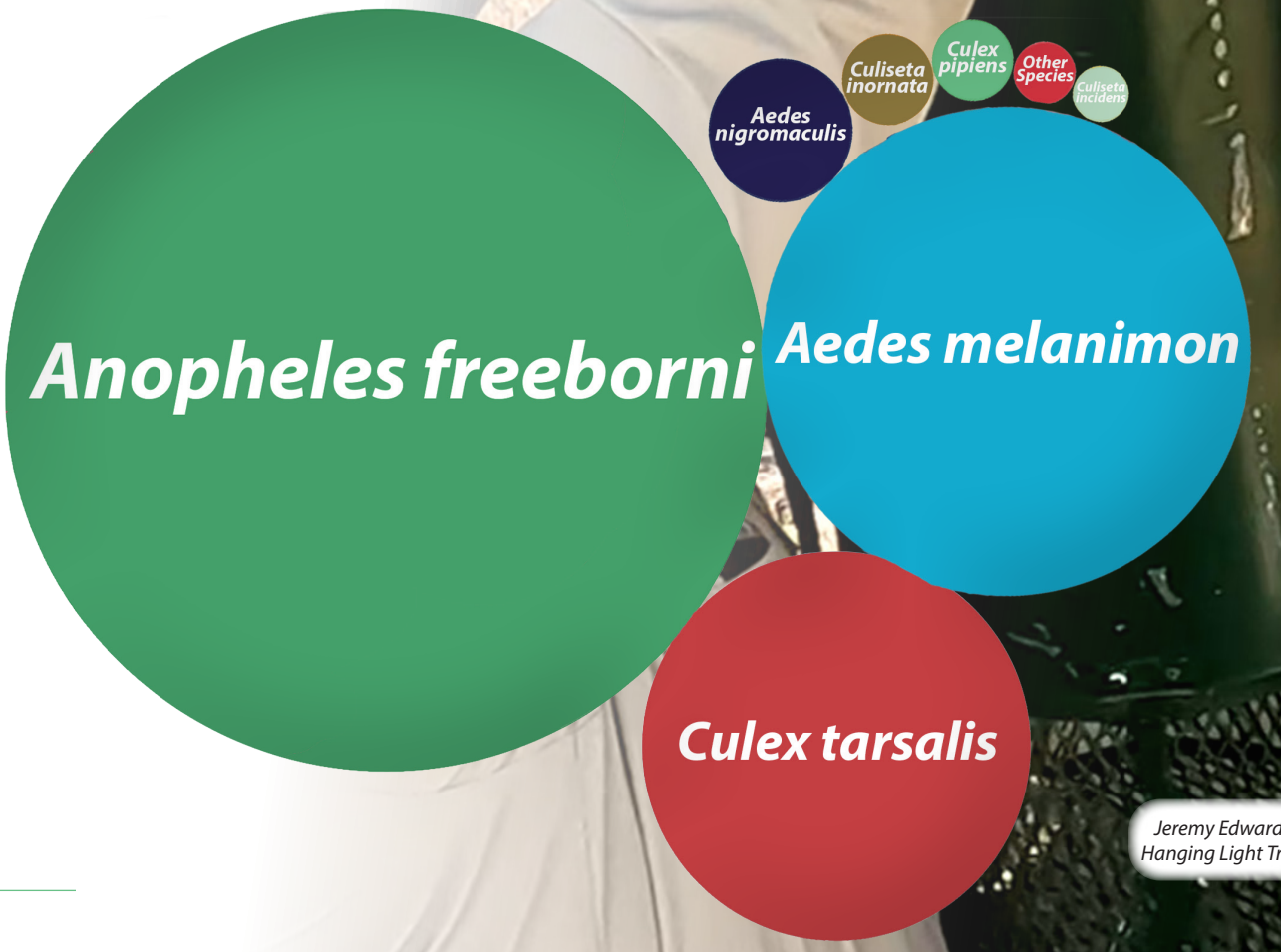


NEW JERSEY LIGHT TRAP AND SITECODE LOCATIONS



2023 NEW JERSEY LIGHT TRAP COLLECTIONS

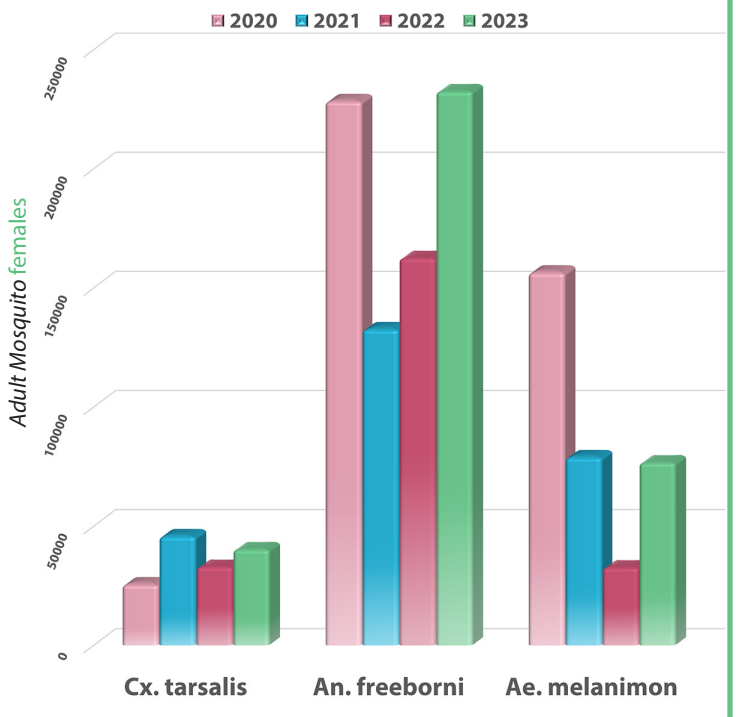
Mosquito Species	Number Collected	% of Total
Anopheles freeborni	232806	64.96%
Aedes melanimon	77015	21.49%
Culex tarsalis	40575	11.32%
Aedes nigromaculis	2937	0.82%
Culiseta inornata	2644	0.74%
Culex pipiens	1573	0.44%
Other species	545	0.15%
Culiseta incidens	280	0.08%



