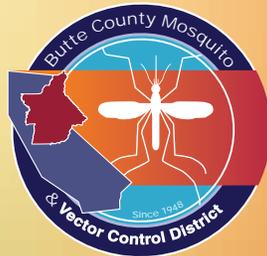


# BUTTE COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT



## 2017 ANNUAL REPORT

# TABLE OF CONTENTS

Jurisdiction, History, Mission Statement, Location.....3

Foreword.....4

Board of Trustees, Staff, Administration.....5

Mosquito Biology and Development.....6

Integrated Vector Management Program.....7

Physical Control, Source Reduction, Best Management Practices.....8

Public Education, GIS/GPS, Website, Email Notification System.....9-13

Service Requests.....14-15

Vector and Vector-Borne Disease Surveillance.....16-25

Biological Control.....26-27

Chemical Control, Materials Used, Acres Treated, Inspections, Applications.....28-29

Tick Surveillance, Yellowjacket Surveillance.....30-31

Going Green and Programmatic Environmental Impact Report.....32

District Shop, District Hangar, District Administration.....33

Board of Trustees, Employees, Special Benefit Assessment.....34-35

Transparency Award, California Invasive Species, Chikungunya Virus.....36-37

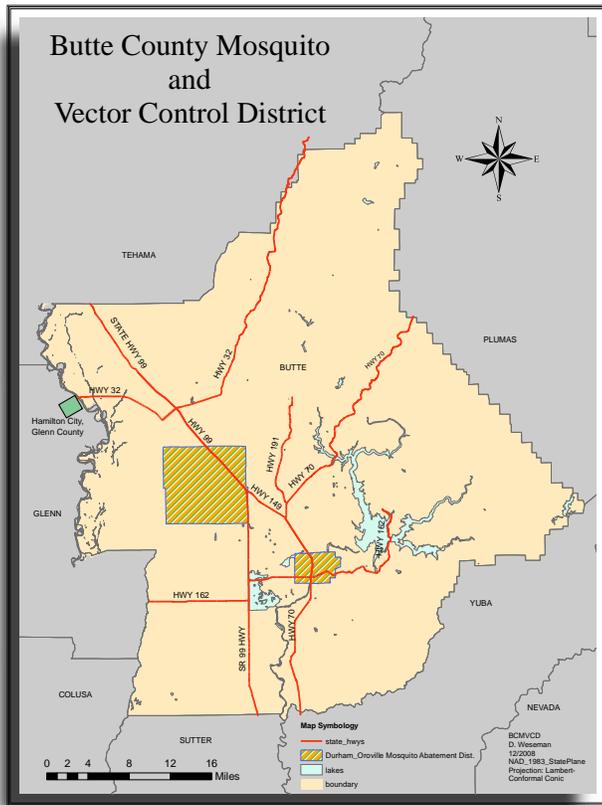
2017 Financials.....38-39

## **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](http://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 BCMVCD 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 my honor to submit the 2017 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.

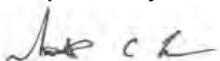
The prevention of vector-borne disease outbreaks remains the District's primary goal and it's most important responsibility to the public. West Nile virus (WNV) is now considered to be endemic in the state of California and remains the District's largest public health concern. The state observed another extremely active WNV season. As of writing this, currently 465 human infections have been confirmed in 2017. Butte County's human infections decreased from 25 in 2016 to 3 in 2017. Butte County has had confirmation of 232 WNV human infections with 8 fatalities since the virus arrived in 2004. Since 2003 when WNV first appeared in California, 6494 human infections with 273 fatalities have been confirmed. For the past several years St. Louis encephalitis has again started to become active in parts of the county. For the first time in 48 years, the District identified a group of positive mosquitoes with St. Louis encephalitis. 2017 marks the first year in well over 50 years where two mosquito-borne diseases were active within Butte County at the same time.

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.

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 can breed mosquitoes. 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, *Aedes aegypti* and *Aedes albopictus*, 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 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](http://www.ButteMosquito.com) or call us at (530) 533-6038 or (530) 342-7350.

Respectfully,



Matthew C. Ball  
District Manager



## BOARD OF TRUSTEES

Standing, left to right: Carl Starkey, Secretary Tom Anderson, Jack Bequette, Bruce Johnson, President Dr. Albert Beck, Dr. Thomas Vickery, Gordon Andoe.

Seated, left to right: Melissa Schuster, Dr. Suzanne Hanson, Not pictured: Vice President Dr. Larry Kirk and Assistant Secretary Bo Sheppard.



## 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. (MVCS: Mosquito and Vector Control Specialist, licensed by the California Department of Public Health).

