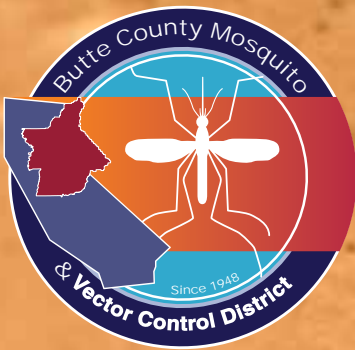


**BUTTE COUNTY MOSQUITO
AND
VECTOR CONTROL DISTRICT**



2020 ANNUAL REPORT

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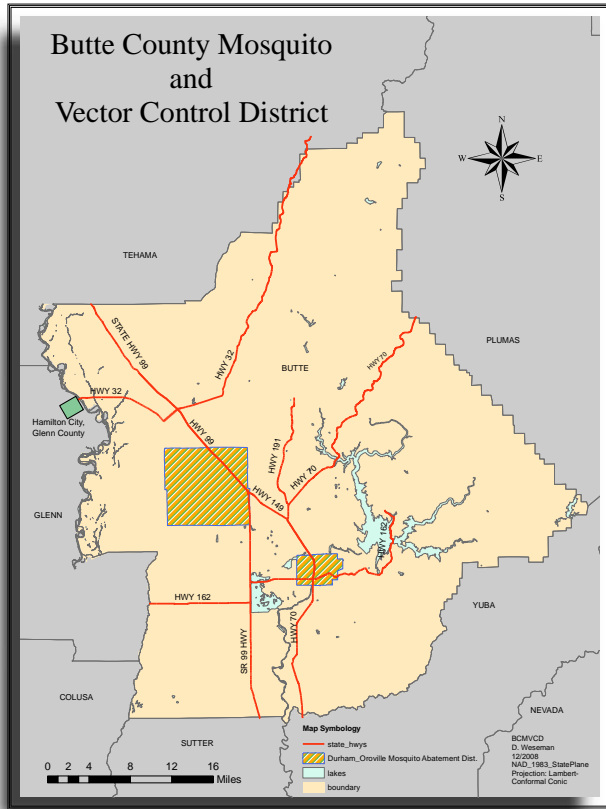
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*On the cover, a 55 million year old mosquito fossil, found by the late District Entomologist, Eric Gohre.

CONTACT INFORMATION

Butte County Mosquito
and Vector Control District
5117 Larkin Road, Oroville, California 95965
(530) 533-6038 (530) 342-7350
Fax (530) 534-9916
Visit us on the web at www.ButteMosquito.com

BCMVCD JURISDICTION



HISTORY

The Butte County Mosquito Abatement District was formed in June of 1948. The District covers 1600 square miles, and includes all of Butte County, except the small areas served by the Durham and Oroville Mosquito Abatement Districts, which were formed earlier. The District also includes the Hamilton City area of Glenn County. In April of 1994, "Vector Control" was added to the District name to reflect the additional disease surveillance and information now provided.



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



FOREWORD

It is a privilege and my honor to submit the 2020 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 it's 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.

As most of you know, 2020 was not a normal year. COVID-19 and massive and seemingly endless wildfires plagued the state for most of the year. The District was deemed an essential service and continued to operate with minimal modifications as COVID shutdown most business and commerce. Wildfires hit close to home as District employees at times had to evacuate their homes, smoke impaired treatment operations, and hazardous air quality challenged the District's ability to continue to provide service. 2020 also delivered an unwelcome new species of mosquito to Butte County. For the first time in history, *Aedes aegypti*, a major public health concern, was collected and identified in Chico and Oroville. Through the challenges and pitfalls of 2020, the District was still able to perform the essential services the public we serve have come to rely on and responded to 1618 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 surveillance and control of yellow jackets.

“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 for the future 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 www.ButteMosquito.com or call us at 530-533-6038 or 530-342-7350.

Respectfully,



STAFF

Left to right: Eric Dillard, MVCS; Glen Williams, MVCS; Shane Robertson, MVCS; Don Lasik, MVCS; Beth Vice, MVCS; Aaron Goff, MVCS; Phillip Henry, MVCS; Shane Cassity, MVCS. Not pictured: Del Boyd, Pilot 2; Charlie Favilla, MVCS. (MVCS: Mosquito and Vector Control Specialist, licensed by the California Department of Public Health).



ADMINISTRATIVE STAFF

Left to right: Maritza Sandoval, Office Manager; Doug Weseman, Assistant Manager; Matt Ball, District Manager; Aaron Lumsden, Regional Supervisor; Ryan Rothenwander, Fish Biologist/Vector Ecologist. Not Pictured: Amanda Bradford, Entomologist; Edith Del Rio, Office Assistant.

MOSQUITO BIOLOGY

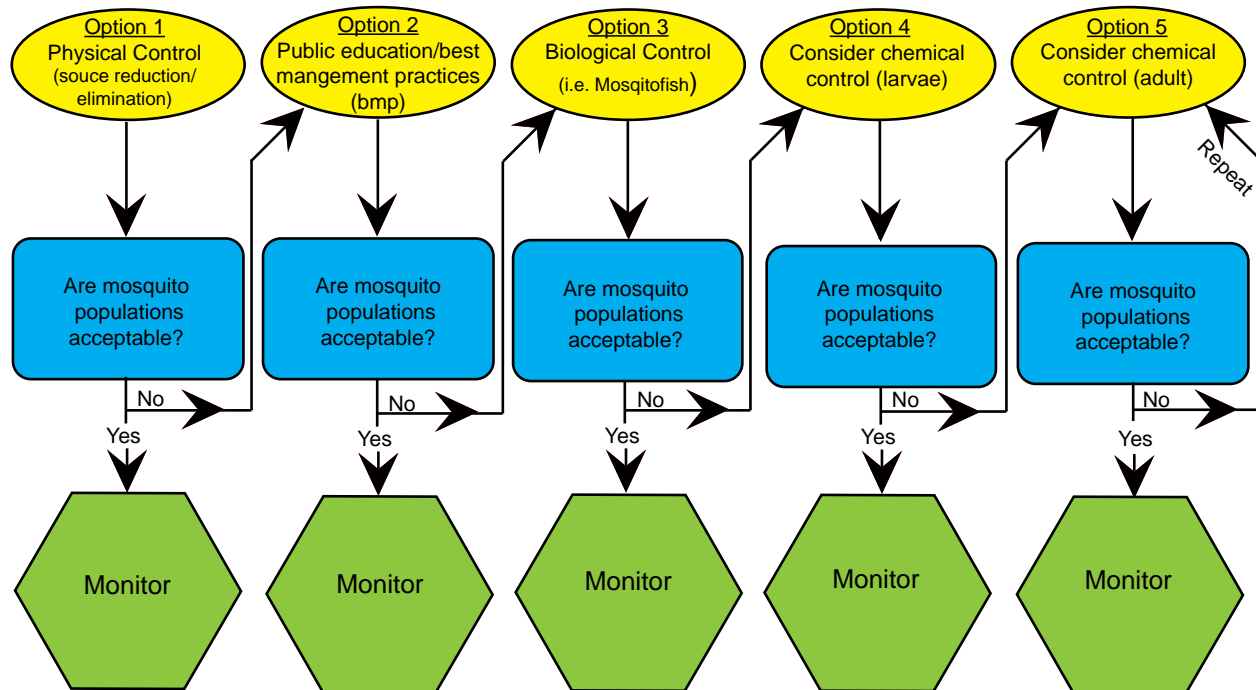
There are approximately 3,500 species of mosquitoes distributed worldwide. In California there are 53 species of mosquitoes and 25 of these are commonly found in Butte County. Mosquitoes, like other animals, must have water, food and some protection from the elements to survive. Mosquitoes undergo complete metamorphosis with four different life stages, egg, larva, pupa, and adult. Mosquito eggs and pupa are unable to feed. Larvae and adults however must feed to survive. Adult female mosquitoes need a blood meal to produce eggs, while adult male mosquitoes feed on plant nectar and juices. The time it takes for a mosquito to develop from an egg to an adult varies with different species and environments. Generally, it takes 3-5 days under optimal conditions for a mosquito to complete it's life cycle. The adult then lives between three weeks and one year. Some egg species have been known to survive for over fifty years. Female mosquitoes can have up to three or four broods of eggs in their lifetime.



INTEGRATED VECTOR MANAGEMENT (IVM) PROGRAM

Integrated Vector Management (IVM) is an effective and environmentally sensitive approach to vector management that relies on a combination of common sense practices. The District's IVM program uses current, comprehensive information on the life cycles of vectors and their interaction with the environment. This information, in combination with available vector control methods, is used to manage vector 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 IVM program includes public education/best management practices, physical control (source reduction and/or elimination), biological control, chemical control, and monitoring.

Each time one of the District's state certified Mosquito and Vector Control Specialists locates a mosquito breeding source the site is accessed and the flow chart below is followed. If the mosquito breeding source can be eliminated then the flow chart stops and the source is monitored.



Sorting Mosquitoes



Identifying Ticks

PHYSICAL CONTROL / SOURCE REDUCTION AND/OR ELIMINATION

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.



Using Agrosoke to fill a tree hole

PUBLIC EDUCATION / OUTREACH AND BEST MANAGEMENT PRACTICES

The District's mission is to protect residents from mosquitoes and other vectors that transmit disease. Public education and information is an important part in 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 public education and outreach 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 (BMP) to Reduce Mosquitoes 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's contained in the manual are 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 www.ButteMosquito.com. The manual has successfully been used to reduce mosquito populations/public health threats without the need of additional pesticides.

2020 PUBLIC EDUCATION HIGHLIGHTS

2020 proved to be a difficult year for the public education department. Every fair and special day event, that the District has historically attended, were cancelled. All classroom presentations ended up being cancelled too.

The District was able to continue its billboard campaign and once again partnered with Stott Advertising. The 2020 slogan was “Fight The Bite!” The eight billboards rotated throughout the county and ran from May through September.

With the detection of *Aedes aegypti* mosquitoes in Chico and Oroville in 2020, the District created new 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 5,297 mailers in Chico and 2,953 in 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 in Chico and ran a new television public service announcement (PSA). The PSA ran from June through the end of September.

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

Newsprint advertising with the Chico Enterprise Record and the Chico News and Review ran from July through September.

The District believes that through public education, people learn the importance of avoiding/preventing mosquito bites. If a person can avoid getting bit by a mosquito, they can avoid getting a mosquito-borne illness. Some of the ways the District suggests that residents prevent mosquito bites is by staying inside at dusk and dawn when mosquitoes are most active, wearing repellent and/or 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 possible mosquito breeding sources, and drain any unnecessary standing water.

COMMON INVASIVE MOSQUITO BREEDING SOURCES

Invasive mosquitoes are commonly found in urban, suburban, and rural areas, as well as edges of forested areas.

Backyards are the #1 source for mosquito production. Anything that can hold water for more than a few days has the ability to produce mosquitoes. Common sources include:

- Flower Pots
- Tree Holes
- Discarded Tires
- Water Bowls for Pets
- Plant Saucers
- Hollow Bamboo Stumps
- Buckets
- Ponds
- Tin Cans
- Plants' Leaf Axils
- Bird Baths
- Rain Barrels
- Clogged Rain Gutters
- Ornamental Fountains

MAINTAIN, MANAGE or ELIMINATE all types of standing water on a regular basis. Keep in mind that mosquitoes need very little water to complete their life cycle; therefore some areas may not be as obvious as others. For example, discarded bottle caps, empty cans, bottles, sprinkler heads, etc.