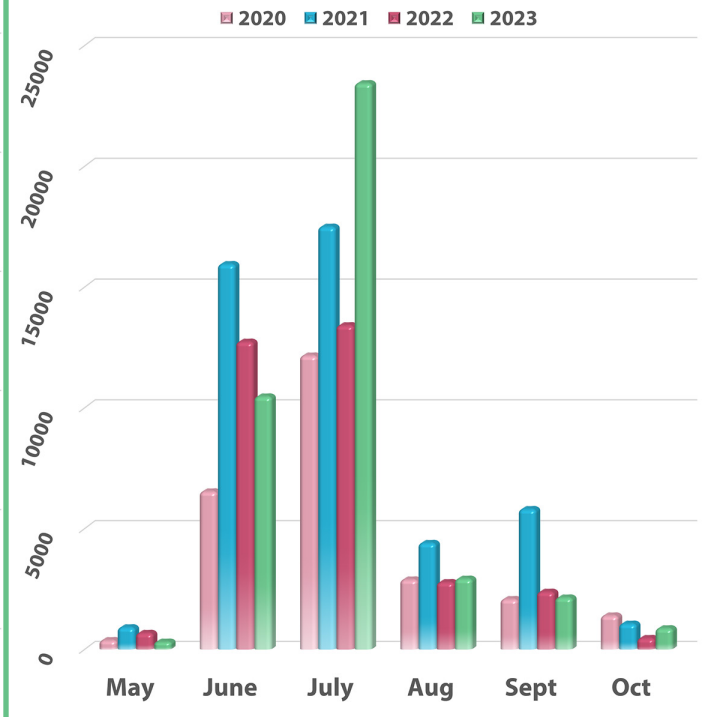
Jeremy Edwards
Hanging Light Trap

NEW JERSEY LIGHT TRAP
FLUCTUATIONS OF DISEASE VECTORS

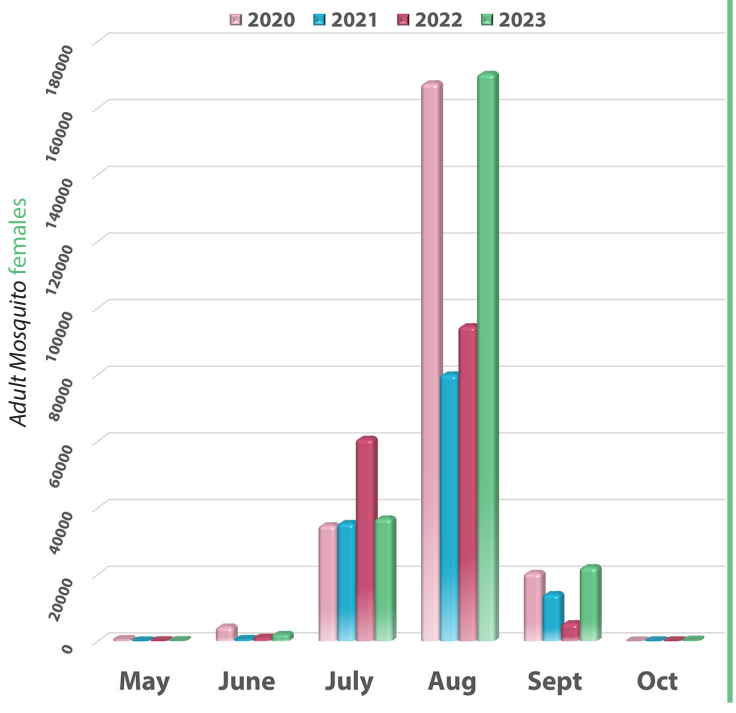
Annual Total Female Mosquitoes



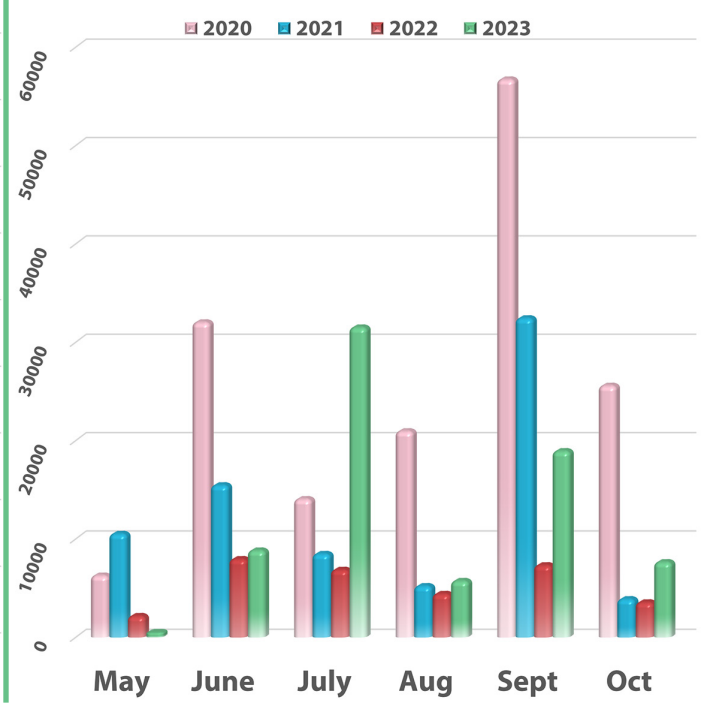
Culex tarsalis



Anopheles freeborni

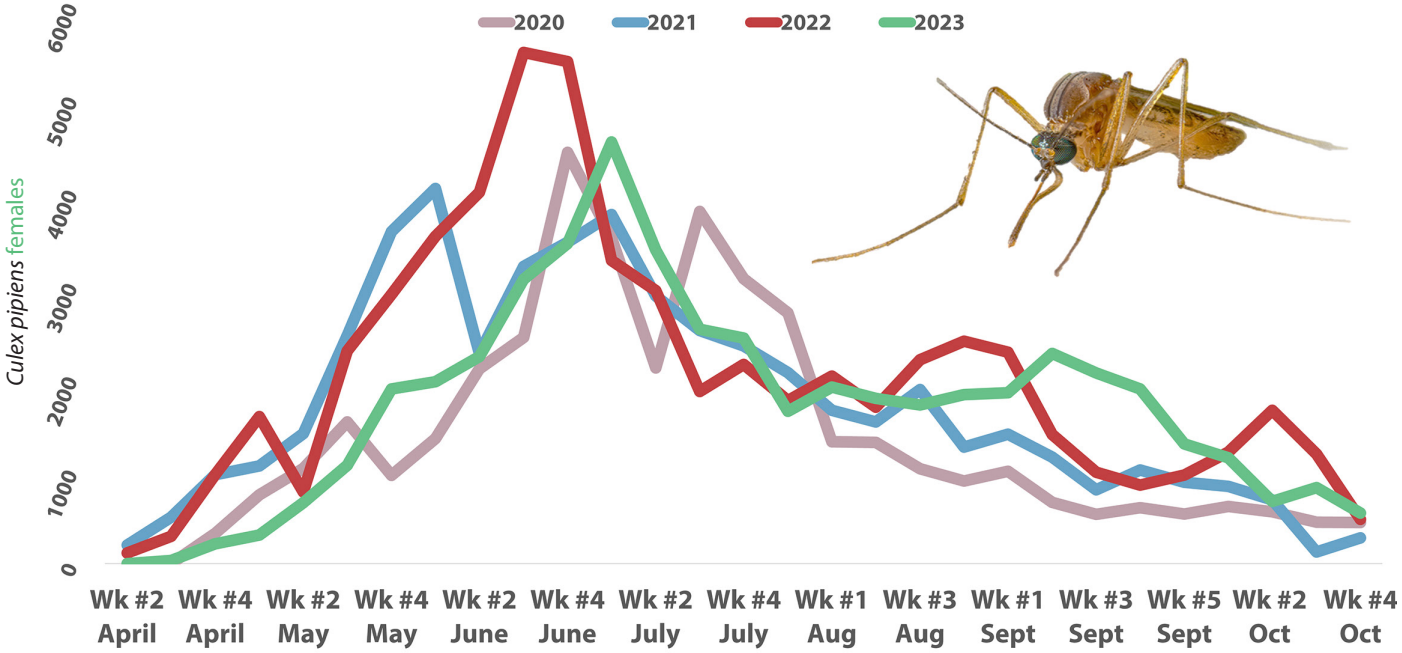


Aedes melanimon

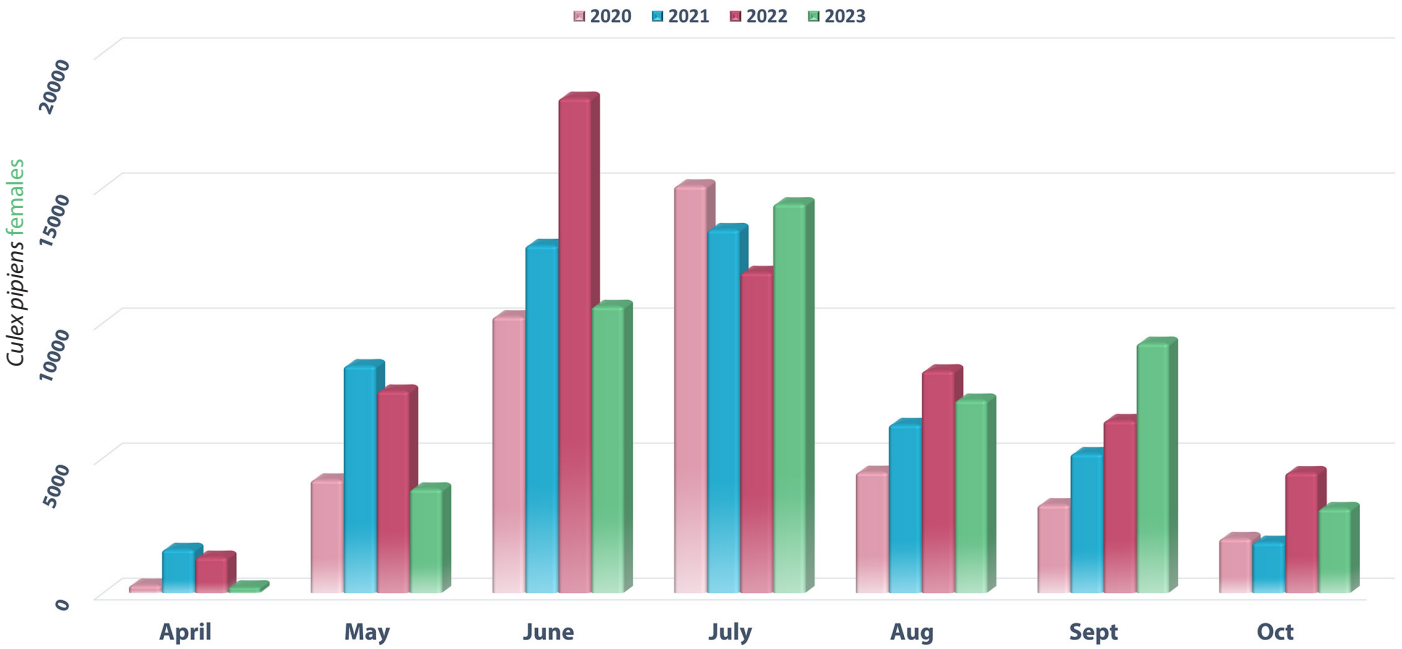


2023 GRAVID TRAP FLUCTUATIONS

Gravid Trap Fluctuation by Week



Gravid Trap Fluctuation by Month



2023 WEST NILE VIRUS ACTIVITY

West Nile Virus Symptoms

SERIOUS SYMPTOMS IN A FEW PEOPLE

About one in 150 people infected with West Nile virus (WNV) will develop severe illness. The severe symptoms can include high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness, and paralysis. These symptoms may last several weeks, and neurological effects may be permanent. WNV infection can be fatal.