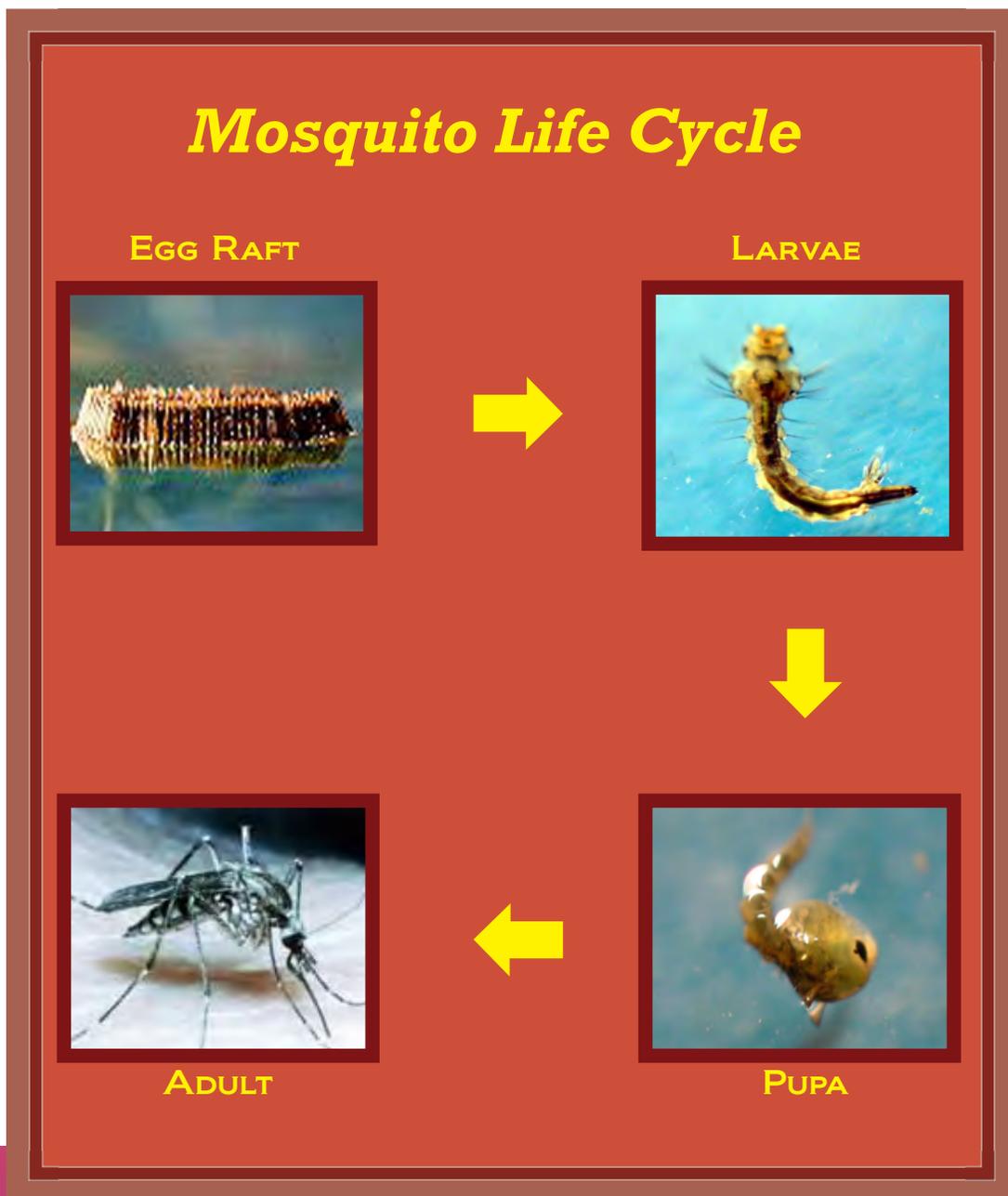
## ADMINISTRATIVE STAFF

Left to right: Doug Weseman, Assistant Manager; Bill Kunde, Regional Supervisor; Matt Ball, District Manager; Darlene Starkey, Office Manager; Eric Gohre, Entomologist; Aaron Lumsden, Regional Supervisor. Not pictured; Chris Ocegueda, Fish Biologist/Vector Ecologist.