Butte County Mosquito & Vector Control District
Since 1948

The District covers over 1600 square miles, and includes all of Butte County, except the small areas served by the Durham and Oroville Mosquito Abatement Districts, which were formed earlier. The District also includes the Hamilton City area of Glenn County. In April of 1994, "Vector Control" was added to the District name to reflect the additional disease surveillance and information now provided.

OUR MISSION

The mission of BCMVCD 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.

5117 Larkin Road
Oroville, CA 95965
(530) 533-6038
www.buttemosquito.com

INVASIVE MOSQUITO SPECIES OF CALIFORNIA





Plant saucers



Buckets



Rain barrels



Septic tanks



Toys



Pet bowls



Cemetery vases



Treeholes



Bird baths



Wheelbarrows



Tires

Plant axils are where leaf meets stem





New Invasive Mosquito Species Brochure.

2020 PUBLIC EDUCATION HIGHLIGHTS

- Billboard Advertising (Throughout the County)
- Chico News and Review, Chico Enterprise Record, Print Advertising
- Television Public Service Announcement (Action News Now)
- Print, Radio, and Television Interviews
- Radio Advertising with Deer Creek Broadcasting and Radio Chico
- New Invasive Aedes Brochures
- New Invasive Aedes Door Hangers

Butte County Mosquito & Vector Control District
5117 Larkin Road
Oroville, CA 95965
(530) 533-6038
Monday-Thursday
6:00am to 4:30pm

PUBLIC HEALTH WARNING

REPORT DAY-BITING MOSQUITOES!
Please call the District at (530) 533-6038
Aedes Aegypti (Yellow Fever mosquito)

Actual Size: About 1/4 inch long

WHY THE CONCERN?
Aedes aegypti is an invasive mosquito in California. It can be a major annoyance and a public health threat, potentially capable of transmitting several diseases including Zika, dengue, and chikungunya.

FACTS: Invasive Aedes 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. The eggs are resistant to drying out and can survive for many months until water covers them.

REPORT DAY-BITING MOSQUITOES
call the District at (530) 533-6038
There is no charge for District services.

www.buttemosquito.com

New *Aedes Aegypti* Door Hanger

Butte County Mosquito & Vector Control District
5117 Larkin Road
Oroville, CA 95965
(530) 533-6038
Monday-Thursday
6:00am to 4:30pm

MOSQUITO INSPECTION REPORT

Date/Time _____ Technician _____
Site # _____

PLEASE CALL THE DISTRICT TO SCHEDULE AN INSPECTION
 We were unable to inspect your property.
 We inspected your property.

Comments: _____

MOSQUITO BREEDING SOURCES THAT NEED YOUR ATTENTION:

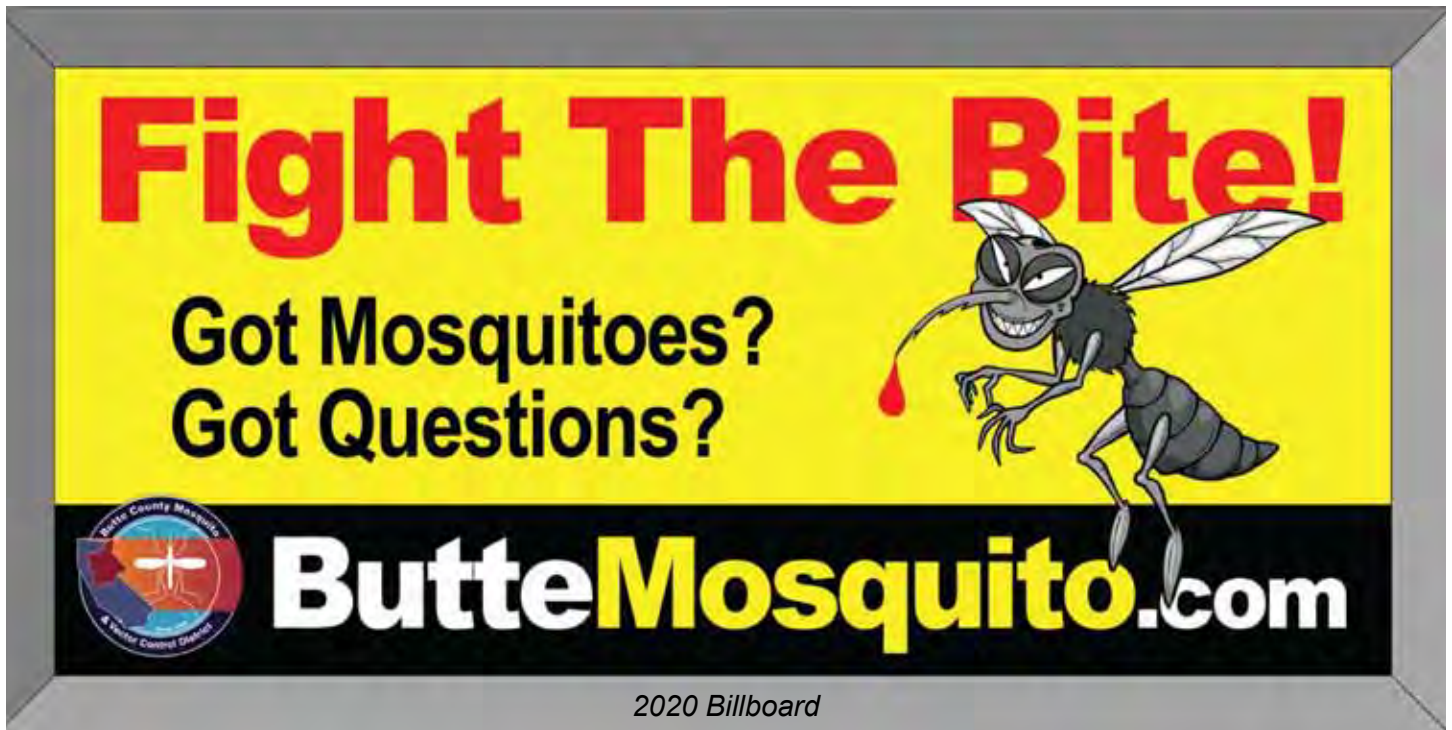
- Remove saucers under plants
- Cover bins, buckets, and tubs with fitted lids
- Remove old tires and miscellaneous containers from yard
- Fill rims of pots with sand
- Re-direct sprinklers so containers are not filled
- Keep recyclables in covered container(s) that drain
- Properly modify (screen) or remove rain barrels
- Empty birdbaths/fountains (every 3 days)
- Empty/refill pet drinking water (every 3 days)
- Clean out/drain rain gutters and drains in yard
- Remove plants that hold water in yard
- Keep potential sources dry when not in use

| | | |
|-----------------------------------|-------------------|------------------|
| Plant saucers | Buckets | Bird baths |
| Rain barrels | Septic tanks | Tires |
| Toys left outside | Pet bowls outside | Wheelbarrow |
| Plant axils where leaf meets stem | Treeholes | Ceremonial vases |

PREVENT MOSQUITO BITES
Use an effective repellent containing DEET, picaridin, IR3535, or oil of lemon eucalyptus when outdoors. Please follow label instructions.

www.buttemosquito.com

PUBLIC EDUCATION



Fight The Bite!

Got Mosquitoes?
Got Questions?

ButteMosquito.com

2020 Billboard

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



Aedes aegypti
Yellow Fever mosquito



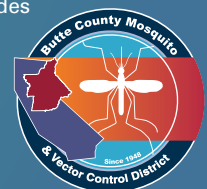
Actual Size: About ¼ inch long

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.



www.buttemosquito.com

GIS/GPS SYSTEM

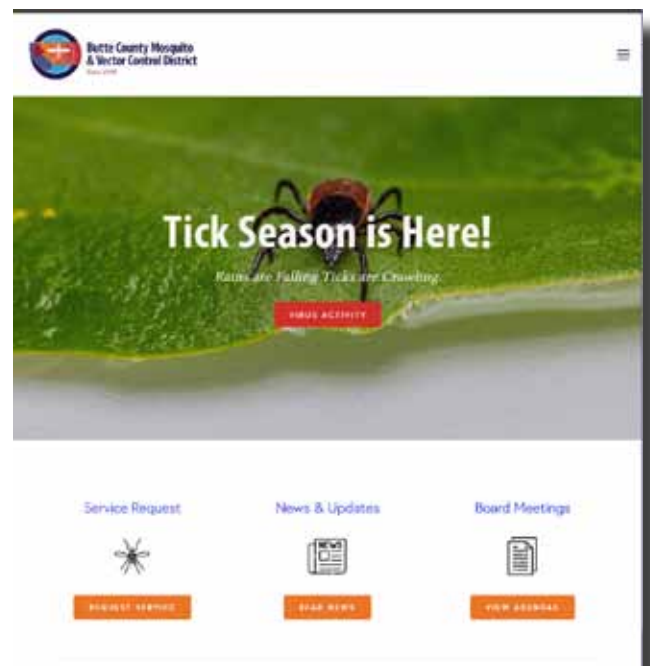
The District continues to use the new Geographical Information System (GIS) that first went live in 2018. The new system, MapVision®, is a geospatial web-based data management system. Every workflow associated with each department within a vector control agency is automated, streamlined and results in 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 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.

WWW.BUTTEMOSQUITO.COM

2020 marked the year of the new website for the District. The old website lasted 12 years, but with ever-changing technology and new regulations, this dictated the need for the new website. On the new 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, as well as, 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 MSDS sheets for the public health pesticides that it uses, as well as, a frequently asked questions page and a “contact us” page.



Mapvision Screen Shot



New District Website Home Page

EMAIL NOTIFICATION SYSTEM

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, 30 plus 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 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 fogging notifications, as well as 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.



MOSQUITO FOGGING NOTIFICATION

Mosquito Fogging will take place on 09/24/2020 in the Nelson, Richvale and Thermalito areas. Please see the attached map(s) for detailed information. If you are unable to open or view the map(s) because of browser, memory space, or software problems please see the same map(s) at our website at www.buttemosquito.com. The fogging will take place from approximately Sunset to 11:00 PM. Fogging operations may be cancelled due to unfavorable weather conditions.

Product(s) used in these areas will be Duet and/or Perm-X UL 4-4

Links To Duet:

[Label](#)

[SDS](#)

Additional information can be obtained by viewing the manufacturers website at:

[Clarke Mosquito Control](#)

For more information please call the Butte County Mosquito and Vector Control District at (530) 533-6038 (from Oroville, Richvale, Biggs, Gridley, Berry Creek) or (530) 342-7350 (from Chico, Paradise, Cohasset, Forest Ranch) or visit www.BCMVCD.com

As a reminder, the District has a FREE Mosquitofish program. FREE Mosquitofish are available for pick up in the following communities; (1) Concow, (3) Paradise, (1) Magalia, (1) Hamilton City, (1) Gridley, (3) Chico. Additionally FREE Mosquitofish can be picked up by appointment at the District's Chico substation at 444 Otterson Drive or any time during business hours at the District's main office located at 5117 Larkin Road in Oroville. Also, Mosquitofish can be delivered to you just by visiting the District's website or by calling the District office. For more information, locations of the FREE mosquitofish pickup locations, and/or delivery of FREE Mosquitofish, please contact us at 530-533-6038 or 530-342-7350 visit the District website at www.BCMVCD.com

MOSQUITOFISH ARE ONLY TO BE USED ON PRIVATE PROPERTY and ARE NOT TO BE PLANTED IN CREEKS, STREAMS, RIVERS, and LAKES.

SUSPECTED MOQUITO-BREEDING

Should you observe and/or see a water source that you believe or could produce mosquitoes, please call us at 530-533-6038 or 530-342-7350 or visit www.BCMVCD.com. Reporters of suspected mosquito-breeding sources have the option to remain anonymous.