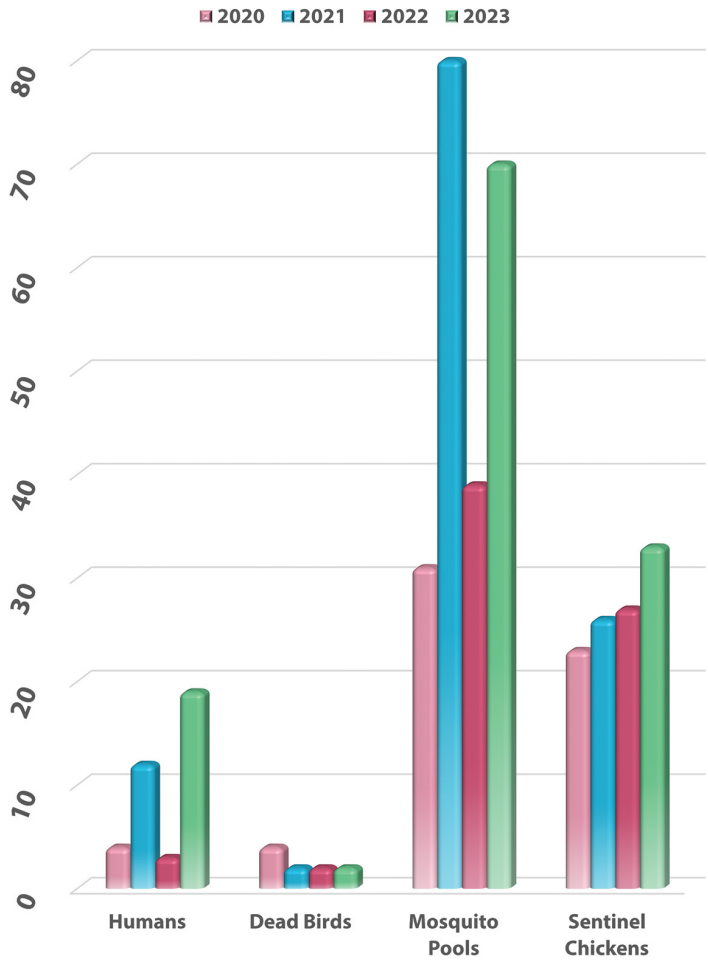
MILDER SYMPTOMS IN SOME PEOPLE

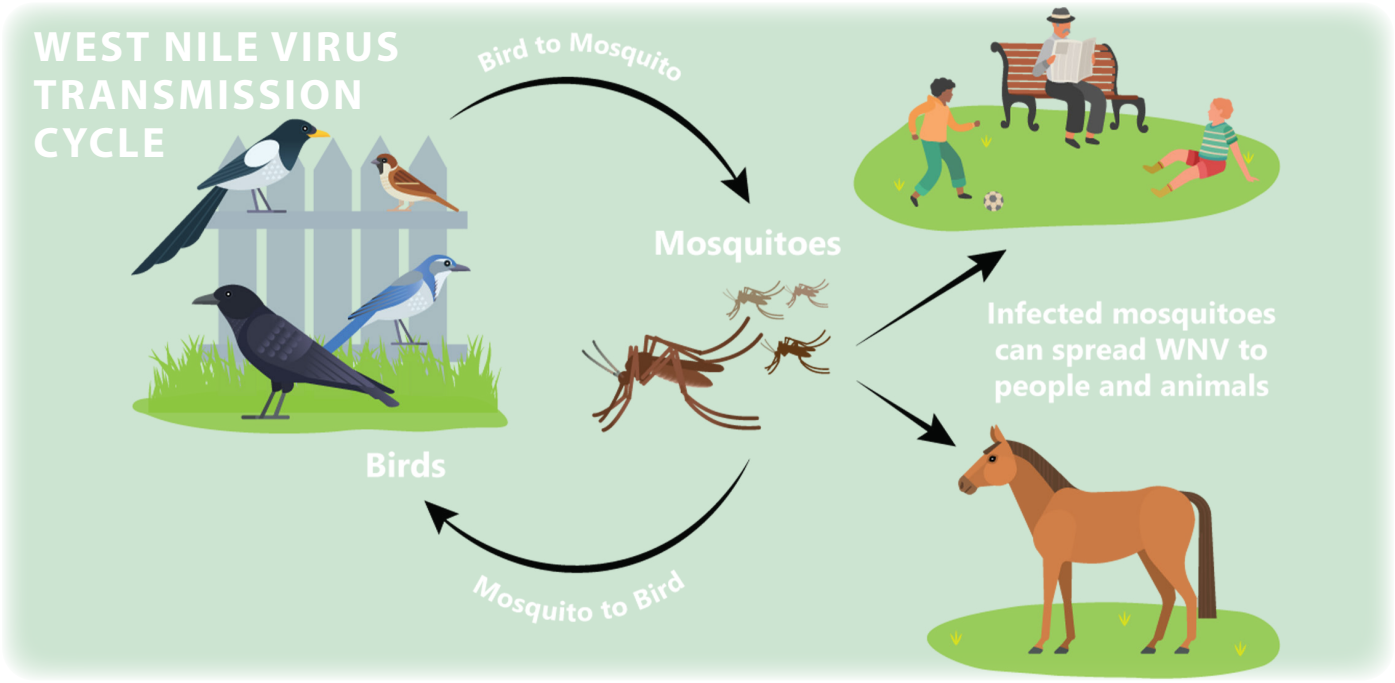
Up to 20 percent of the people who become infected will display symptoms including fever, headache and/or body aches, nausea, vomiting, and sometimes swollen lymph glands or a rash on the chest, stomach, and back. Symptoms can last as little as a few days to several weeks.

NO SYMPTOMS IN MOST PEOPLE

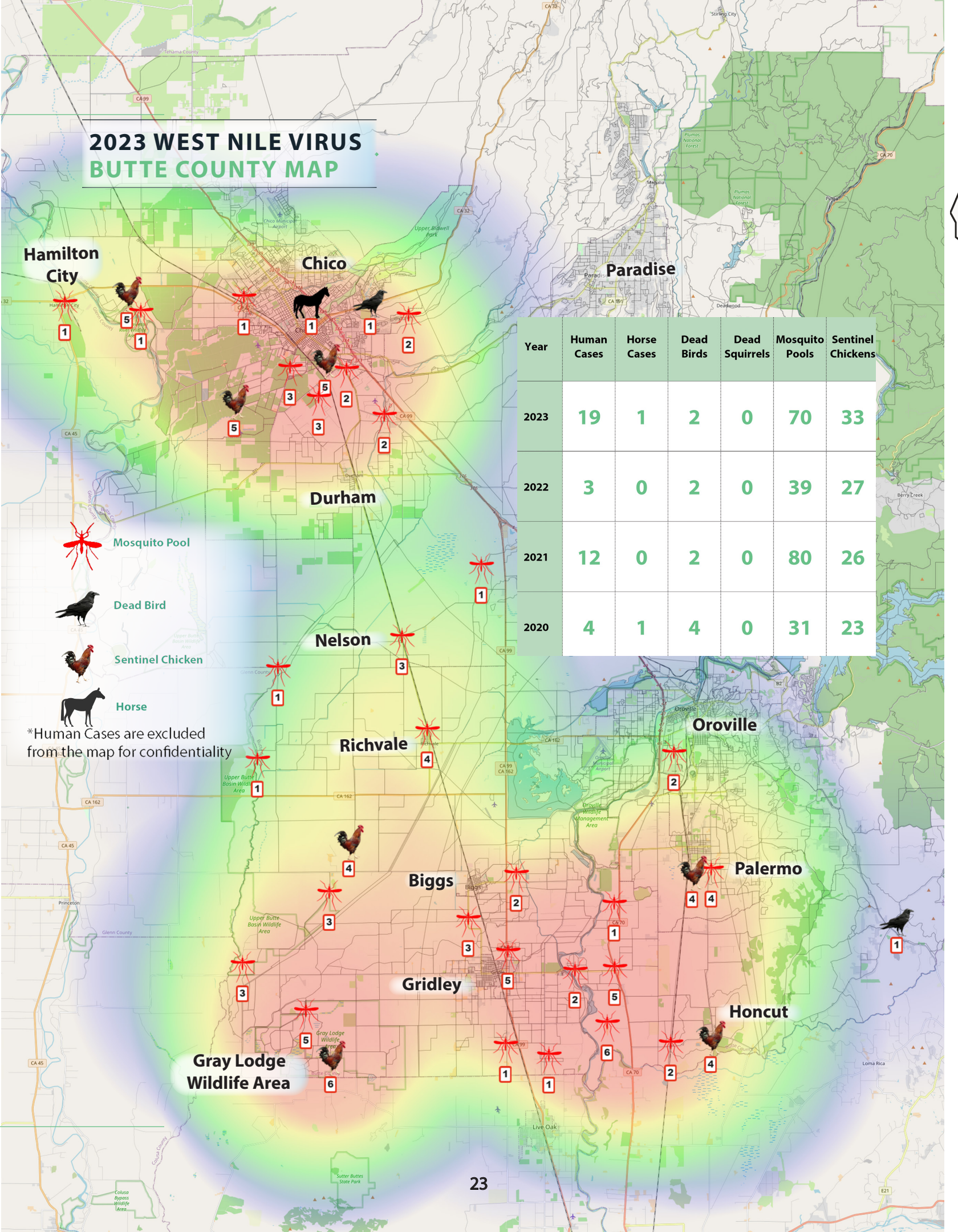
Approximately 80 percent of people (about 4 out of 5) who are infected with WNV will not have any symptoms at all.