## MOSQUITO BIOLOGY

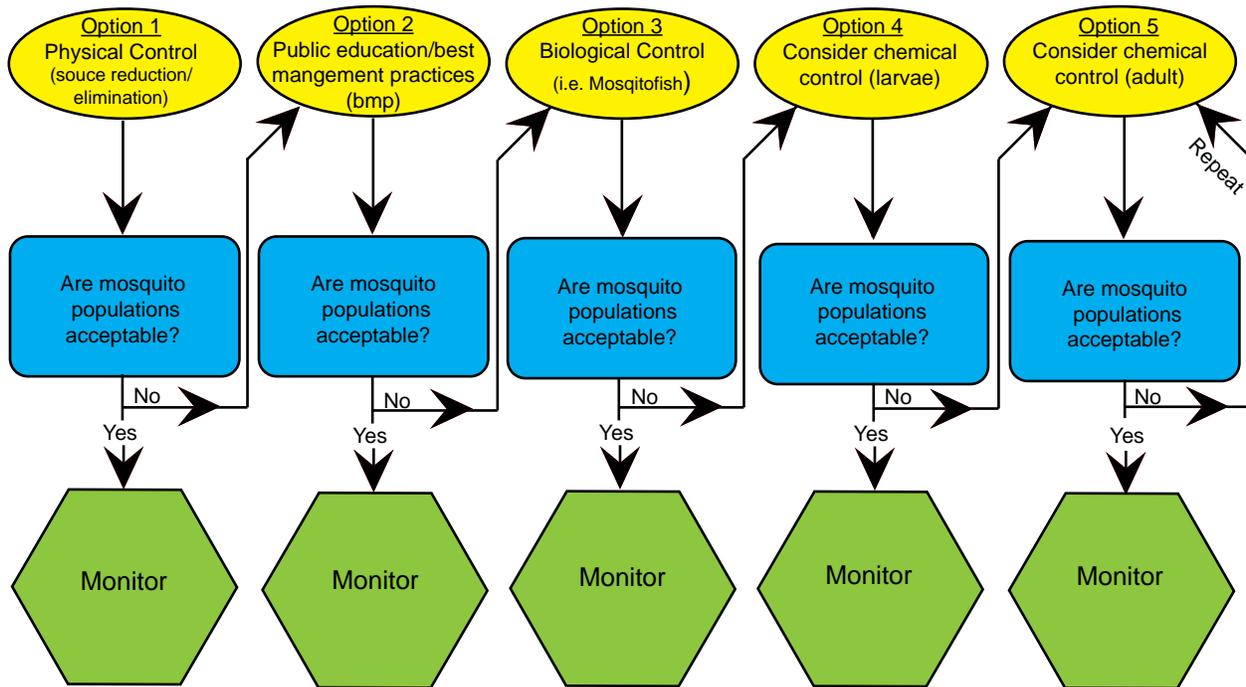
There are approximately 3,500 species of mosquitoes distributed worldwide. In California there are 53 species of mosquitoes and 25 of these are commonly found in Butte County. Mosquitoes, like other animals, must have water, food and some protection from the elements to survive. Mosquitoes undergo complete 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.



Identifying and Sorting Mosquitoes



Co2 Trap

## **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](http://www.ButteMosquito.com). The manual has successfully been used to reduce mosquito populations/public health threats without the need of additional pesticides.

## 2017 PUBLIC EDUCATION HIGHLIGHTS

The Butte County Mosquito and Vector Control District's (District) Public Education Department had a very busy year in 2017. Below is a recap of the 2017 public education campaign;

The District partnered with Stott Advertising for the ninth year in a row on a county-wide mosquito prevention billboard advertising campaign. The billboard campaign ran from May through September. This year's slogan was "Don't Give West Nile Virus a Biting Chance". The billboard design was created by Lisa Almaguer, Communications Manager / Public Information Officer for Butte County Public Health. Lisa has extensive experience in graphic design and offered her services for this project. The six billboards rotated throughout the county.

The District had display booths at the Chico Home and Garden Show, Gold Nugget Days in Paradise, Feather Fiesta Days in Oroville, Red Suspenders Day in Gridley, Biggs National Night Out, Berry Creek Berry Festival, Forbestown Daze, Butte County Fair in Gridley, and the Salmon Festival in Oroville. All of the events that the District attends have an excellent insect display put together by District Entomologist Eric Gohre, as well as a mosquitofish and mosquito larvae display. At these events the District also hands out, free of charge, fly/mosquito swatters, tick identification cards, recyclable shopping bags, and mosquito repellent.

The PR Department has conducted many TV, radio, and newspaper interviews, issued press releases, and published public notices. The television interviews were granted to KHSL 12 News, KNVN 24 News, and KRCC News Channel 7. Radio interviews were granted to KPAY radio in Chico. Newspaper/internet interviews were granted to the Chico Enterprise Record, the Chico News and Review, the Oroville Mercury News, the Paradise Post, the Orion, and the Appeal Democrat. Group presentations were given to/at the California Conservation Corps and the Kelly Ridge Garden Club.

The District also ran print advertisements in the Chico ER and the Chico News and Review. The District also contracted with Action News Now in Chico to create a television public service announcement (PSA). The PSA ran from July through the end of September.

Radio advertising has finished for the year with Deer Creek Broadcasting and Radio Chico. These programs ran from June through the end of September.

District staff gave several school presentations on Mosquitoes and Ticks throughout the District.

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.

## **2017 PUBLIC EDUCATION HIGHLIGHTS**

- **Billboard Advertising (Throughout the County)**
- **Butte County Fair, Gridley (Booth)**
- **Gold Nugget Days, Paradise (Booth)**
- **Feather Fiesta Days, Oroville (Booth)**
- **Berry Creek Berry Festival (Booth)**
- **Salmon Festival, Oroville (Booth)**
- **Red Suspenders Day, Gridley (Booth)**
- **K-6 Classroom Presentations on Ticks and Mosquitoes (Throughout the County)**
- **Chico News and Review, and Chico Enterprise Record Print Advertising**
- **Chico Home and Garden Show (Booth)**
- **Kelly Ridge Garden Club (Presentation)**
- **Television Public Service Announcement (Action News Now)**
- **MVCAC Mosquito and Vector Control Awareness Week (Open House at District Office)**
- **California Conservation Corps, Chico (Presentation)**
- **Several Print, Radio, and Television Interviews**
- **Biggs National Night Out, Biggs (Booth)**
- **Radio Advertising with Deer Creek Broadcasting and Radio Chico**