Butte County Mosquito and Vector Control District
(530) 533-6038, (530) 342-7350 | www.BCMVCD.com

Butte County Mosquito and Vector Control District,
5117 Larkin Road, Oroville, CA 95965

SafeUnsubscribe™ deweseman@att.net

Forward this email | Update Profile | About our service provider

Sent by bcmvcd_notify@att.net in collaboration with

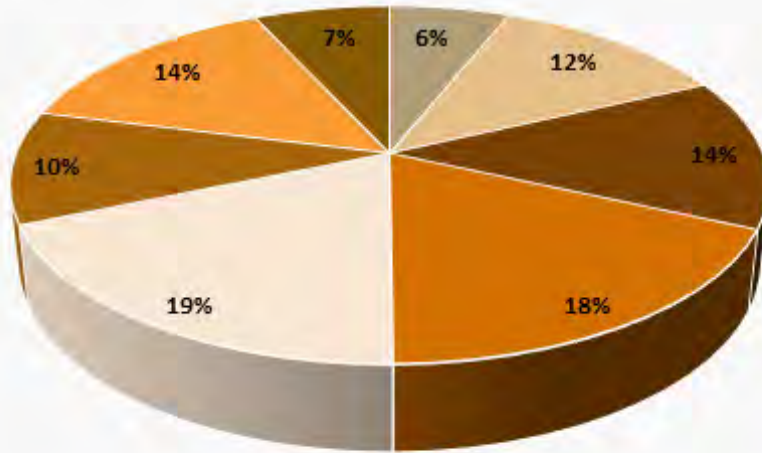
Constant Contact

Try it free today

Example of Constant Contact Email Notification

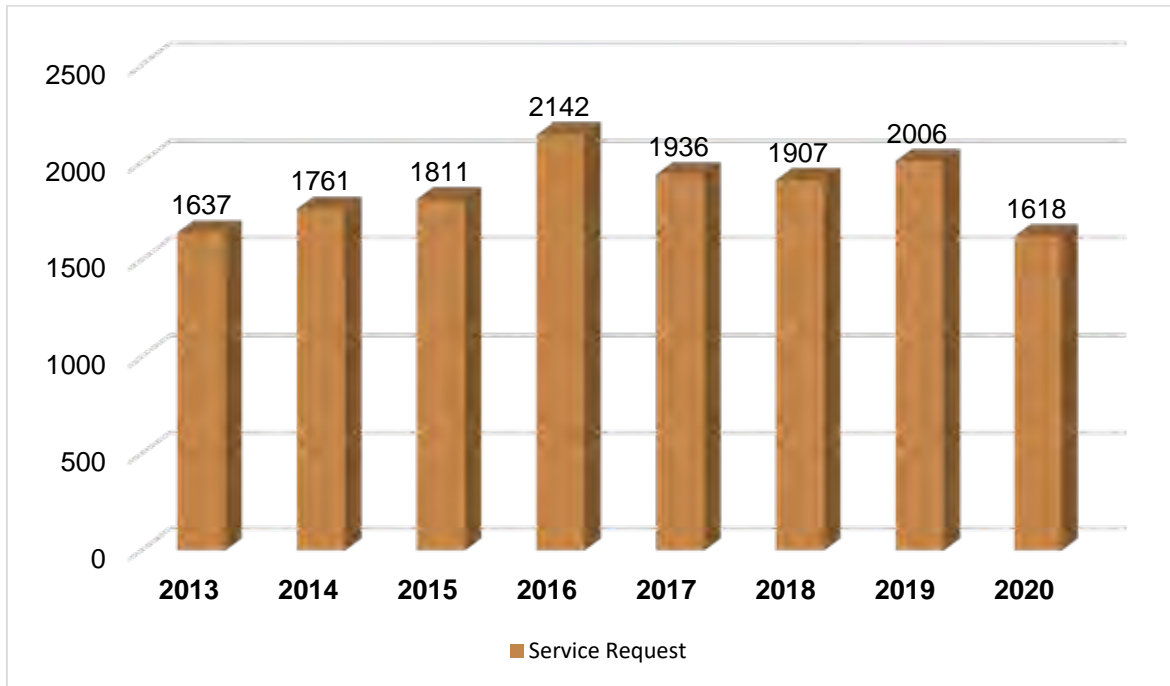
2020 SERVICE REQUEST PERCENTAGES

- Berry Creek
- Biggs
- Chico
- Gridley
- Magalia
- Oroville
- Paradise
- Other

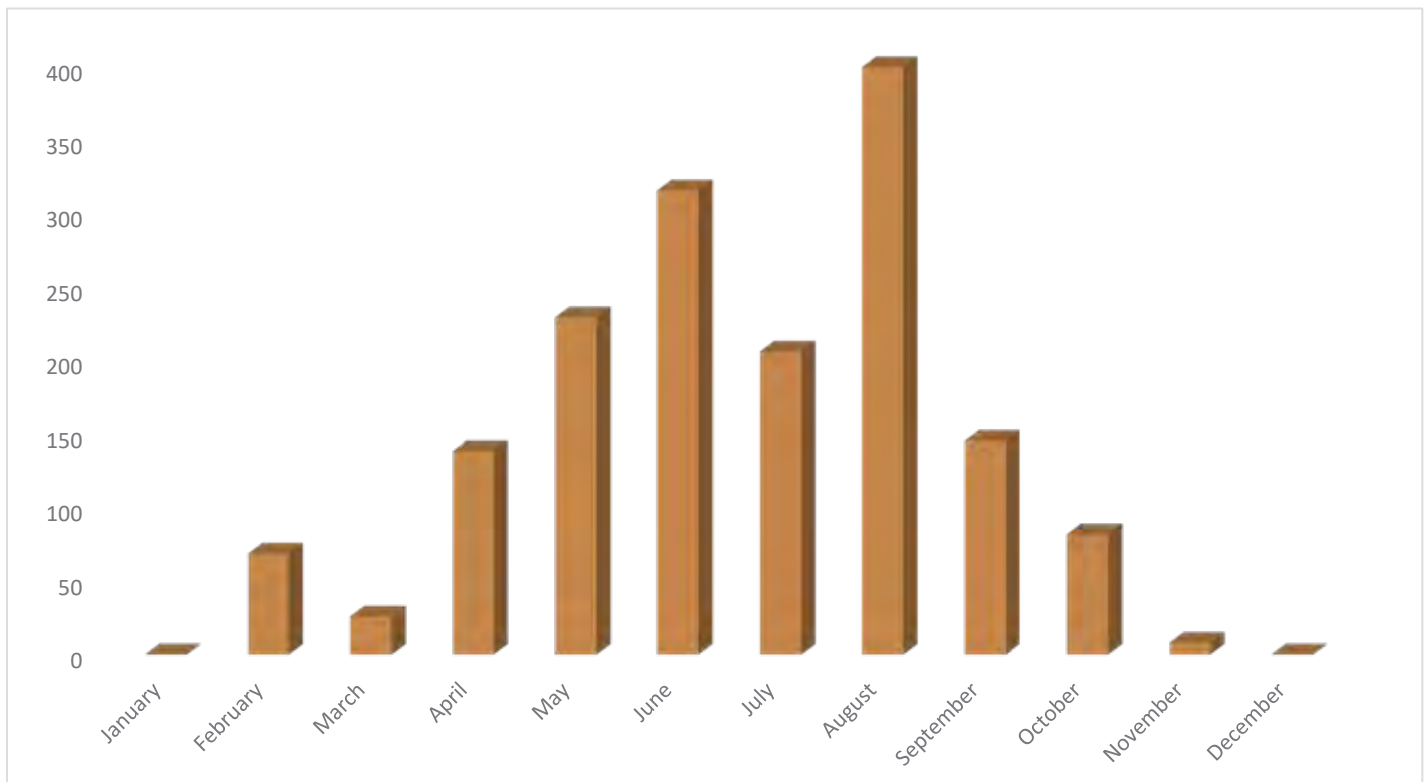


| Area | Number of Service Requests | Percentages |
|----------------------------|----------------------------|-------------|
| Bangor | 2 | 0.12% |
| Berry Creek | 98 | 6.06% |
| Biggs | 194 | 11.99% |
| Brush Creek | 2 | 0.12% |
| Butte Valley | 3 | 0.19% |
| Chico | 221 | 13.66% |
| Clipper Mills | 1 | 0.06% |
| Cohasset | 6 | 0.37% |
| Concow | 1 | 0.06% |
| Dayton | 1 | 0.06% |
| Durham | 6 | 0.37% |
| East Biggs | 12 | 0.74% |
| Forbestown | 22 | 1.36% |
| Forest Ranch | 19 | 1.17% |
| Gridley | 294 | 18.17% |
| Hamilton City | 1 | 0.06% |
| Magalia | 304 | 18.79% |
| Marysville (zone 10 & 14) | 7 | 0.43% |
| Oroville | 165 | 10.20% |
| Palermo | 1 | 0.06% |
| Paradise | 231 | 14.28% |
| Richvale | 23 | 1.42% |
| Stirling City | 4 | 0.25% |
| Totals | 1,618 | 100% |

2020 ANNUAL SERVICE REQUESTS



2020 SERVICE REQUESTS BY MONTH



VECTOR AND VECTOR-BORNE 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 (IVM) 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 for locating vector populations usually 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 collaborated in the District's database which provides historical information on mosquito dynamics and mosquito-borne disease within the District.

The District utilizes an extensive surveillance program for both adult and immature (larval) mosquitoes. Throughout Butte County and the Hamilton City area of Glenn County, the District uses 28 New Jersey light traps, 31 gravid traps, over 40 CO2 traps, and 7 sentinel chicken flocks to monitor adult mosquito populations and virus activity. District Mosquito and Vector Control Specialists monitor larval mosquito populations throughout the entire District on a daily basis utilizing a standard one-pint dipper. District Mosquito and Vector Control Specialists 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.

The District utilizes 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 wild 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.



Gravid Trap



Entomologist Eric Gohre Checking a CO2 Trap

VIRUS SURVEILLANCE

2020 VIRUS SURVEILLANCE REPORT

The District monitors for Western equine encephalitis (WEE), St. Louis encephalitis (SLE), California encephalitis (CE), and West Nile virus (WNV) activity by collecting blood samples from sentinel chicken flocks strategically placed throughout the District, collecting live mosquitoes trapped throughout the District, and collecting dead wild birds District wide.

SENTINEL CHICKEN FLOCKS

Annually the District maintains seven sentinel chicken flocks of six birds each. 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 U.C. Davis for testing. The blood sample is tested for SLE, WEE, CE and WNV. In 2020, 23 of the 42 sentinel chickens from all 7 District flocks tested positive for WNV.



Sentinel Chickens



Building a New Chicken Coop

MOSQUITO POOLS

Each week the District's entomology staff strategically places traps known as encephalitis virus surveillance (EVS) or carbon dioxide traps (CO2) around the District. Traps are posted overnight and retrieved the next morning and the collections are returned to the Lab for identification. 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 specie. Pooled mosquitoes are transferred to numbered vials and sent to the Center for Vector-Borne Disease Research (CVBDR) at the University of California, Davis. At the CVBDR lab the pools are tested for WEE, SLE, CE, and WNV. In 2020 the District sent a record setting 481 mosquito pool samples with 31 returning positive for WNV.