West Nile Virus Positives



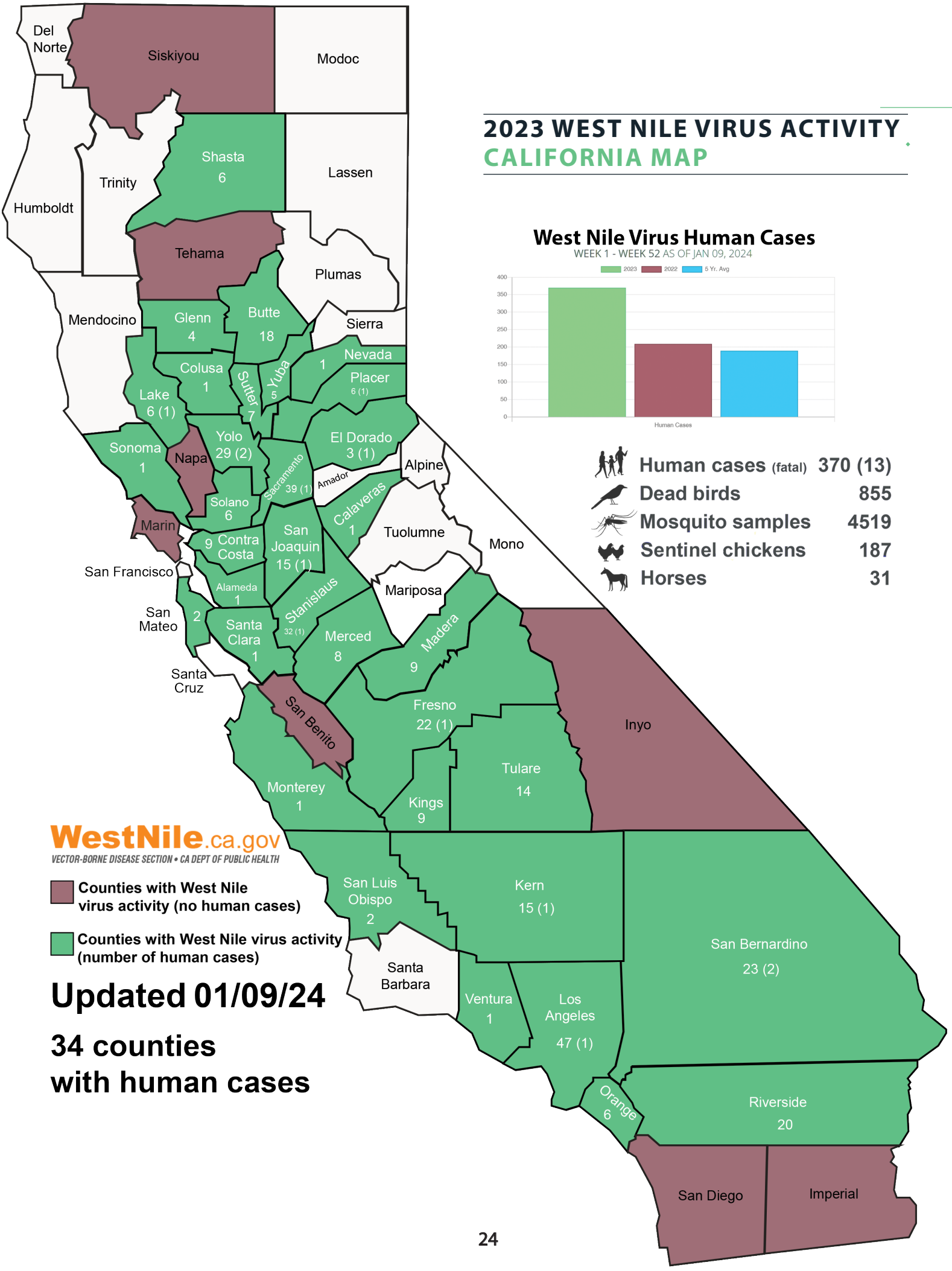


2023 WEST NILE VIRUS
BUTTE COUNTY MAP



Year	Human Cases	Horse Cases	Dead Birds	Dead Squirrels	Mosquito Pools	Sentinel Chickens
2023	19	1	2	0	70	33
2022	3	0	2	0	39	27
2021	12	0	2	0	80	26
2020	4	1	4	0	31	23

2023 WEST NILE VIRUS ACTIVITY
CALIFORNIA MAP



West Nile Virus Human Cases

WEEK 1 - WEEK 52 AS OF JAN 09, 2024

Human cases (fatal)	370 (13)
Dead birds	855
Mosquito samples	4519
Sentinel chickens	187
Horses	31

WestNile.ca.gov
VECTOR-BORNE DISEASE SECTION • CA DEPT OF PUBLIC HEALTH

Counties with West Nile virus activity (no human cases)

Counties with West Nile virus activity (number of human cases)

Updated 01/09/24

34 counties with human cases

TICK SURVEILLANCE

Tick surveillance in Butte County is done primarily because of the diseases that ticks can transmit. The two diseases that infect humans most often are Lyme disease and Tick-borne relapsing fever (TBRF).

Lyme disease is an infectious disease caused by a bacterium, *Borrelia burgdorferi*. TBRF is an infectious disease caused by a bacterium, *Borrelia miyamotoi*. Transmission of Lyme disease and TBRF bacteria is primarily from the Western Black-Legged Tick, *Ixodes pacificus*. Both of these disease causative agents and the tick vector can be readily found in Butte County.

District tick surveillance consists of "flagging", where a 3' x 2' piece of thick, fibrous cloth, is dragged along the edge of a trail or dirt road. The ticks attach themselves to the cloth while they are "questing" for a blood meal. Like a mosquito, the female tick needs a blood meal to lay her eggs. Once the ticks are attached to the cloth they are identified, counted, recorded, and then sent off for testing.

In 2023, 74 tick pools were sent off for testing. Results include 9 pools positive for Lyme disease and 2 pools positive for TBRF. This information can lead to risk assessment warnings to residents in areas that have high tick activity.

Western Black Legged Tick

Amanda Bradford Tick Flagging

YELLOWJACKET SURVEILLANCE

Yellowjackets are medium sized black and yellow wasps (sometimes black and creme) that are often confused with honey bees, paper wasps, mud daubers, and other wasps. Yellowjackets are social insects that are considered beneficial. They can feed on garden pests and pollinate crops through daily foraging. Yellowjackets can become a public health concern because of their territorial behavior and their affinity for human food and drinks. Yellowjackets can restrict or prevent outdoor activities in areas such as campgrounds, picnic spots, and backyards.

The District will respond to reports of high yellowjacket activity. Mosquito and Vector Control Specialists will then inspect the area and decide if control is appropriate. Control measures may include placing traps or bait, treating nests with an approved insecticide, or physically removing the nest. All pesticide applications are made by state-certified technicians using materials that are registered for use by the Environmental Protection Agency.

Yellowjacket Service Requests	
Magalia	13
Oroville	13
Chico	12
Paradise	9
Cohasset	6
Biggs	1
Forest Ranch	1
Total	**55**

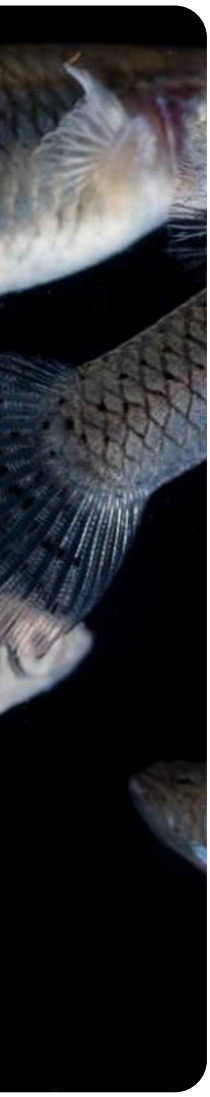
Locating Yellowjacket Nest

Removing Yellowjacket Nest

Mosquitofish

BIOLOGICAL CONTROL

Biological control is the intentional use of pathogens, parasites or predators to reduce the size of target mosquito populations. The most popular and successful biological tool is the mosquitofish, *Gambusia affinis*. Butte County Mosquito and Vector Control District maintains five fish ponds at the Oroville headquarters. These ponds produce hundreds of pounds of mosquitofish each year. The mosquitofish are routinely stocked and planted by District personnel to control mosquito populations in sources such as irrigation ditches, industrial, ornamental and artificial ponds, un-maintained swimming pools, semi-permanent and permanent urban sources, rice fields, and wetlands. Mosquitofish are omnivorous and have a voracious appetite for mosquito larvae. The flattened head and protruding mouth enable the fish to readily prey on surface feeding mosquito larvae and pupae. A large female can consume up to 300 larvae per day! All ages, sexes, and sizes of these fish eat mosquito larvae, along with other small aquatic invertebrates and algae. The fish are visual predators and feed during daylight hours. Due to insecticide resistance and environmental concerns associated with chemical control methods, biological control methods are expanding as an effective tool used in the control of mosquito populations.



Aquaculture Center

The Aquaculture Center holds 3 tanks stocked with about 6000 breeding adult fish each. The fry, born live, will instinctively swim upward and through the small holes of the breeding boxes. The holes are far too small for the adults, which is important in keeping the adults from eating their young. The fry are moved to a 4th tank to mature before being used throughout the county.

Fish Plant 2023	Amount	Acres	Applications
Zone 1	52.01 lbs	102.04	106
Zone 3	27.41 lbs	54.82	62
Zone 4	0.87 lbs	1.74	3
Zone 6	5.84 lbs	11.68	23
Zone 8	29.07 lbs	59.66	109
Zone 9	0.75 lbs	1.50	3
Zone 10	9.86 lbs	19.72	55
Zone 11	10.57 lbs	23.30	32
Zone 12	40.34 lbs	80.68	88
Zone 14	7.25 lbs	14.50	17
Totals	183.97 lbs	369.64	498

Female mosquitofish produce eggs that hatch within their bodies, releasing well-developed and very active young or "fry" into the water. Gambusia are prolific, producing three or four broods each summer, depending on the food supply and climate. A brood averages between 30 and 100 fry that reach maturity in three or four months

AQUACULTURE CENTER

Mosquito and Vector Control Districts across the nation are very familiar with mosquitofish, but most Districts are not as familiar with indoor aquaculture systems. BCMVCD has five ponds on site and a new indoor aquaculture program. The indoor program gives the District the ability to have fish year-round for the public as well as the ability to implement an intensive fish breeding program to replace fish populations in District ponds. The District's aquaculture center has four tanks. Two tanks are for fry production, one for the fry that's collected each day to mature, and the last is used as a holding/quarantine tank that is also used for fry production. The aquaculture center incorporates automatic vibratory feeders, in-line heaters, and dimmable ballast lighting. Studies have shown that consumption of feed, metabolism, and mating behaviors can be changed with light cycles and water temperatures. Temperature, pH, salinity, ammonia, nitrate, nitrite, alkalinity, and dissolved oxygen are tested daily. The District also practices a sustainable yield technique by selecting the correct seine size. This allows small fish to pass through and only large adults will be taken for District needs. These fish can then reach maturity, spawn, and help replenish fish stocks for the following year.

CHEMICAL CONTROL

Chemical control is the use of target specific insecticides to reduce immature and adult mosquito populations. These chemicals are only applied when physical control, public education, and biological control methods are unable to keep mosquito populations tolerable or when emergency control measures dictate the use of chemicals to rapidly terminate or disrupt the transmission of disease to humans.