*Model A Club Visits the District*

## PUBLIC EDUCATION PICTURES



*Display Booth*



*District Manager Making PSA*



*Mosquito Awareness Classroom Presentation*



*Feather Fiesta Days*



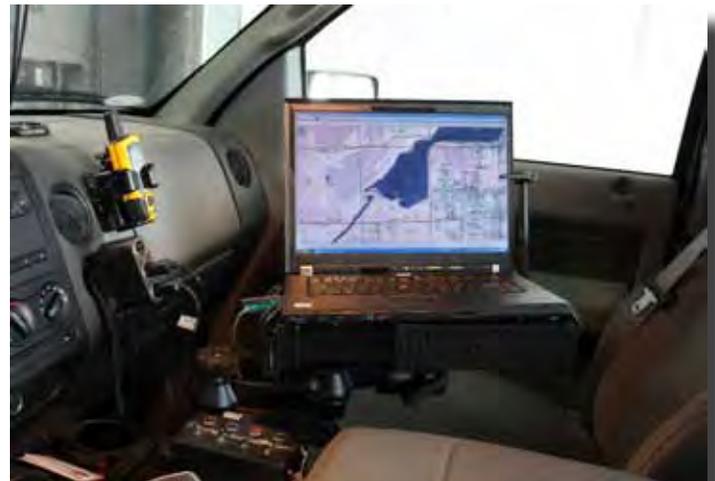
*Classroom Fun*

## GIS/GPS SYSTEM

Over the past seven years the District has formed a close partnership with the CSUC Geographic Information Center (GIC) in Chico, CA. to create a new geographic information system (GIS) for the District. GIS is a system that captures, stores, analyzes, manages, and presents data that is linked to a location (spatial data). In 2010 the District went “live” with the new system. This system took the place of the old system which utilized map books, handwritten reports, and outdated handheld electronic devices called “Timewands”. The new system consists of a laptop computer for each Mosquito and Vector Control Specialist, including seasonal workers, that runs ESRI Corporations ArcMobile software and a GPS unit that connects to the laptop computer. The new GIS system also includes a data management server that is housed at the GIC in Chico and a new in-house computer that runs ESRI’s ArcGIS version 10.1. This computer is used to manage source data collected from the laptops in the field and is also used as a link to the District’s Office Managers computer and the Microsoft Access database that it controls. The new system increases accuracy, facilitates user friendly reporting, minimizes data manipulation and corruption, and maximizes time efficiency.

## WWW.BUTTEMOSQUITO.COM

The District’s website continues to be an important tool in educating the public about mosquitoes and other vectors and the practices of the District. On the website the user can make a service request, sign up for email notification of upcoming fogging operations, 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.



*Laptop mounted inside vehicle*



*District website home page*

# EMAIL NOTIFICATION SYSTEM

In 2011 the District continued to improve the mosquito fogging 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.BCMVCD.com](http://www.BCMVCD.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 08/11/2017 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](http://www.ButteMosquito.com). The fogging will take place from approximately 8:00 PM to 11:00 PM. Fogging operations may be cancelled due to unfavorable weather conditions.

Product(s) used in these areas will be Duet.

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.ButteMosquito.com](http://www.ButteMosquito.com)

## Free Mosquitofish

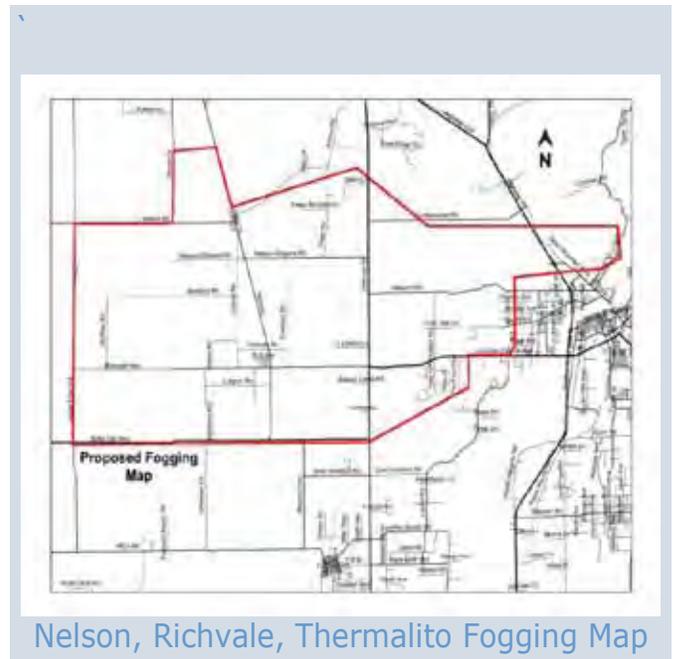
As a reminder, the District has a FREE Mosquitofish program. FREE Mosquitofish are available for pick up in the following communities; (1) Concow, (3) Paradise, (1) Magalia, (1) Hamilton City, (1) Gridley, (3) Chico. Additionally FREE Mosquitofish can be picked up by appointment at the District's Chico 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.ButteMosquito.com](http://www.ButteMosquito.com)

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

## SUSPECTED MOSQUITO-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.ButteMosquito.com](http://www.ButteMosquito.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.ButteMosquito.com](http://www.ButteMosquito.com)