DEAD BIRD SURVEILLANCE AND TESTING

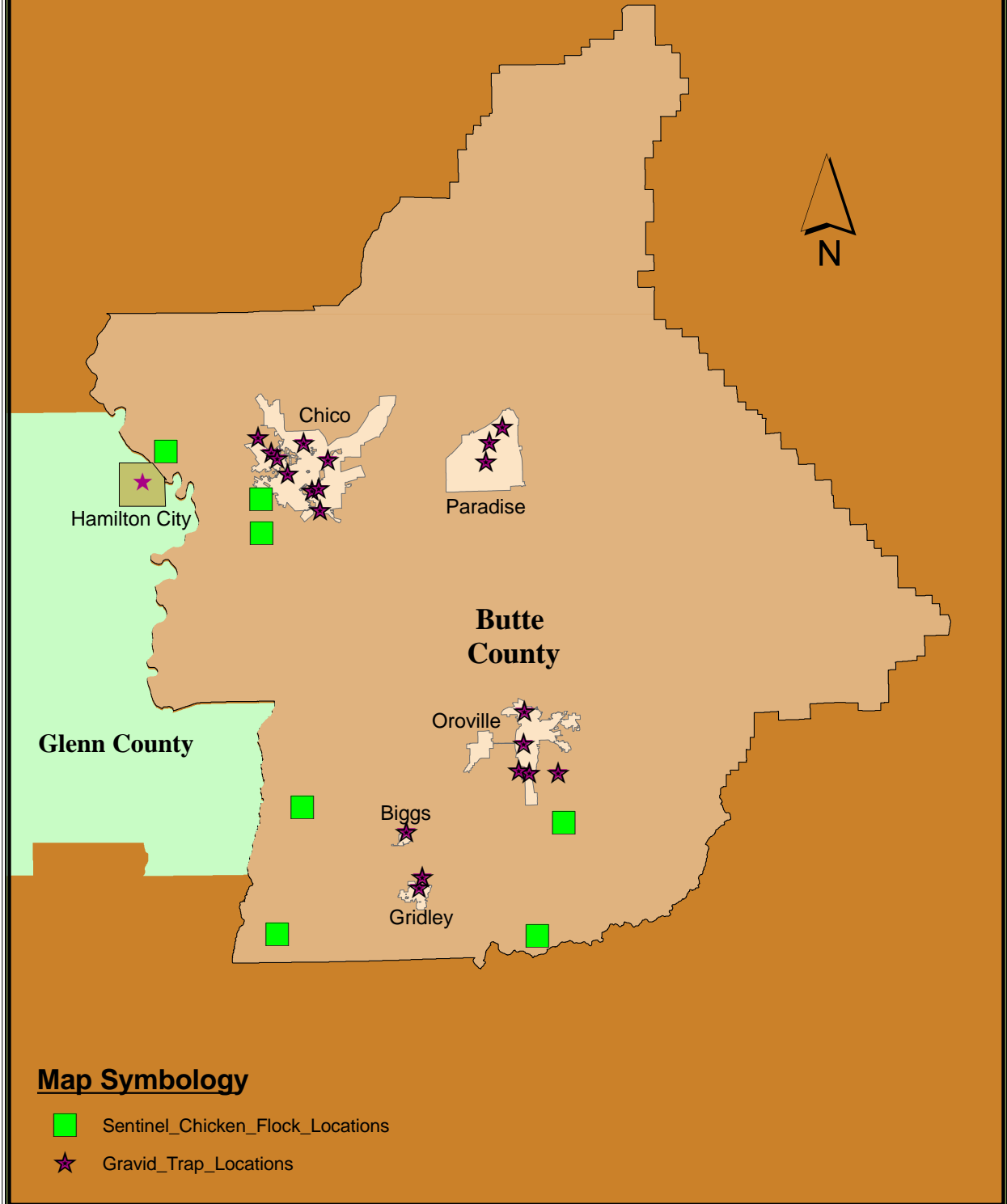
For more than ten years the District has participated in the California Department of Public Health's (CDPH) WNV dead bird testing program. County residents participate in the program by calling CDPH's dead bird hotline (1-877-WNV-BIRD) each time they find a dead bird in the District or by submitting an online form at one of these two websites, 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.



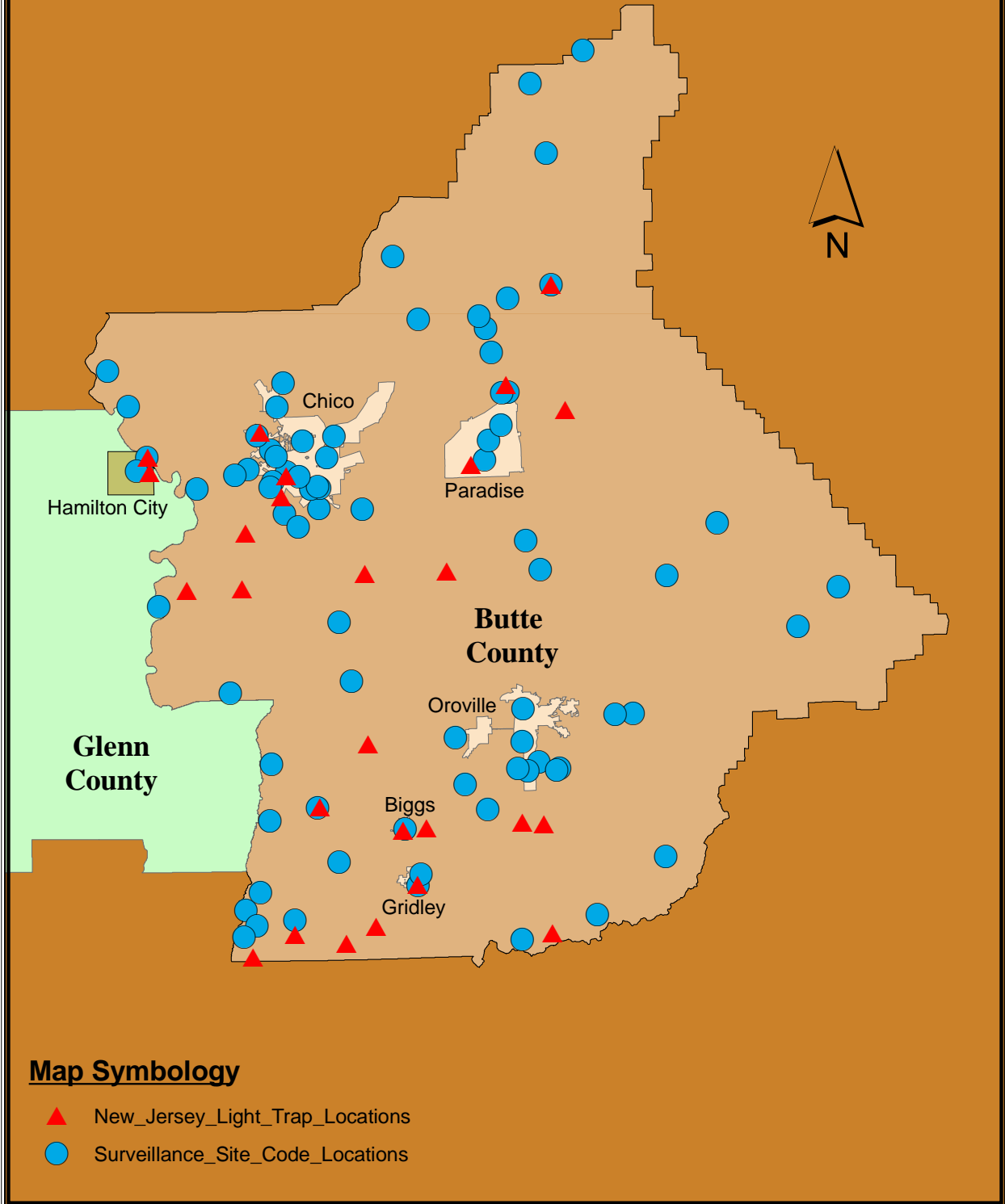
| | Humans | Horses | Dead Birds | Dead Squirrels | Mosquito Pools | Sentinel Chickens |
|---------------|------------|-----------|------------|----------------|----------------|-------------------|
| 2004 | 7 | 18 | 118 | 0 | 1 | 50 |
| 2005 | 25 | 7 | 79 | 0 | 4 | 15 |
| 2006 | 34 | 0 | 40 | 1 | 1 | 49 |
| 2007 | 16 | 0 | 27 | 0 | 5 | 32 |
| 2008 | 6 | 0 | 38 | 0 | 5 | 31 |
| 2009 | 2 | 0 | 13 | 0 | 5 | 36 |
| 2010 | 1 | 1 | 6 | 1 | 7 | 7 |
| 2011 | 3 | 0 | 0 | 0 | 1 | 20 |
| 2012 | 10 | 2 | 53 | 2 | 27 | 43 |
| 2013 | 24 | 0 | 42 | 1 | 38 | 57 |
| 2014 | 25 | 0 | 22 | 0 | 43 | 37 |
| 2015 | 55 | 0 | 38 | 0 | 101 | 37 |
| 2016 | 21 | 0 | 22 | 0 | 48 | 38 |
| 2017 | 3 | 0 | 5 | 0 | 49 | 31 |
| 2018 | 12 | 0 | 4 | 0 | 49 | 37 |
| 2019 | 5 | 0 | 1 | 0 | 45 | 34 |
| 2020 | 4 | 1 | 4 | 0 | 31 | 23 |
| Totals | 253 | 29 | 512 | 5 | 460 | 577 |