There are two categories of chemicals used by the District, larvicides and adulticides. Larvicides target mosquito larvae and pupae. Adulticides target adult mosquitoes. The chemicals used by the District are registered with the United States Environmental Protection Agency (EPA), as well as the California Environmental Protection Agency (CAL EPA).

The District relies mainly on larviciding as the primary means of chemical mosquito control. However, there are limitations to larviciding as a main control strategy. In Butte County where mosquito breeding occurs over large areas, the practical application of larvicides is not feasible and periodic adulticiding is necessary to protect nearby communities from the attack of adult mosquitoes. Also, there are areas that are environmentally sensitive and limit the use of larvicides. In these areas peripheral adulticiding is the only available option.

Jeremy Edwards Treating Drain

Shane Cassity Calibrating

Mike Mattia Residual Spraying

N714Y-Horse Dispensing Granules

2023 MATERIALS USED

Eric Dillard Power spraying a wetland field

Larvicides	Amount	Acres	Applications
Abate 4E	0.30 gals	25.00	23
Altosid SBG II	38,044.72 lbs	5,209.12	134
Altosid XR Extended Residual Briquets	690.00 each	1.61	57
Aquabac 200 G	3,010.34 lbs	379.16	9
Cocobear Mosquito Larvicide Oil	601.99 gals	194.19	1043
Duplex-G	40.00 lbs	8.00	2
MetaLarv S-PT	1,674.58 lbs	669.83	117
Natular DT	8,862.00 each	0.80	111
Natular XRT	4,132.00 each	9.51	327
VectoBac -12AS	4,743.91 gals	55,896.18	971
VectoBac WDG	525.00 lbs	1,106.73	22
VectoBac-G	88,901.62 lbs	9,276.26	197
VectoBac GR	13,251.24 lbs	1,577.70	59
VectoMax WSP	3,933.00 each	4.52	244
VectoPrime	1,570.34 lbs	196.20	33

Adulticides	Amount	Acres	Applications
Duet	1,088.07 gals	216,438.50	893
Perm-X UL 4-4	871.15 gals	69,883.79	468
Pyronyl 525 Oil	480.00 gals	61,454.28	9
Trumpet	960.00 gals	122,908.40	17

Barrier Sprays	Amount	Acres	Applications
Suspend SC	6.49 gals	19.07	200

Yellow Jacket Control	Amount	Acres	Applications
Drione Insecticide	0.22 gals	4.35	31
Knox Out 2 FM Insecticide	37.20 tsp	45.60	3

Herbicides	Amount	Acres	Applications
Dimension 2EW Herbicide	0.74 gals	3.10	3
Cheetah Pro	2.44 gals	5.57	7
Finale Herbicide	2.92 gals	9.72	4
Garlon 4 Ultra	3.70 gals	7.41	9
Round Up Concentrate Plus	1.58 gals	0.35	6
Roundup Weed & Grass Killer RTU	12.50 gals	0.09	2

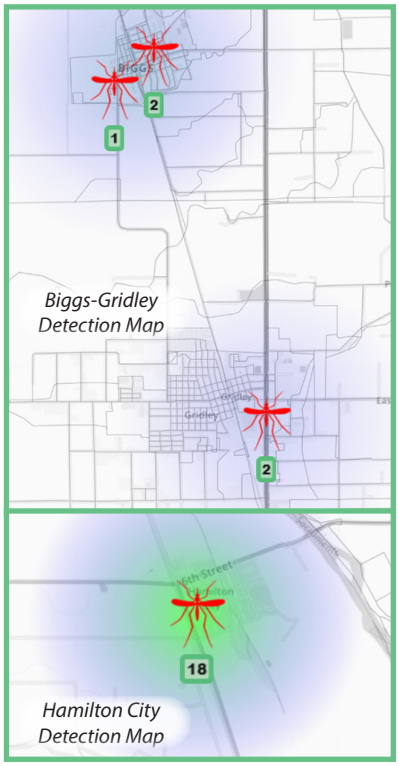
Aircraft Application		
Rice Acres Treated	57,720	
Managed Wetlands Treated	14,612	
ULV Acres Treated	184,320	24 Flights
Total Acres Treated Via Aircraft	256,652	

CALIFORNIA INVASIVE SPECIES

Two invasive (non-native) mosquito species have recently been found in several California cities (see map below). They are named *Aedes aegypti* (the yellow fever mosquito) and *Aedes albopictus* (the Asian tiger mosquito).

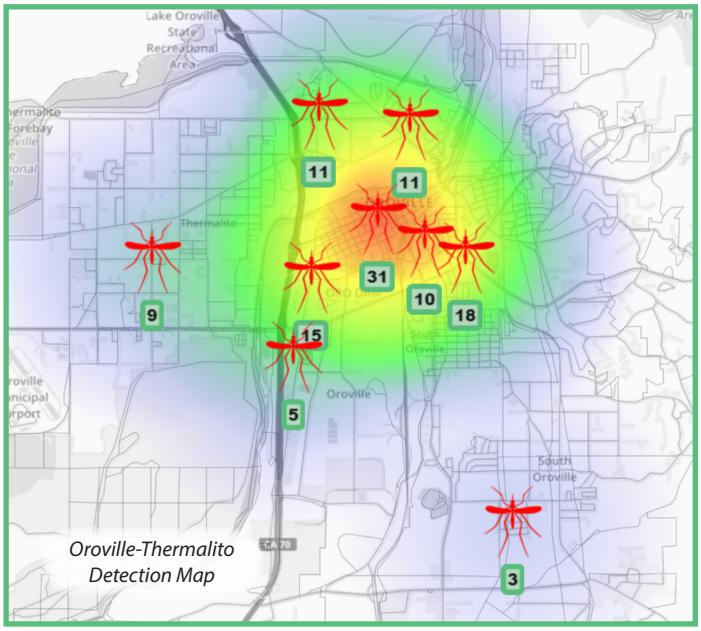
In 2023, The District had 213 detections of *Aedes aegypti* at 25 different locations in the cities of Chico, Oroville, Gridley, Biggs, Thermalito and Hamilton City. There have been no detections of *Aedes albopictus* in Butte County.

Unlike most native mosquito species, *Aedes aegypti* and *Aedes albopictus* bite during the day. Both species are small black mosquitoes with white stripes on their back and on their legs. They can lay eggs in any small artificial or natural container that holds water. *Aedes aegypti* and *Aedes albopictus* have the potential to transmit several viruses, including dengue, chikungunya, Zika, and yellow fever.

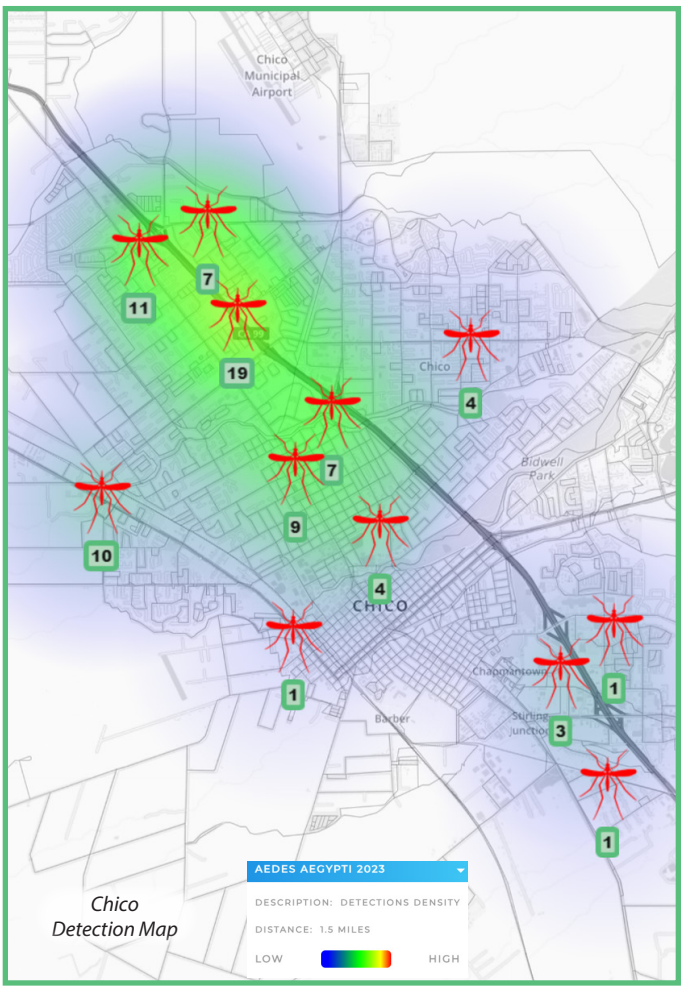


Biggs-Gridley Detection Map

Hamilton City Detection Map



Oroville-Thermalito Detection Map



Chico Detection Map

WIDE AREA LARVICIDE SPRAY WALS

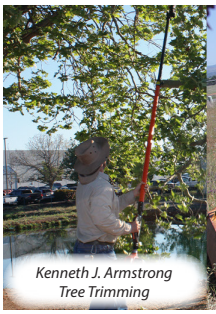
Wide Area Larvicide Spray (WALS) is an approach to controlling mosquito larvae, such as invasive *Aedes* larvae, that uses a naturally occurring bacterium(BTi) to kill mosquito larvae in the water before they emerge into biting adults. This is done with a powerful truck mounted sprayer that sends out a plume of small water droplets containing BTi with the hope that they will drift their way into the small containers around residences that *Aedes aegypti* and *Aedes albopictus* prefer to lay eggs. The WALS method is another tool that the District utilizes to combat the invasive *Aedes* in Butte County.