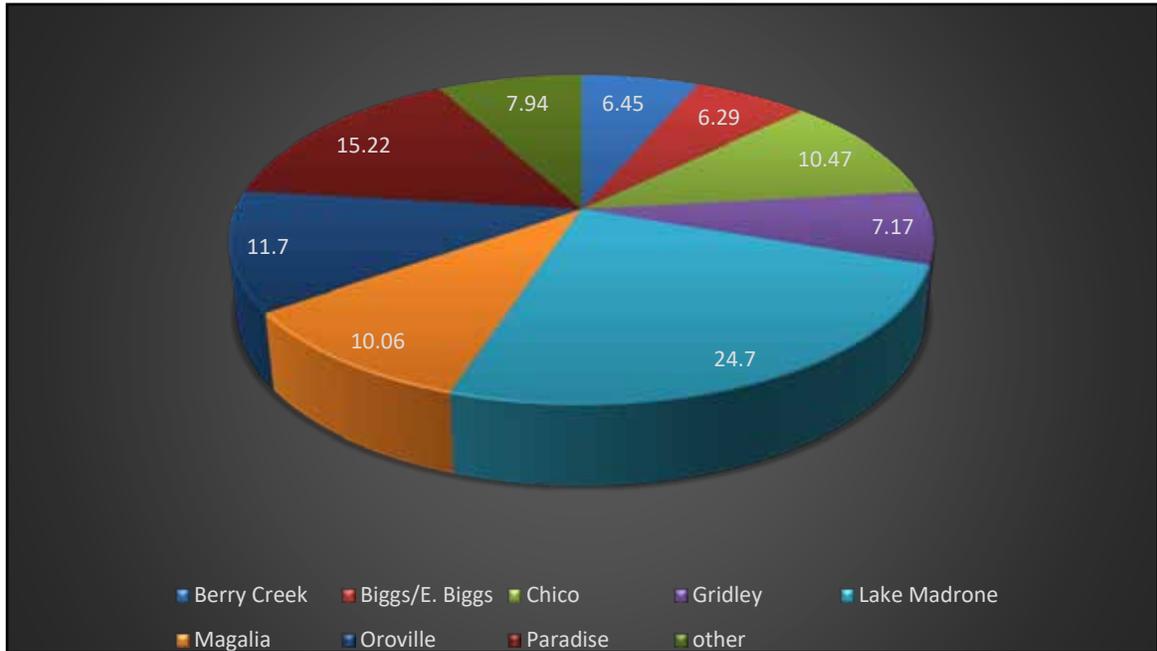
Nelson, Richvale, Thermalito Fogging Map

For a more detailed fogging map, please visit our website at [www.ButteMosquito.com](http://www.ButteMosquito.com)