*See detection maps on pages 24 & 25

BCMVC D Sentinel Chicken Flock Locations and Gravid Trap Locations

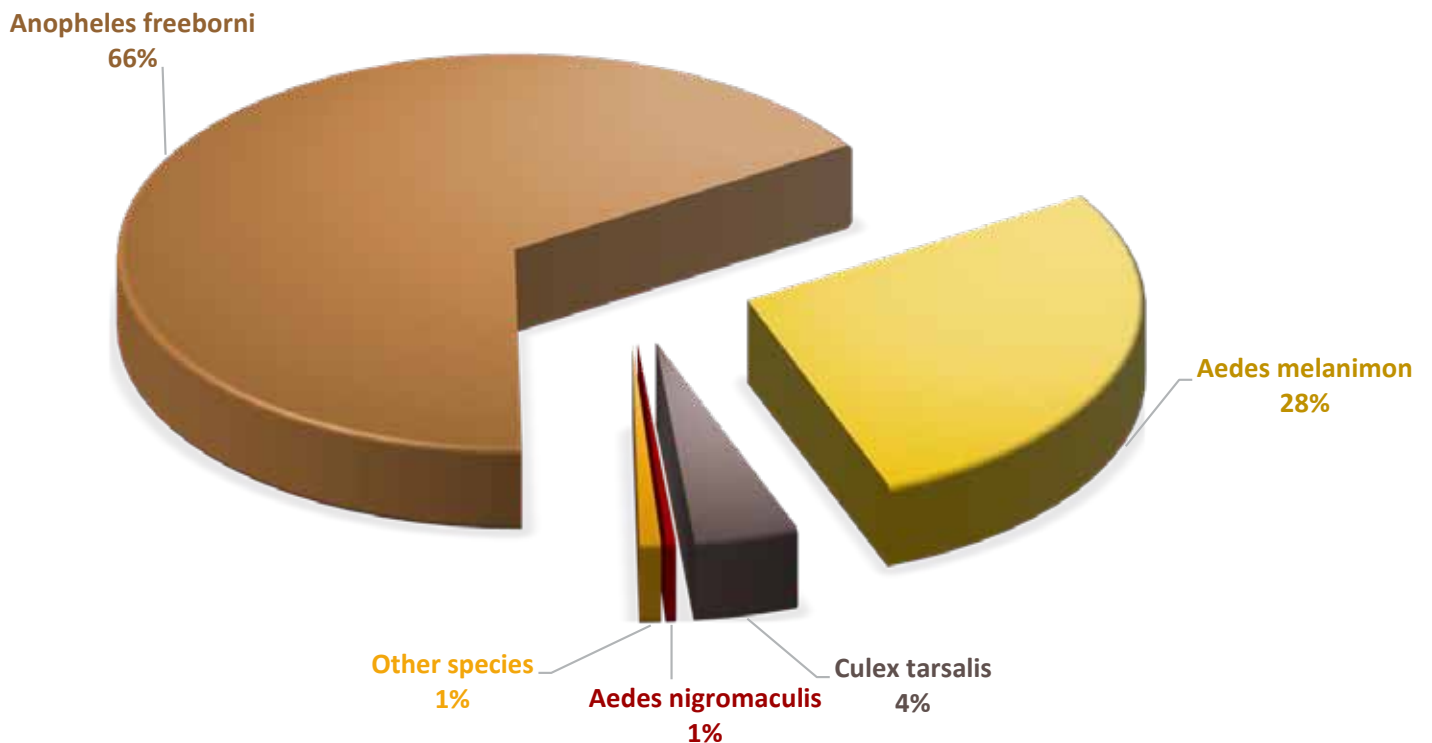


BCMVC D New Jersey Light Trap Locations and Surveillance Site Code Locations



2020 NEW JERSEY LIGHT TRAP COLLECTIONS (FEMALES ONLY) MARCH 2020 - NOVEMBER 2020

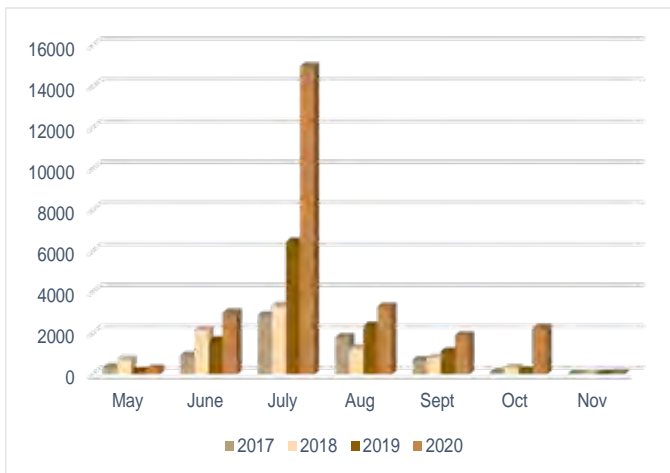
| Ranking | Mosquito Species | Number Collected | % (Rounded) |
|---------|-------------------------------|------------------|----------------|
| 1 | <i>Anopheles freeborni</i> | 484,908 | 66% |
| 2 | <i>Aedes melanimon</i> | 205,378 | 28% |
| 3 | <i>Culex tarsalis</i> | 31,080 | 4% |
| 4 | <i>Aedes nigromaculis</i> | 2,888 | <1% |
| 5 | <i>Culex pipiens</i> | 2,097 | <1% |
| 6 | <i>Culiseta inornata</i> | 1,974 | <1% |
| 7 | <i>Aedes vexans</i> | 1,909 | <1% |
| 8 | <i>Culiseta incidens</i> | 198 | <1% |
| 9 | <i>Aedes sierrensis</i> | 74 | <1% |
| 10 | <i>Culex stigmatosoma</i> | 62 | <1% |
| 11 | <i>Anopheles franciscanus</i> | 4 | <1% |
| | Total Identified | 730,572 | 100.00% |