A1 Sprayer Used in WALS

WALS Application

***Aedes aegypti* and *Aedes albopictus* Mosquitoes in California by County**

Updated January 5, 2024


Kenneth J. Armstrong
Tree Trimming


Shane Robertson
Building Fire Line


Glen Williams
Metal Fabrication


Eric Dillard
Fogger Maintenance

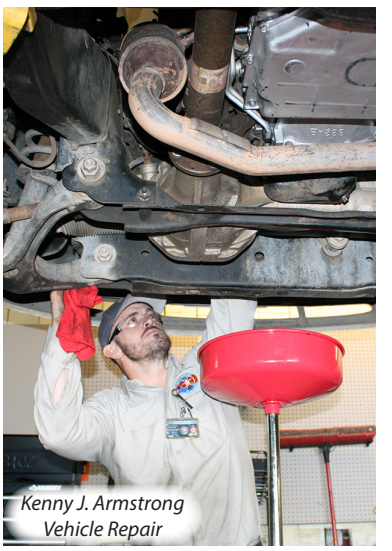
DISTRICT SHOP

The District's shop provides the maintenance and repairs for over 30 vehicles, 3 forklifts, 1 backhoe, 3 ATV's, 2 amphibious Tritons, 2 loader trucks and 4 utility trailers. Additionally, the shop is responsible for the maintenance and repairs to the District's electric ULV foggers, gas ULV foggers, back cans, power sprayers, chainsaws, weed eaters, lawn mowers, etc. and other mechanical items. The shop is also responsible for repairing and installing improvements to the District facilities and grounds when and where necessary. Often the shop will repair the District's security system, lighting fixtures, plumbing fixtures, and other items as needed.

AERIAL OPERATIONS

The District employs one full-time Pilot II. On average the planes make applications to over 150,000 acres each year. During down time, the 3 planes receive repairs and technological improvements and upgrades to instruments and panels, altimeter, Satloc, Ag-Nav, repainting, replacing engine parts, and routine annual maintenance. The Pilot II also is responsible for renting a passenger plane and providing aerial surveillance flights over seasonally flooded wetlands and duck clubs for the District's MVCS. In 2020 the District, with the help of District Pilot Del Boyd, had a new tank truck built.


'Jaws' En Route to
Treatment


Kenny J. Armstrong
Vehicle Repair

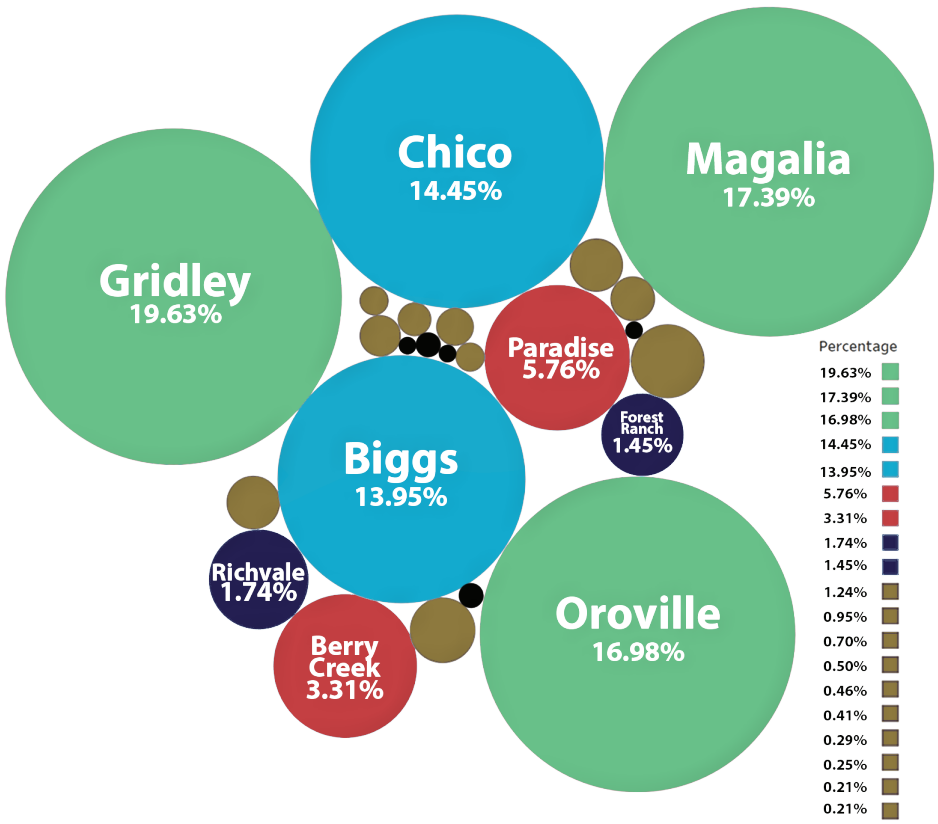
FRONT OFFICE

Professional and courteous customer service is the number one priority for the District's administrative staff. The tasks of the administrative personnel involve serving the residents of Butte County and Hamilton City, the employees of the District, accounting, budgeting, responding to telephone inquiries, maintaining public records, coordinating policies, and reporting to the Board of Trustees.

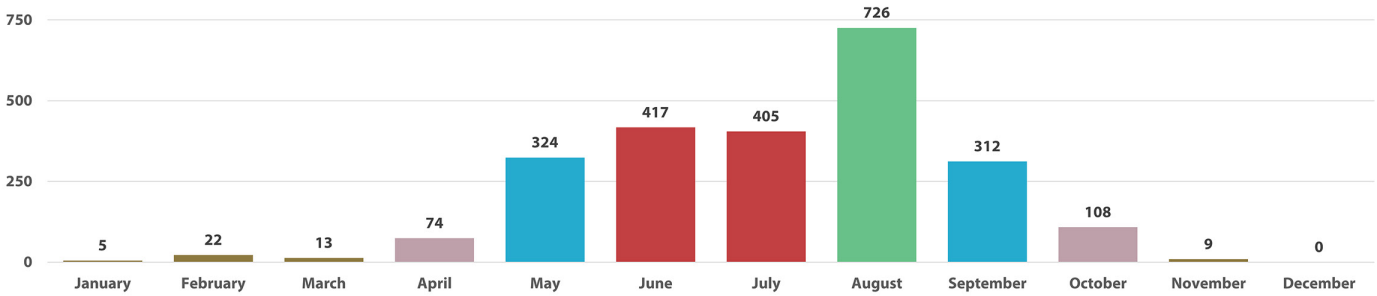

Office Assistant
Sara MacKenzie

SERVICE REQUESTS

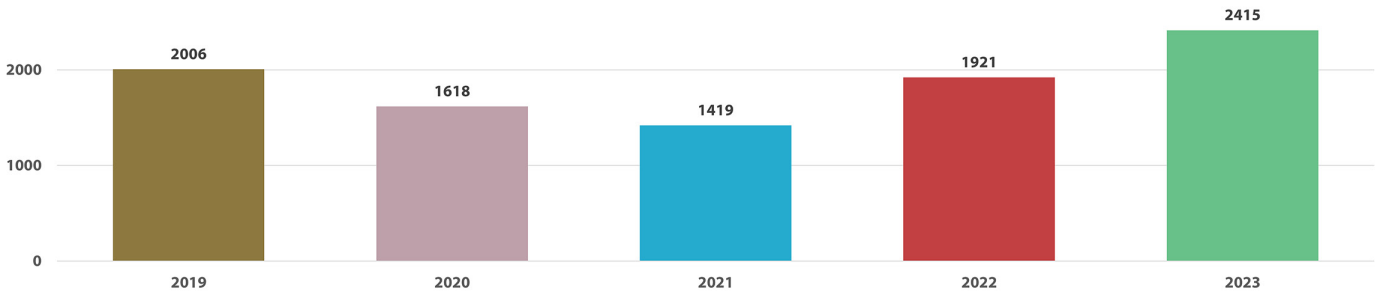
Gridley	474	19.63%
Magalia	420	17.39%
Oroville	410	16.98%
Chico	349	14.45%
Biggs	337	13.95%
Paradise	139	5.76%
Berry Creek	80	3.31%
Richvale	42	1.74%
Forest Ranch	35	1.45%
Stirling City	30	1.24%
Forbestown	23	0.95%
Palermo	17	0.70%
Durham	12	0.50%
Dayton	11	0.46%
Cohasset	10	0.41%
Butte Valley	7	0.29%
East Biggs	6	0.25%
Bangor	5	0.21%
Hamilton City	5	0.21%
Brush Creek	1	0.04%
Clipper Mills	1	0.04%
Other	1	0.04%
Concow	0	0.00%
Feather Falls	0	0.00%
Totals	2415	100.00%



Service Requests Per Month 2023



Service Requests Per Year



SPECIAL BENEFIT ASSESSMENT

To address the growing needs placed upon the district and to expand and enhance existing services, the District attempted and passed a Special Benefit Assessment on all properties within the District's Service Area. With these additional revenues the District has the ability to enhance/improve all services provided by the District. Below is a non-exhaustive list of services that have been and continue to be enhanced:

- Increase seasonal staff and possibly permanent staff to better the services the District provides (e.g. surveillance, control, education, etc.)
- Expand the District's public education and outreach program to better educate those that the District serves to services provided, the elimination of mosquito and other vector habitat, and how to protect oneself from mosquito and vector-borne disease.
- Expand the District's mosquito surveillance program to better identify mosquitoes of medical importance, increase the amount of traps used, increase the amount of mosquitoes tested, commence with the surveillance of invasive species such as Asian Tiger Mosquito and Yellow Fever Mosquito (both of which have been introduced into California) and also to expand mosquito testing of newly introduced mosquito-borne disease such as chikungunya virus, Rift Valley fever, dengue fever, and others.
- Expand the District's tick surveillance to monitor more public use lands, test collected ticks for the presence of tick-borne disease, and conduct tick control trials.
- Expand and improve the District's mosquitofish program. Purchase mosquitofish rearing tanks to provide an environment in which mosquitofish propagate year-round rather than seasonally allowing the District to keep up with the requests of the public and to have more fish available to District staff to stock in mosquito-breeding areas to lower larval mosquito populations.
- Increase the amount of public health pesticide applications should surveillance data indicate a need based on treatment thresholds and/or resident service requests. Possibly lower the treatment thresholds for larvae and adult mosquitoes.
- Purchase new capital such as spray equipment and vehicles to lower maintenance costs, increase fuel mileage, and increase the reliability of service.
- Continue to and enhance investing in mosquito control research and new technology to identify better ways of protecting the public's health.