Thank you,

*Example of Constant Contact email notification*

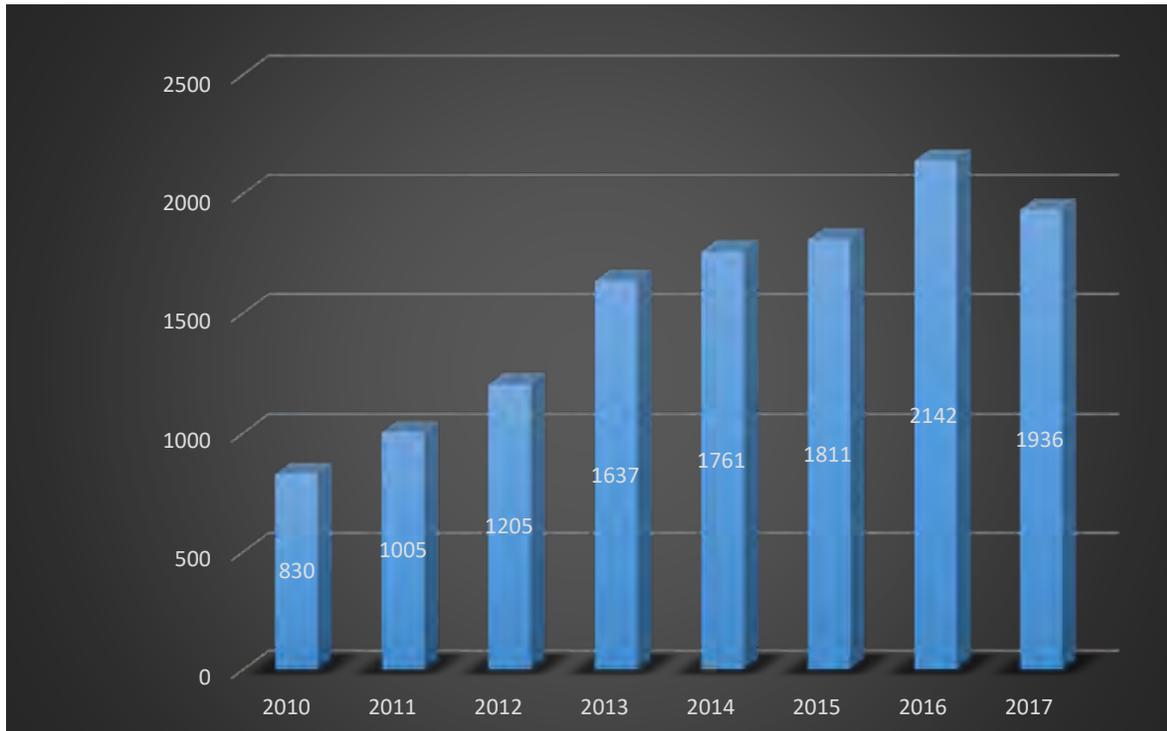
## 2017 SERVICE REQUEST PERCENTAGES



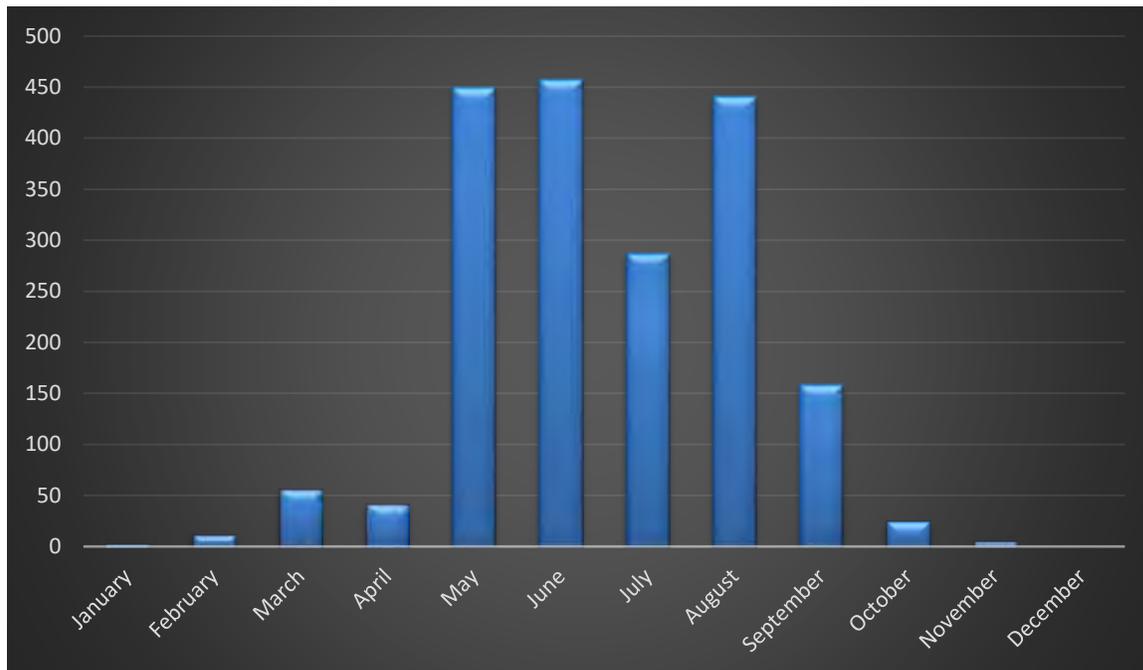
## 2017 SERVICE REQUESTS

Area	Number of Service Requests	Percentages
Bangor	2	0.1%
Berry Creek	125	6.5%
Biggs/E. Biggs	122	6.3%
Brush Creek	6	0.3%
Chico	203	10.5%
Clipper Mills	8	0.4%
Cohasset	5	0.3%
Dayton	3	0.2%
Forbestown	19	1.0%
Forrest Ranch	28	1.4%
Gridley/East	139	7.2%
Hamilton City	7	0.4%
Honcut	6	0.3%
Lake Madrone	479	24.7%
Magalia	195	10.1%
Nelson	3	0.2%
Oroville	227	11.7%
Palermo	19	1.0%
Paradise	295	15.2%
Richvale	12	0.6%
Stirling City	26	1.3%
Yankee Hill	7	0.4%
<b>Totals</b>	<b>1936</b>	<b>100%</b>

## 2017 ANNUAL SERVICE REQUESTS



## 2017 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 26 New Jersey light traps, 26 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 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.



*Entomologist Eric Gohre checking a CO2 trap*



*Checking a light trap*

# VIRUS SURVEILLANCE

## 2017 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 2017, 31 of the 42 sentinel chickens from all 7 District flocks tested positive for WNV.



*New Chicken Coop*



*Sentinel Chicken*

## 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 2017 the District sent 454 mosquito pool samples with 49 returning positive for WNV. 2017 also marked the return of St. Louis encephalitis virus (SLEV) to the District. The last time SLEV was found in the District was 1969. SLEV was detected this year in a South County mosquito pool.