NEW JERSEY LIGHT TRAP SEASONAL FLUCTUATION OF VECTOR-BORNE DISEASE VECTORS

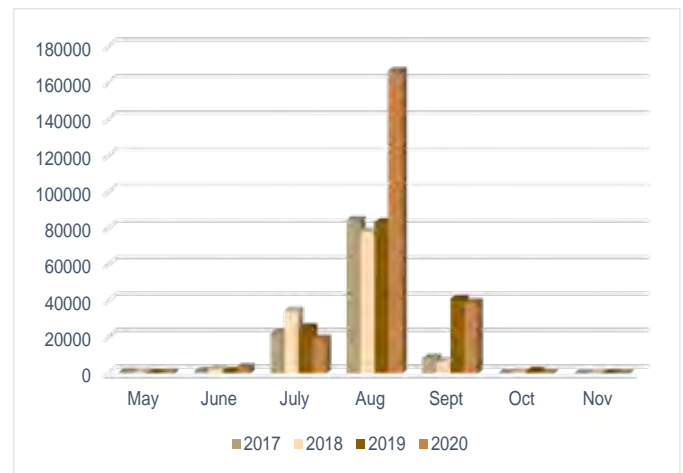
CULEX TARSALIS

Culex tarsalis



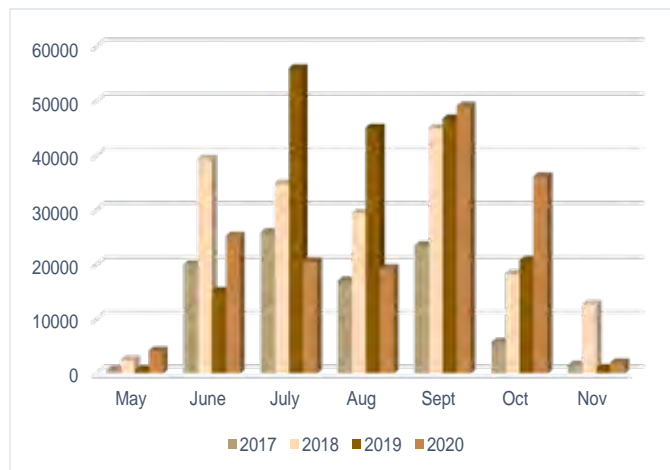
ANOPHELES FREEBORNI

Anopheles freeborni



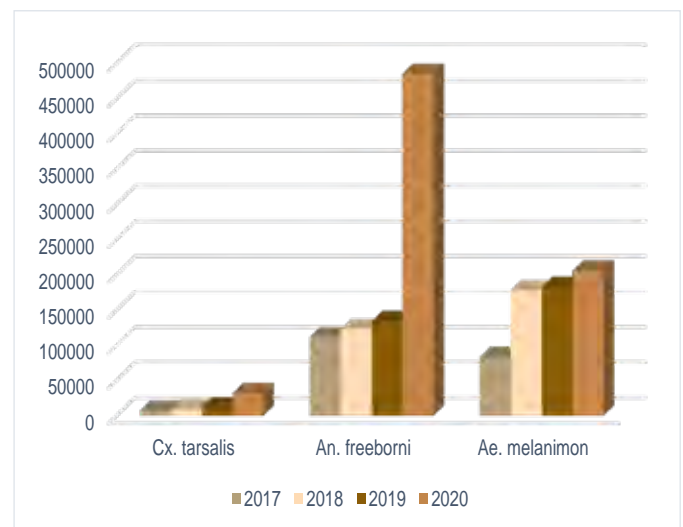
AEDES MELANIMON

Aedes melanimon

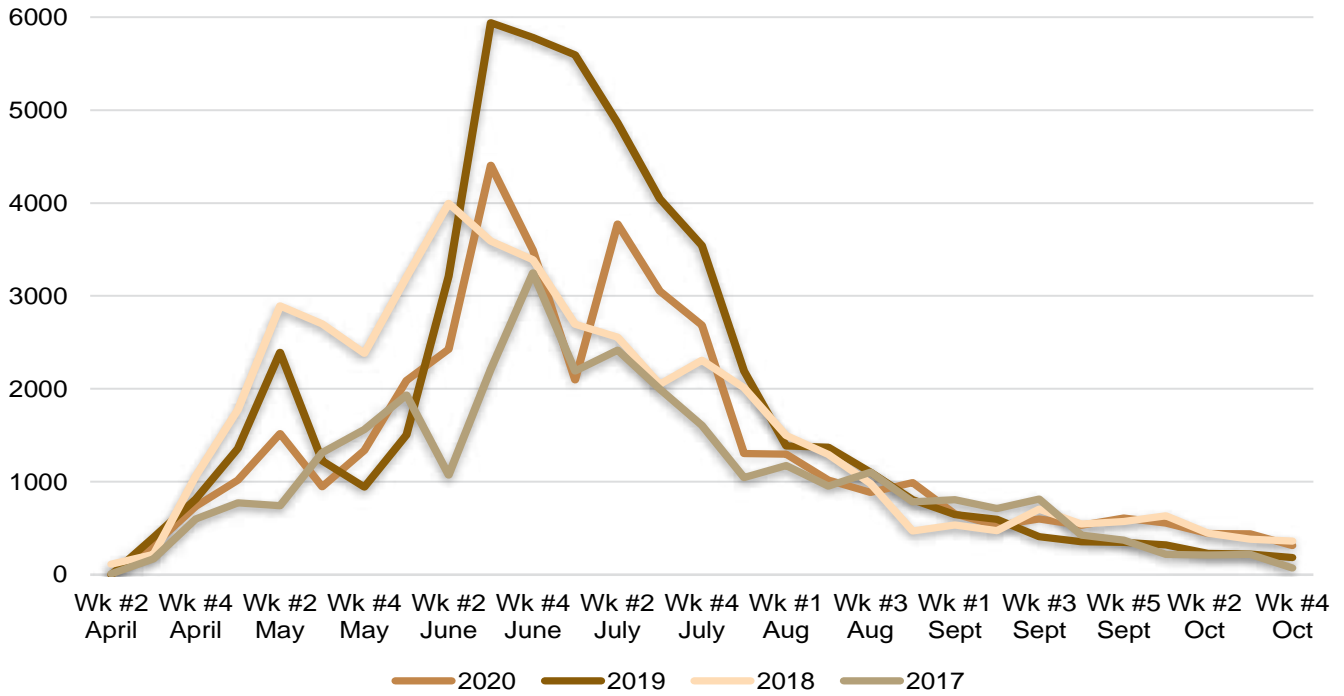


ANNUAL TOTAL FEMALE MOSQUITOES

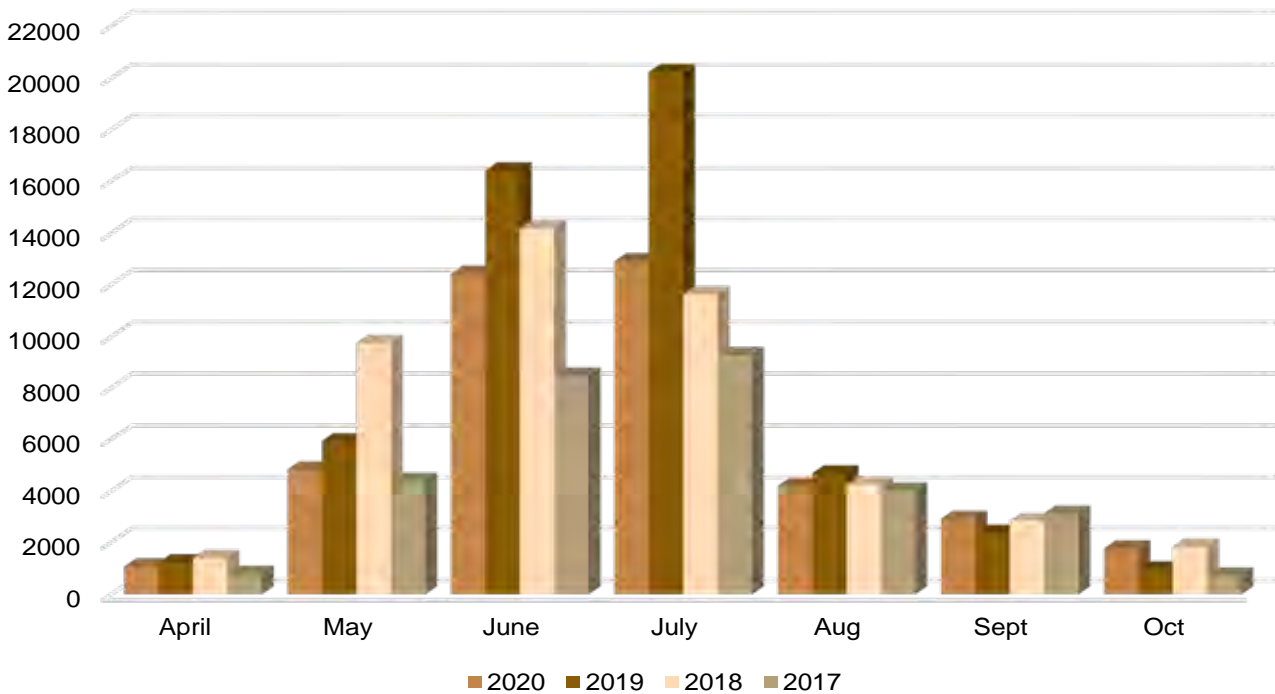
Annual Total Female Mosquitoes



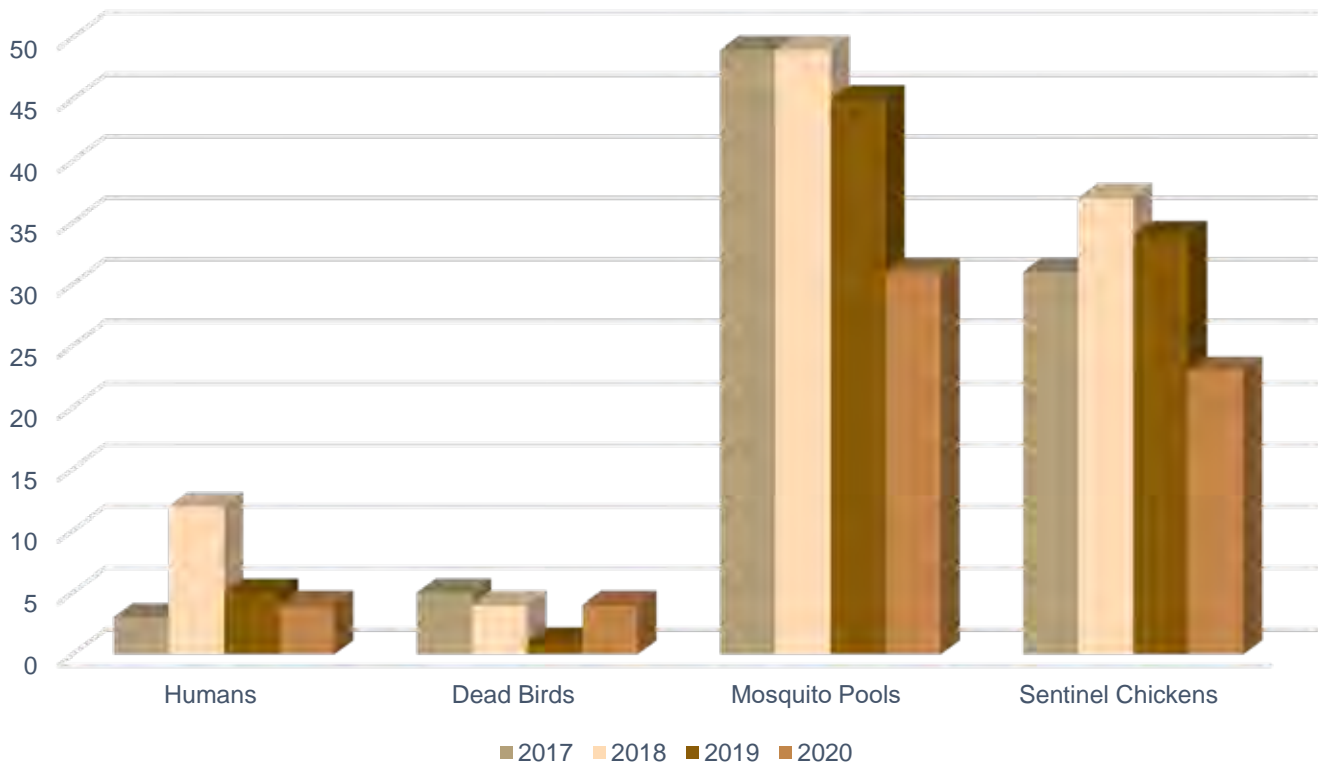
GRAVID TRAP FLUCTUATION BY WEEK



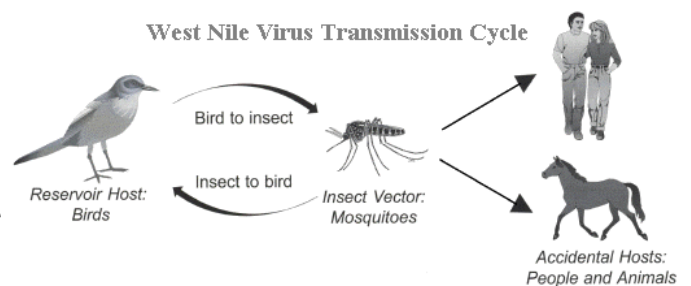
GRAVID TRAP FLUCTUATION BY MONTH



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

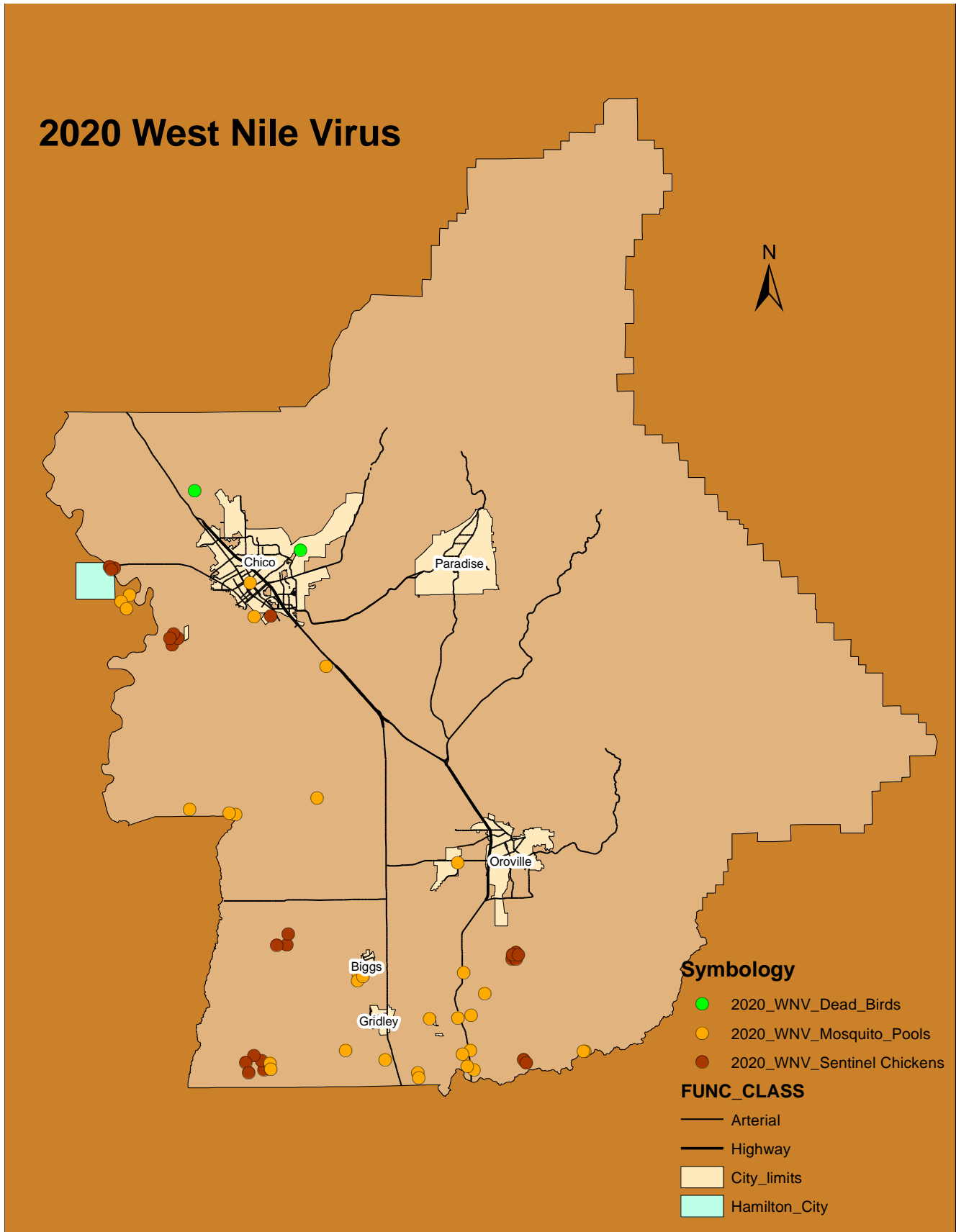
Up to 20 percent of the people who become infected will display symptoms including fever, headache and/or body aches, nausea, vomiting, and sometimes swollen lymph glands or a rash on the chest, stomach, and back. Symptoms can last as little as a few days to several weeks.

NO SYMPTOMS IN MOST PEOPLE

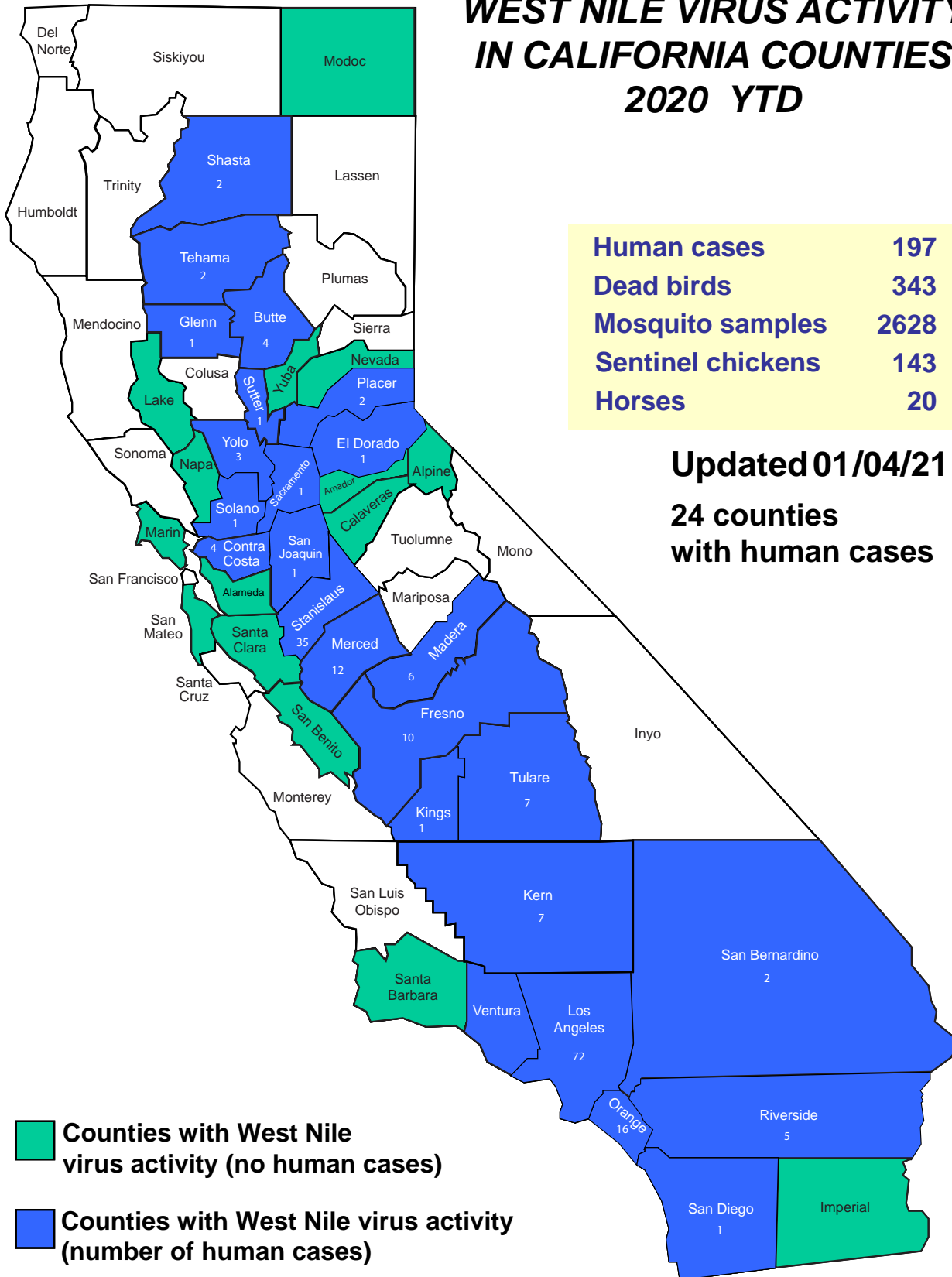
Approximately 80 percent of people (about 4 out of 5) who are infected with WNV will not have any symptoms at all.