This funding measure has strengthened, enhanced, and improved the District's baseline services provided. With newly introduced invasive species as well as new and reemerging vector-borne disease, mosquito and vector control's importance will only continue to grow.

TRANSPARENCY AWARD

District Transparency
Certificate of Excellence

July 2021– September 2024

The Special District Leadership Foundation is proud to present this
District Transparency Certificate of Excellence to

Butte County Mosquito & Vector Control District

In recognition of the district's completion of all transparency program requirements
designed to promote transparency in their operations and governance
to the public and other stakeholders.

David Aranda, SDLF Board President

Neil McCormick, SDLF Chief Executive Officer

Since 2014, the Butte County Mosquito and Vector Control District (District) received the Transparency Certificate of Excellence by the Special District Leadership Foundation (SDLF) in recognition of the District's outstanding efforts to promote transparency and good governance. In order to receive the award, a special district must demonstrate the completion of eight essential governance transparency requirements, including conducting ethics training for all board members, properly conducting open and public meetings, and filing financial transactions and compensation reports to the State Controller in a timely manner. The Butte County Mosquito and Vector Control District also fulfilled fifteen website requirements, including providing readily available information to the public, such as board agendas, past minutes, current district budgets, and the most recent financial audit. Finally, the District must have demonstrated outreach to its constituents that engages the public in its governance, through regular district newsletters and community engagement projects.

"This award is a testament to the Butte County Mosquito and Vector Control District's commitment to open government," said Matthew Ball, District Manager. "The District's entire Board of Trustees and staff are to be commended for their contributions that empower the public with information and facilitate engagement and oversight."

FISCAL YEAR 2022/2023 FINANCIALS

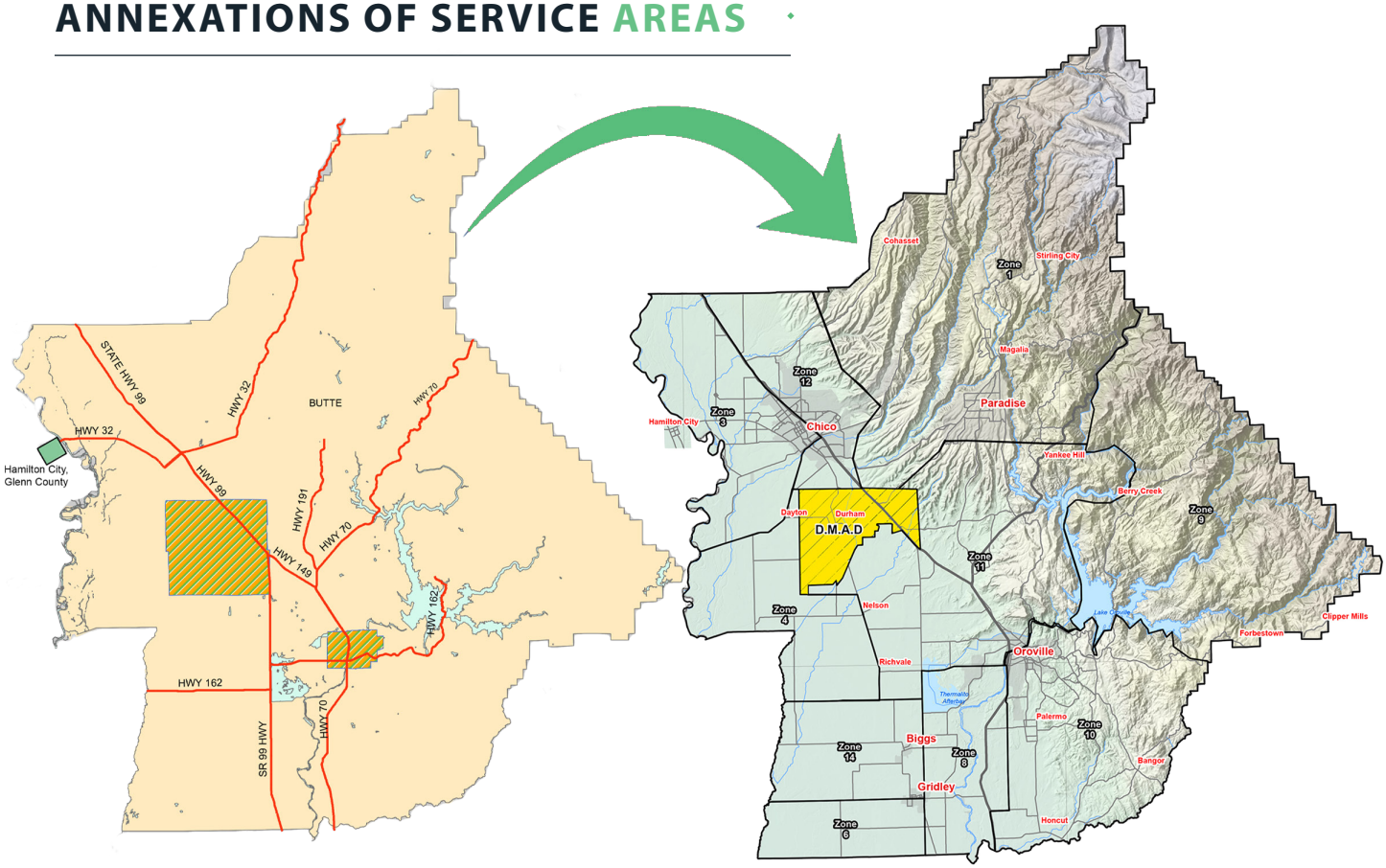
	Actual	Budget	$ Over Budget
Income			
Current Secured Property Taxes	2,448,134.08	2,358,801.00	89,333.08
Current Unsecured	172,415.91	155,932.00	16,483.91
Prior Secured	0.00	0.00	0.00
Prior Unsecured	13,311.54	3,500.00	9,811.54
Supplemental Current Secured	100,393.21	25,000.00	75,393.21
RDA - Residual	493,371.43	375,000.00	118,371.43
RDA - Pass-Thru	819,753.20	675,000.00	144,753.20
Miscellaneous Taxes	5,087.98	6,832.00	-1,744.02
Interest Income	131,605.73	38,000.00	93,605.73
ST- Tax Backfill Secured	0.00	0.00	0.00
ST- Tax Backfill Unsecured	0.00	0.00	0.00
ST - Other Revenue	0.00	0.00	0.00
HOPTR - Homeowner's Exemption	30,827.26	35,000.00	-4,172.74
Chico - RDA	0.00	0.00	0.00
Benefit Assessment	860,746.28	879,000.00	-18,253.72
Special Household Assessments	2,976.64	2,500.00	476.64
Benefit Assessment Hamilton City	7,027.19	6,500.00	527.19
Charges for Current Services	239,470.03	240,000.00	-529.97
Service Charges	0.00	0.00	0.00
Miscellaneous Revenues	95,853.57	20,000.00	75,853.57
Grants-Other Agencies	0.00	0.00	0.00
Transfers In	0.00	0.00	0.00
Total Income	5,420,974.05	4,821,065.00	599,909.05
Expense			
Salaries & Benefits			
Salaries & Wages	1,513,438.55	1,547,531.00	-34,092.45
Payroll Expenses	127,934.22	134,111.00	-6,176.78
Worker's Compensation	65,819.00	70,000.00	-4,181.00
Health Insurance	430,650.44	443,819.00	-13,168.56
Health Insurance Reimbursement	0.00	0.00	0.00
Public Employees Retirement PER	456,447.51	487,522.00	-31,074.49
PERS- ADP	700,000.00	700,000.00	0.00
PERS- 115 Trust	150,000.00	150,000.00	0.00
Total Salaries & Benefits	3,444,289.72	3,532,983.00	-88,693.28
Services & Supplies			
Gas, Oil & Grease	145,216.15	150,000.00	-4,783.85
Repairs & Parts - Airplanes	22,593.23	45,000.00	-22,406.77
Repairs & Parts	44,517.80	45,000.00	-482.20
Office Supplies	18,125.57	25,000.00	-6,874.43
Shop and PPE Supplies	33,735.36	32,800.00	935.36
Education & Publicity	83,316.21	70,000.00	13,316.21
Insecticides	871,797.46	870,000.00	1,797.46
Tools & Equipment	87,765.22	70,000.00	17,765.22
Communications	20,213.80	34,000.00	-13,786.20
Travel	7,761.64	25,000.00	-17,238.36
Utilities	45,127.19	45,000.00	127.19
Rent	5,179.00	5,200.00	-21.00
Special Services	172,548.14	160,000.00	12,548.14
Trustee Allowance	8,800.00	13,000.00	-4,200.00
General Insurance	164,399.67	165,000.00	-600.33
Employee Training & Dues	12,153.00	15,000.00	-2,847.00
District Fees and Permits	39,932.26	40,000.00	-67.74
Miscellaneous	14,556.29	15,000.00	-443.71
Research Supplies	58,475.45	60,000.00	-1,524.55
Alternate Technology	0.00	1,000.00	-1,000.00
Special Discretionary	44,091.06	30,000.00	14,091.06
Gambusia	10,071.84	15,000.00	-4,928.16
Total Services & Supplies	1,910,376.34	1,931,000.00	-20,623.66
Capital Outlay			
Buildings and Improvements	52,961.51	88,000.00	-35,038.49
Vehicles	59,850.51	50,000.00	9,850.51
Spray Equipment	75,926.55	90,000.00	-14,073.45
Aircraft	80,646.25	110,647.00	-30,000.75
Office Equipment	0.00	2,500.00	-2,500.00
Laboratory Equipment	0.00	2,500.00	-2,500.00
Shop Equipment	0.00	2,500.00	-2,500.00
Education and Publicity	0.00	2,500.00	-2,500.00
Miscellaneous Capital Outlay	0.00	1,000.00	-1,000.00
Communications Capital Outlay	90,000.00	91,000.00	-1,000.00
Total Capital Outlay	359,384.82	440,647.00	-81,262.18
Appropriation for Contingencies	0.00	1,202,746.00	-1,202,746.00
Total Expense	5,714,050.88	5,904,630.00	-190,579.12