## DEAD BIRD SURVEILLANCE AND TESTING

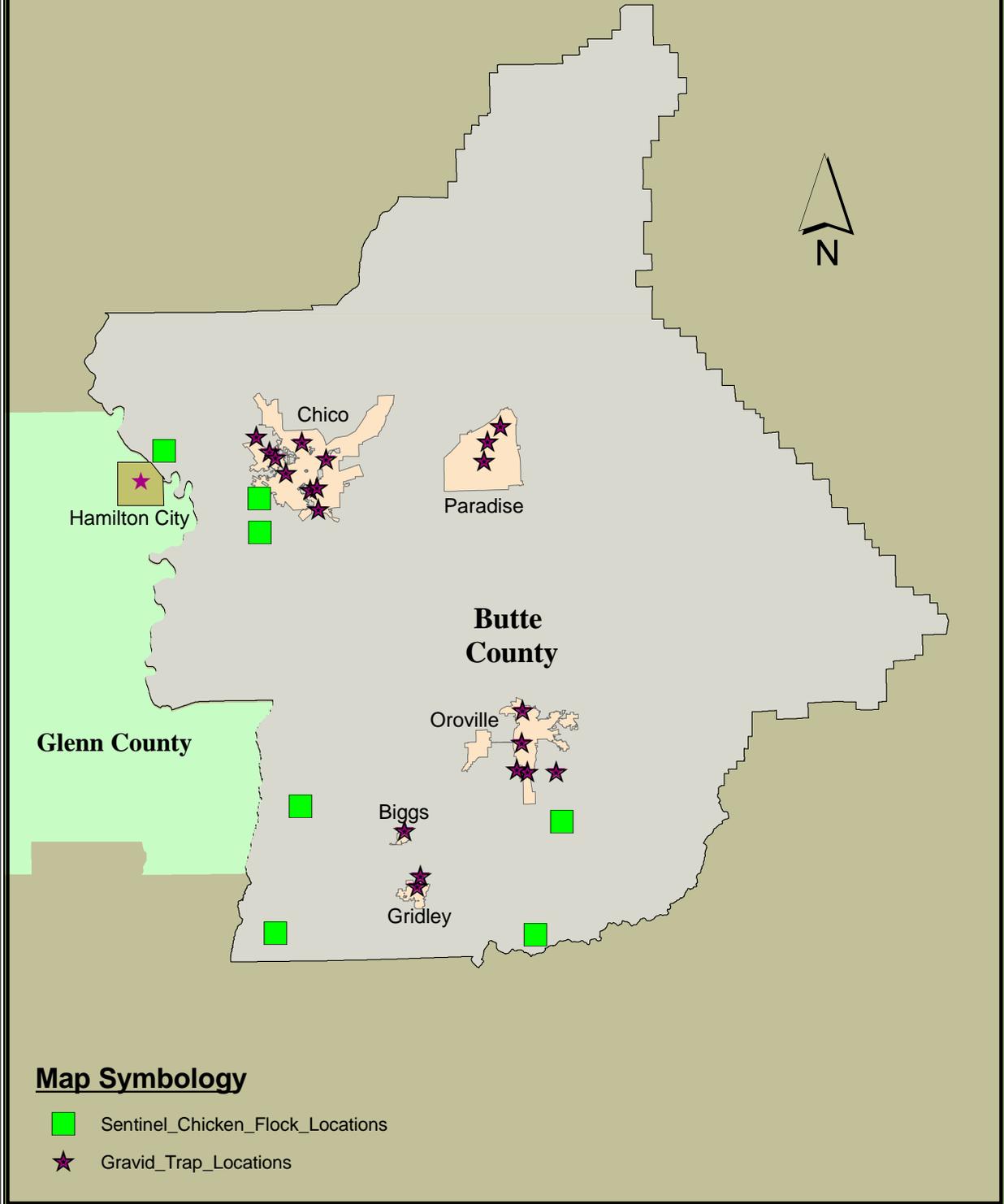
For more than ten years the District has participated in the California Department of Public Health's (CDPH) WNV dead bird testing program. County residents participate in the program by calling CDPH's dead bird hotline (1-877-WNV-BIRD) each time they find a dead bird in the District or by submitting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