2020 BUTTE COUNTY WEST NILE VIRUS MAP

2020 West Nile Virus



WEST NILE VIRUS ACTIVITY IN CALIFORNIA COUNTIES 2020 YTD



BIOLOGICAL CONTROL

Biological control is the intentional use of mosquito pathogens, parasites or predators to reduce the size of target mosquito populations to tolerable levels. The most popular and successful biological tool that is used by the District is the mosquitofish, *Gambusia affinis*. The District has tried other biological control methods and will continue to fully explore any new options that come along, but the most effective biological tool the District currently uses is the mosquitofish. Butte County Mosquito and Vector Control District maintains five fishponds at the Oroville Headquarters. These ponds produce hundreds of pounds of mosquitofish each year. The mosquitofish are routinely stocked and planted by District Mosquito and Vector Control Specialists 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, and at times in 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, 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.

FISH PLANTS 2020

| Zone | Amount | Acres | Applications |
|------------------|---------------|----------------|---------------------|
| Zone 1 | 27.377 | 54.754 | 278 |
| Zone 3 | 8.481 | 16.962 | 69 |
| Zone 4 | 1.1 | 2.2 | 5 |
| Zone 6 | 18.49 | 36.98 | 47 |
| Zone 8 | 29.05 | 58.7667 | 140 |
| Zone 9 | 0.1 | 0.2 | 1 |
| Zone 10 | 12.5718 | 25.1436 | 45 |
| Zone 11 | 11.84 | 23.68 | 47 |
| Zone 12 | 13.13 | 26.26 | 101 |
| ALL ZONES | 122.14 | 244.946 | 733 |



Mosquitofish

Did You Know? Female Mosquito Fish 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 District's 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.



AquaCulture Center



Fish Biologist Ryan Rothenwander



Auto-Feeder



Breeding Boxes

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.



Ag-Cat treating a wetland for mosquito larvae



Residual treatment



Fogging



Fogger Maintenance

Materials **Amount of Material** **Acres Treated** **Number of Applications**

Larvicides

| | | | | |
|---------------------|-------------|------|------------|-----|
| Abate 4E | 0.047 | gals | 4 | 4 |
| Agnique | 0.6500 | gals | 0.7261 | 21 |
| Altosid SBG II | 17,449.53 | lbs | 2433.0000 | 65 |
| Altosid XR Briquets | 3.64 | lbs | 0.0747 | 4 |
| Aquabac 200 G | 9240 | lbs | 997.6197 | 26 |
| Cocobear Oil | 551.2690 | gals | 177.8388 | 891 |
| FourStar Briquets | 102.3910 | lbs | 2.8026 | 191 |
| MetaLarv | 475 | lbs | 150.0000 | 91 |
| Natular DT | 16.96 | lbs | 0.4879 | 168 |
| Natular XRT | 499.62 | lbs | 13.03971 | 508 |
| Vectobac 12AS | 3753.899 | gals | 43010.1417 | 695 |
| Vectobac G | 52675.1508 | lbs | 5626.9295 | 134 |
| Vectobac GR | 7911.105413 | lbs | 923.7553 | 14 |
| VectoMax WSP | 36.23 | lbs | 1.8941 | 206 |

Adulticides

| | | | | |
|------------|---------|------|------------|-----|
| Duet | 1120.25 | gals | 222840.898 | 736 |
| Perm X ULV | 532.19 | gals | 41281.0012 | 360 |
| Trumpet | 720 | gals | 92176.15 | 13 |

Barrier Sprays

| | | | | |
|---------|-------|------|--------|----|
| Suspend | 3.234 | gals | 9.8408 | 94 |
|---------|-------|------|--------|----|

Yellow Jacket Control

| | | | | |
|--------|-------|----|---------|---|
| Drione | 0.191 | lb | 0.40085 | 5 |
|--------|-------|----|---------|---|

Herbicides

| | | | | |
|-------------------------------|-------|------|--------|---|
| Dimension | 0.428 | gals | 1.8009 | 5 |
| Finale | 0.656 | gals | 2.1855 | 2 |
| Round Up Pro Max | 0.203 | gals | 0.325 | 1 |
| Round Up Ready to Use 365 | 57.5 | gals | 0.3968 | 8 |
| Roundup Weed and Grass Killer | 17.5 | gals | 0.1207 | 6 |

Aircraft Spraying

| | |
|---------------------|---------|
| Total Acres Treated | 145,218 |
| Total Acres Rice | 43,062 |
| Managed Wetlands | 9,980 |
| Total Acres ULV | 92,176 |

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TICK SURVEILLANCE

Tick surveillance in Butte County is done primarily because of the diseases that ticks can transmit. In the United States ticks are known to transmit 14 human illnesses. The two that infect humans most often are Lyme disease and Rocky Mountain Spotted Fever (RMSF). Lyme disease is an infectious disease caused by a bacterium known as a *Borrelia burgdorferi*. People get Lyme disease when a tick infected with the Lyme disease bacterium attaches and feeds on them. The tick that is responsible for spreading Lyme disease in Northern California is the Western Black-legged tick. RMSF is a bacterial disease caused by the bacterium, *Rickettsia*. Transmission of the RMSF bacteria is primarily from the Pacific Coast tick. Both of these ticks can be readily found in Butte County.

District tick surveillance consists of “flagging”, identifying, and testing. “Flagging” is 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, put into pools of five, and then sent off for testing. In 2020, 126 tick pools were sent off for testing with approximately 5% coming back positive for Lyme disease. This information can lead to risk assessment warnings to residents in areas that have high tick activity.



Entomologist Amanda Bradford Tick “flagging”



Collecting the Tick



Tick on the Flag



Western Black Legged tick

YELLOW JACKET 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 areas, 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.



Locating the nest entrance



"Dusting" the nest



Yellowjacket



Hornet

DISTRICT SHOP

The District's shop provides the maintenance and repairs for 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, small engines such as chain saws, 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.



DISTRICT AIR OPERATIONS

At the Oroville facility, 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 such as new instruments and instrument panels, installation of new technology (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 Mosquito and Vector Control Specialists. In 2020 the District, with the help of District Pilot Del Boyd, had a new tank truck built. The new truck will be used for all liquid larvacide applications.



DISTRICT ADMINISTRATION

Greeted by a nice smile and a pleasant tone, professional and courteous customer service is the number one priority for the District's administration staff. The District employs one full time Office Manager and one Office Assistant. The tasks of the administrative personnel involve serving the residents of Butte County and Hamilton City, as well as, the employees of the District. Accounting, budgeting, responding to telephone inquiries, maintaining public records, coordinating policies, and reporting to the Board of Trustees are just a few of the many duties the department performs.

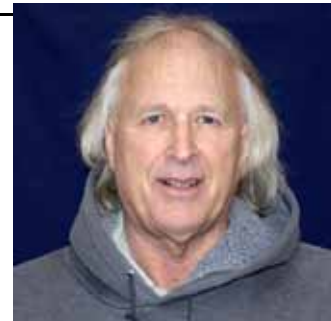


2020 BUTTE COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT BOARD OF TRUSTEES

| Name | Title | Area Represented | Term Expires |
|-------------------|---------------------------|-------------------------|---------------------|
| Albert Beck | Board President | County at Large | December 31, 2021 |
| Carl Starkey | Board Trustee | County at Large | December 31, 2020 |
| Phillip LaRocca | Board Trustee | County at Large | December 31, 2022 |
| Steve Ostling | Board Trustee | County at Large | December 31, 2021 |
| Michael Barth | Board Trustee | County at Large | December 31, 2023 |
| James Bo Sheppard | Board Secretary | City of Biggs | December 31, 2022 |
| Larry Kirk | Board Vice President | City of Chico | December 31, 2021 |
| Bruce Johnson | Board Trustee | City of Gridley | December 31, 2023 |
| Melissa Schuster | Board Assistant Secretary | Town of Paradise | December 31, 2020 |
| Vacant | Board Trustee | Hamilton City | |
| Gordon Andoe | Board Trustee | City of Oroville | December 31, 2021 |

2020 BUTTE COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT EMPLOYEES

| Name | Title |
|------------------------|---------------------------------|
| Matt Ball | Manager |
| Doug Weseman | Assistant Manager |
| Del Boyd | Pilot II |
| Maritza Sandoval | Office Manager |
| Edith Del Rio Carriedo | Office Assistant |
| Eric Gohre | Entomologist II |
| Amanda Bradford | Entomologist II |
| Bill Kunde (Retired) | Regional Supervisor |
| Aaron Lumsden | Regional Supervisor |
| Ryan Rothenwander | Vector Ecologist/Fish Biologist |
| Beth Vice | MVCS |
| Aaron Goff | MVCS |
| Don Lasik | MVCS |
| Eric Dillard | MVCS |
| Glen Williams | MVCS |
| Phillip Henry | MVCS |
| Shane Cassity | MVCS |
| Shane Robertson | MVCS |
| Charlie Favilla | MVCS |
| Kenny Armstrong | Yard/Tank Truck Asst |
| Shawn Cassity | MVC Assistant Seasonal |
| Jeremy Edwards | MVC Assistant Seasonal |
| Brian Ence | MVC Assistant Seasonal |
| Austin Howard | MVC Assistant Seasonal |
| Michael Mattia | MVC Assistant Seasonal |
| Colton Scheer | MVC Assistant Seasonal |
| Cody Scheer | MVC Assistant Seasonal |
| Rachelle Scribner | Lab Assistant Seasonal |
| Bennett Soloman | MVC Assistant Seasonal |
| Jason St.Clair | MVC Assistant Seasonal |
| Stan McClymont | MVC Assistant Seasonal |



Eric Gohre

The District is still mourning the untimely death of its Entomologist, Eric Gohre. Eric served the District for over 19 years. Eric was our friend and part of the District family. He will be missed.



Bill Kunde

Congratulations to Bill, who retired from the District in May, 2020. Bill worked for the District as Regional Supervisor since 2009. Thank you Bill for your years of service to the District.