Butte County Mosquito and Vector Control District
Balance Sheet
June 30, 2023

		General Fund	Reclassifications & Eliminations	Statements of Net Position
Current assets:				
Cash and investments (note 2)	$	7,630,546	-	7,630,546
Cash and investments (note 2)		286,310	-	286,310
Accrued interest receivable		39,778	-	39,778
Accounts receivable – charge for services		81,753	-	81,753
Materials and supplies inventory		1,553,942	-	1,553,942
Prepaid expenses		34,688	-	34,688
Total current assets		9,627,017	-	9,627,017
Non-current assets:				
Capital assets, not being depreciated (note 3)		-	615,403	615,403
Capital assets, being depreciated (note 3)		-	2,711,690	2,711,690
Total non-current assets		-	3,327,093	3,327,093
Total assets		9,627,017	3,327,093	12,954,110
Deferred outflows of resources:				
Deferred pension outflows (note 7)		-	2,452,548	2,452,548
Total deferred outflows of resources		-	2,452,548	2,452,548
Current liabilities:				
Accounts payable and accrued expenses		38,622	-	38,622
Accrued salaries and benefits		39,097	-	39,097
Long-term liabilities – due within one year:				
Compensated absences (note 4)		42,677	-	42,677
Termination benefits (note 5)		-	19,800	19,800
Lease obligation (note 6)		-	2,427	2,427
Total current liabilities		120,396	22,227	142,623
Non-current liabilities:				
Long-term liabilities – due in more than one year:				
Compensated absences (note 4)		170,707	-	170,707
Termination benefits (note 5)		-	23,925	23,925
Lease obligation (note 6)		-	66,891	66,891
Net pension liability (note 7)		-	4,446,325	4,446,325
Total non-current liabilities		170,707	4,537,141	4,707,848
Total liabilities		291,103	4,559,368	4,850,471
Deferred inflows of resources:				
Deferred pension inflows (note 7)		-	526,947	526,947
Total deferred inflows of resources		-	526,947	526,947
Fund balance: (note 8)				
Restricted		286,310	(286,310)	-
Non-spendable		1,588,630	(1,588,630)	-
Assigned		213,384	(213,384)	-
Unassigned		7,247,590	(7,247,590)	-
Total fund balance		9,335,914	(9,335,914)	-
Total liabilities and fund balance	$	9,627,017		
Net position: (note 9)				
Net investment in capital assets			3,257,775	3,257,775
Restricted			286,310	286,310
Unrestricted			6,485,155	6,485,155
Total net position			10,029,240	10,029,240

*Insert from Fiscal Year 2022/2023 Annual Fiscal Report

ANNEXATIONS OF SERVICE AREAS



PREVIOUS SERVICE AREA MAP **NEW SERVICE AREA MAP**

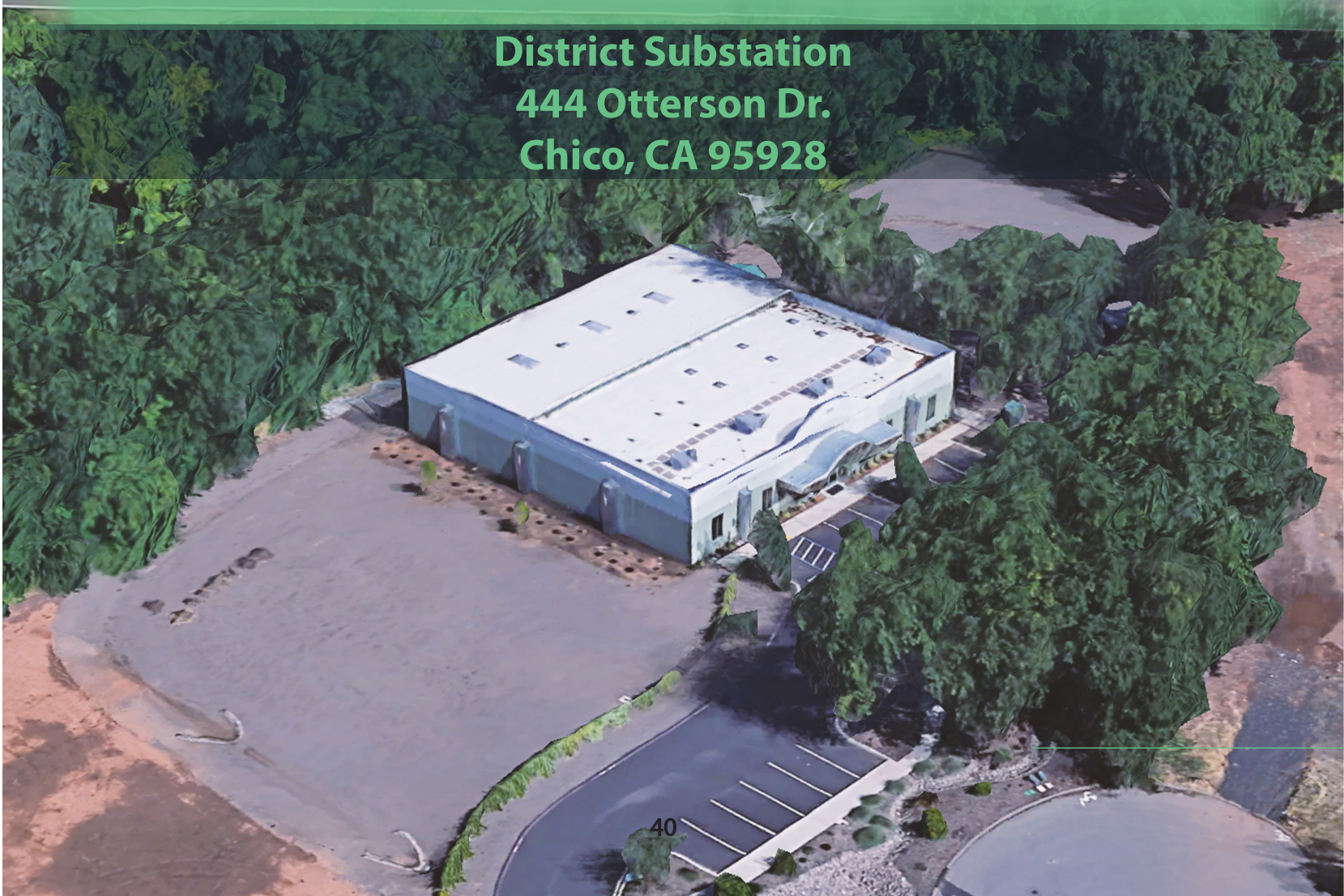
The Butte County Mosquito and Vector Control District (BCMVCD) covers nearly 1,800 square miles, and includes all of Butte County, except the small area served by the Durham Mosquito Abatement District (DMAD) which was formed earlier. The District also includes Hamilton City and wetlands along the eastern border of Glenn County.

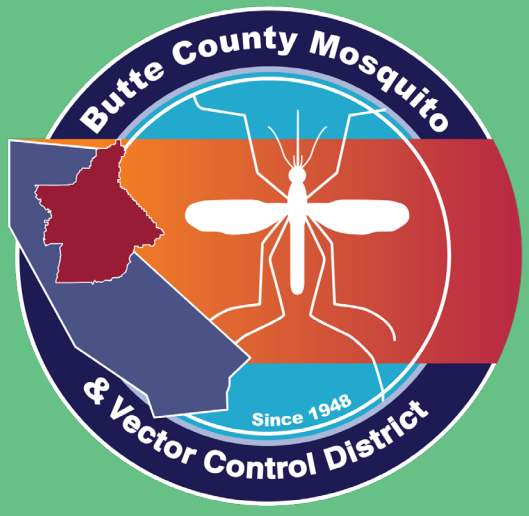
- In June 2018, Local Agency Formation Commission of Butte County (LAFCo) adopted resolution No. 13 2017/18 approving the detachment and annexation of a portion of the DMAD territory to the BCMVCD, increasing the District's service area by 14,775 acres of mixed agriculture.
- In August 2020, LAFCo adopted Resolution No. 01 2020/2021 approving the reorganization/ dissolution of the Oroville Mosquito Abatement District (OMAD) and subsequent annexation of territory to the BCMVCD. The annexation was finalized in 2021, adding approximately 7,660 acres of service area and the responsibility for mosquito abatement services in that area to the BCMVCD.

Collectively, all these areas served by the BCMVCD are known as the "Service Area." The BCMVCD is the only agency providing mosquito and vector control and vector-borne disease protection and prevention services in the Service Area and provides its services to properties accommodating approximately 220,000 residents.

District Headquarters
5117 Larkin Rd.
Oroville, CA 95965

District Substation
444 Otterson Dr.
Chico, CA 95928




Butte County Mosquito
& Vector Control District
Since 1948