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 the 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 number of traps used, increase the amount of mosquitoes tested, commence with the surveillance of invasive species surveillance such as the Asian Tiger Mosquito and Yellow Fever Mosquito (both of which have been introduced into California in the past 3 years) 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 on 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 controls importance will only continue to grow.

Did You Know? All mosquitoes require water to breed. Some species can breed in puddles left after a rainstorm. Just a tablespoon of water is all it takes for a female to deposit her eggs. Tiny mosquito larva develop quickly in bird baths, roof gutters, and old tires dumped in vacant lots. If you want to keep mosquitoes under control around your home, you need to be vigilant about dumping any standing water every few days.

TRANSPARENCY CERTIFICATE OF EXCELLENCE AWARD

For the 8th year in a row, 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.

"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."

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.

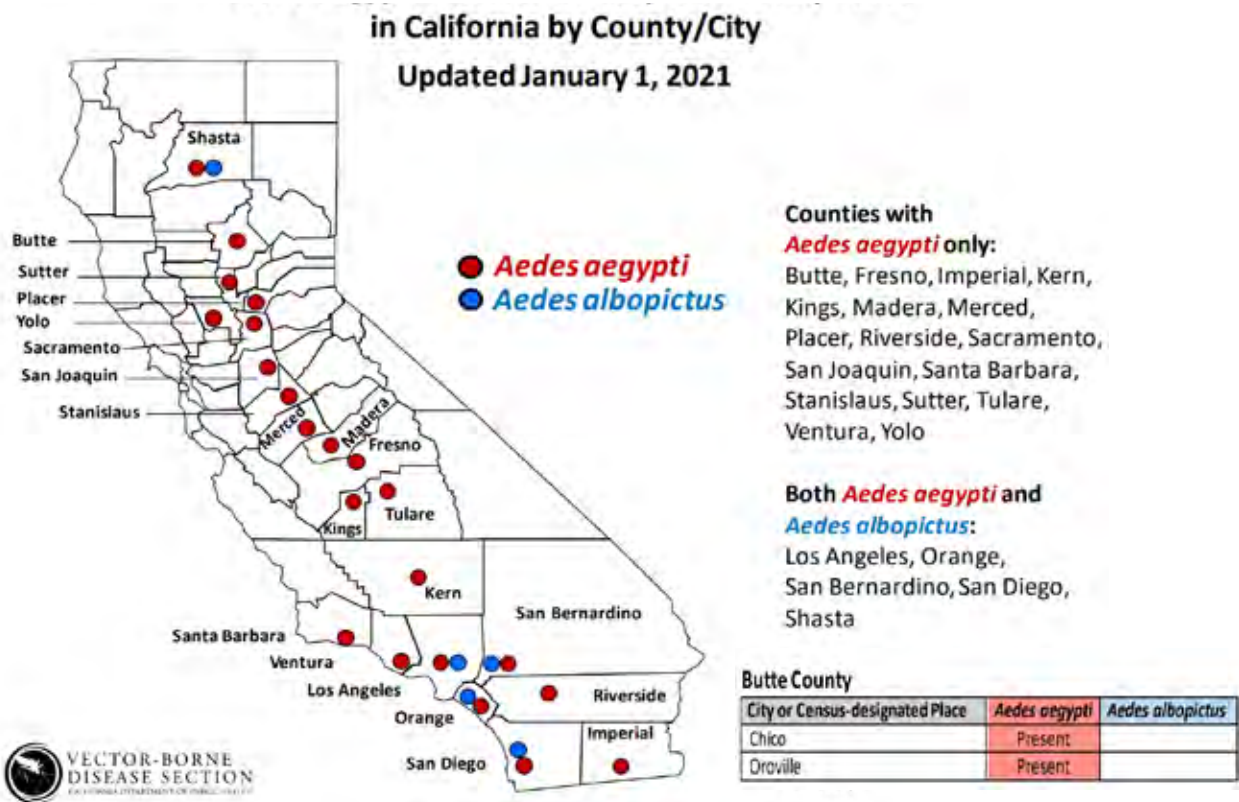


CALIFORNIA INVASIVE SPECIES

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). The first detection of invasive Aedes mosquitoes in Butte County were detected on September 17th, 2020. The *Aedes aegypti*, commonly known as the yellow fever mosquito, was found in northeast Chico, in the area of East Avenue and Mariposa Avenue.

BCMVC identified their second detection of *Aedes aegypti* in Butte County on October 28th, 2020 in west Oroville, in the area of Oroville Dam Boulevard and Feather River Boulevard.

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.



Aedes albopictus



Aedes aegypti

**Butte County Mosquito and Vector Control District
For the Year Ended June 30, 2020**

| | Budgeted | Actual | Variance Favorable (Unfavorable) |
|---|----------------|--------------|--|
| <u>REVENUE</u> | \$ 3,810,347 | \$ 5,099,192 | \$ 1,288,845 |
| <u>SALARIES & BENEFITS</u> | | | |
| Salaries | \$ 1,468,000 | \$ 1,420,984 | \$ 47,016 |
| FICA & U I | \$ 124,000 | \$ 121,758 | \$ 2,242 |
| Workers Compensation | \$ 70,000 | \$ 58,146 | \$ 11,854 |
| Health Insurance | \$ 339,000 | \$ 316,833 | \$ 22,167 |
| PERS | \$ 374,000 | \$ 354,862 | \$ 19,138 |
| TOTAL | \$ 2,375,000 | \$ 2,272,584 | \$ 102,416 |
| <u>SERVICES & SUPPLIES</u> | | | |
| Gas & Oil | \$ 71,000 | \$ 81,568 | \$ (10,568) |
| Repairs & Parts-Airplane | \$ 25,000 | \$ 19,874 | \$ 5,126 |
| Repairs & Parts | \$ 35,000 | \$ 33,236 | \$ 1,764 |
| Office Supplies | \$ 20,000 | \$ 17,854 | \$ 2,146 |
| Education & Publicity | \$ 50,000 | \$ 45,589 | \$ 4,411 |
| Insecticides | \$ 721,000 | \$ 692,672 | \$ 28,328 |
| Expendable Equipment | \$ 20,000 | \$ 19,068 | \$ 932 |
| Communications | \$ 30,000 | \$ 24,012 | \$ 5,988 |
| Travel | \$ 10,000 | \$ 37 | \$ 9,963 |
| Utilities | \$ 25,000 | \$ 17,003 | \$ 7,997 |
| Rent | \$ 5,000 | \$ 4,650 | \$ 350 |
| Special Services | \$ 137,000 | \$ 135,924 | \$ 1,076 |
| Trustee Allowance | \$ 13,200 | \$ 11,000 | \$ 2,200 |
| General Insurance | \$ 97,000 | \$ 96,378 | \$ 622 |
| Employee Trng & Dues | \$ 10,000 | \$ 9,117 | \$ 883 |
| District Fees & Permits | \$ 33,000 | \$ 25,701 | \$ 7,299 |
| Miscellaneous | \$ 12,500 | \$ 10,076 | \$ 2,424 |
| Research Supplies | \$ 40,000 | \$ 33,477 | \$ 6,523 |
| Alternate Technology | \$ - | \$ - | \$ - |
| Special Discretionary | \$ 8,500 | \$ 6,833 | \$ 1,667 |
| Gambusia | \$ 10,000 | \$ 6,830 | \$ 3,170 |
| TOTAL | \$ 1,373,200 | \$ 1,290,898 | \$ 82,302 |
| <u>CAPITAL OUTLAY</u> | | | |
| Bldg & Improvements | \$ 45,000 | \$ 34,694 | \$ 10,306 |
| Vehicles | \$ 312,000 | \$ 306,135 | \$ 5,865 |
| Spray Equipment | \$ 36,000 | \$ 35,584 | \$ 416 |
| Aircraft | \$ 5,000 | \$ - | \$ 5,000 |
| Office Equipment | \$ 1,000 | \$ - | \$ 1,000 |
| Laboratory Equipment | \$ 1,000 | \$ - | \$ 1,000 |
| Shop Equipment | \$ 3,000 | \$ 2,769 | \$ 231 |
| Education & Publicity | \$ 1,000 | \$ - | \$ 1,000 |
| Miscellaneous | \$ 1,000 | \$ - | \$ 1,000 |
| Communications | \$ 1,000 | \$ - | \$ 1,000 |
| TOTAL | \$ 406,000 | \$ 379,182 | \$ 26,818 |
| Appropriation for contingencies | \$ 912,550 | \$ - | \$ 912,550 |
| Grand Total | \$ 5,066,750 | \$ 3,942,664 | \$ 1,124,086 |
| Excess (Deficiency) of Revenue over Expenditures | \$ (1,256,403) | \$ 1,156,528 | |
| Fund Balance 2019 | \$ 4,648,817 | | |
| Fund Balance 2020 | \$ 5,763,073 | | |

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**Butte County Mosquito and Vector Control District
Balance Sheet Audit Information
June 30, 2020**

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| | General Fund | Reclassifications & Eliminations | Statements of Net Position |
|--|-------------------------|---|---------------------------------------|
| Current assets: | | | |
| Cash and cash equivalents (note 2) | \$ 5,872,997 | - | 5,872,997 |
| Accrued interest receivable | 20,959 | - | 20,959 |
| Accounts receivable – charge for services | 33,518 | - | 33,518 |
| Materials and supplies inventory | 478,043 | - | 478,043 |
| Prepaid expenses | 24,543 | - | 24,543 |
| Total current assets | 6,430,060 | - | 6,430,060 |
| Non-current assets: | | | |
| Capital assets, not being depreciated (note 3) | - | 615,403 | 615,403 |
| Capital assets, being depreciated (note 3) | - | 2,594,529 | 2,594,529 |
| Total non-current assets | - | 3,209,932 | 3,209,932 |
| Total assets | 6,430,060 | 3,209,932 | 9,639,992 |
| Deferred outflows of resources: | | | |
| Deferred pension outflows (note 7) | - | 688,767 | 688,767 |
| Total deferred outflows of resources | - | 688,767 | 688,767 |
| Current liabilities: | | | |
| Accrued salaries and benefits | 87,211 | - | 87,211 |
| Long-term liabilities – due within one year: | | | |
| Compensated absences (note 4) | - | 117,803 | 117,803 |
| Total current liabilities | 87,211 | 117,803 | 205,014 |
| Non-current liabilities: | | | |
| Long-term liabilities – due in more than one year: | | | |
| Compensated absences (note 4) | - | 471,212 | 471,212 |
| Net pension liability (note 7) | - | 3,616,550 | 3,616,550 |
| Total non-current liabilities | - | 4,087,762 | 4,087,762 |
| Total liabilities | 87,211 | 4,205,565 | 4,292,776 |
| Deferred inflows of resources: | | | |
| Deferred pension inflows (note 7) | - | 174,274 | 174,274 |
| Total deferred inflows of resources | - | 174,274 | 174,274 |
| Fund balance: (note 8) | | | |
| Non-spendable | 502,586 | (502,586) | - |
| Assigned | 589,015 | (589,015) | - |
| Unassigned | 5,251,248 | (5,251,248) | - |
| Total fund balance | 6,342,849 | (6,342,849) | - |
| Total liabilities and fund balance | \$ 6,430,060 | | |
| Net position: | | | |
| Net investment in capital assets | | 3,209,932 | 3,209,932 |
| Unrestricted | | 2,651,777 | 2,651,777 |
| Total net position | | 5,861,709 | 5,861,709 |

Non-Discrimination Statement

“This institution is an equal opportunity provider and employer.”

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at http://www.ascr.usda.gov/complaint_filing_cust.html, or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter to us by mail at U.S. Department of Agriculture, Director, Office of Adjudication, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, by fax (202) 690-7442 or email at program.intake@usda.gov.