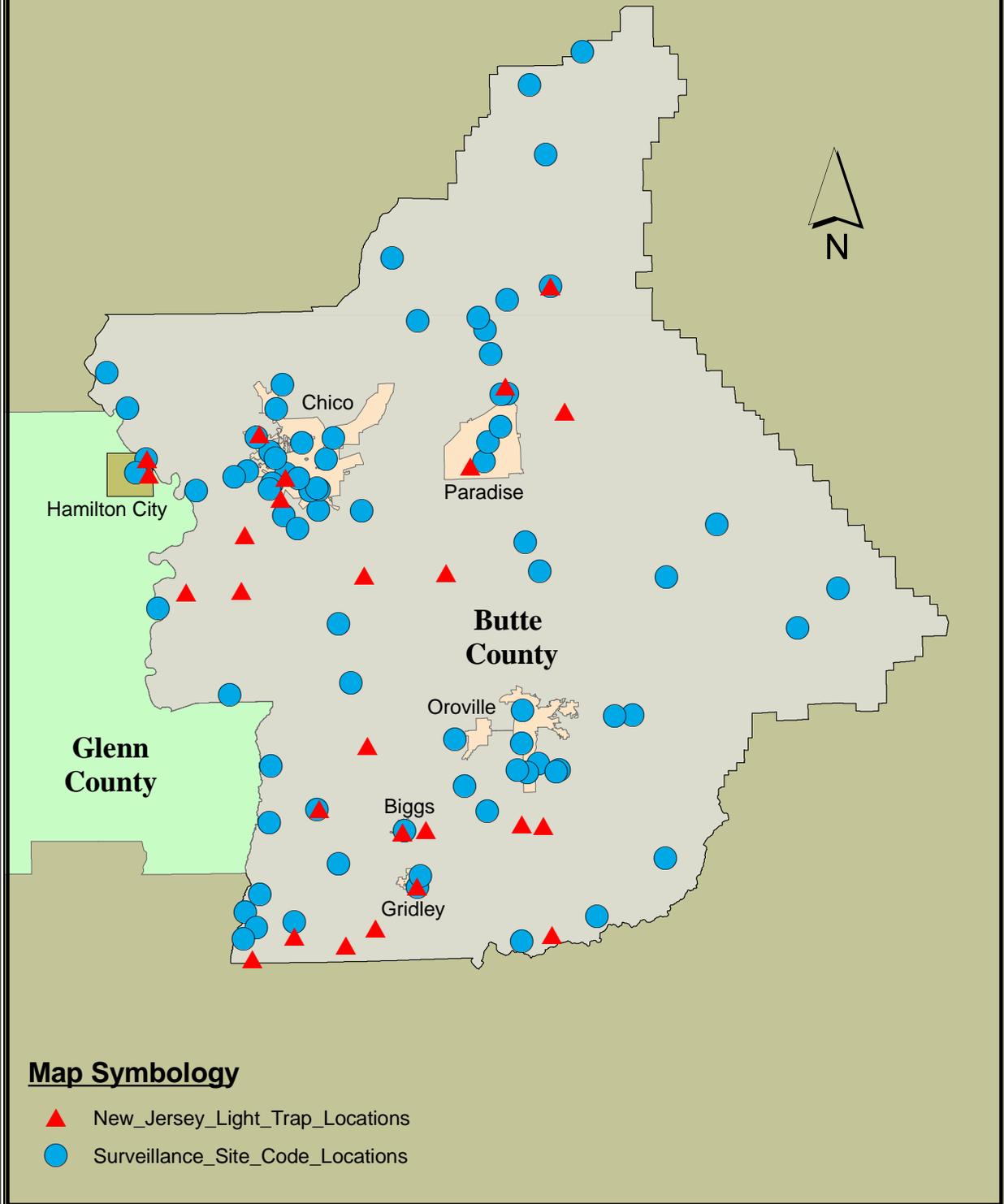
	Humans	Horses	Dead Birds	Dead Squirrels	Mosquito Pools	Sentinel Chickens
2004	7	18	118	0	1	50
2005	25	7	79	0	4	15
2006	34	0	40	1	1	49
2007	16	0	27	0	5	32
2008	6	0	38	0	5	31
2009	2	0	13	0	5	36
2010	1	1	6	1	7	7
2011	3	0	0	0	1	20
2012	10	2	53	2	27	43
2013	24	0	42	1	38	57
2014	25	0	22	0	43	37
2015	55	0	38	0	101	37
2016	21	0	22	0	48	38
2017	3	0	5	0	49	31
<b>Totals</b>	<b>232</b>	<b>28</b>	<b>503</b>	<b>5</b>	<b>335</b>	<b>1586</b>

*\*See detection maps on pages 24 & 25*

# BCMVC D Sentinel Chicken Flock Locations and Gravid Trap Locations



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



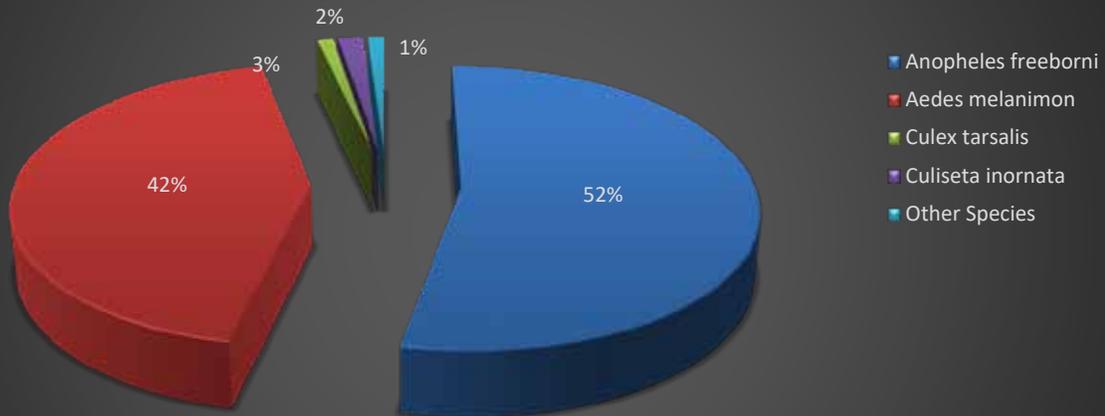
## 2017 NEW JERSEY LIGHT TRAP COLLECTIONS (FEMALES ONLY) MARCH 2017 – NOVEMBER 2017

Ranking	Mosquito Species	Number Collected	% (Rounded)
1	<u>Anopheles freeborni</u>	117,450	52%
2	<u>Aedes melanimon</u>	93,576	42%
3	<u>Culex tarsalis</u>	6,807	3%
4	<u>Culiseta inornata</u>	3,354	2%
5	<u>Culiseta incidens</u>	2,645	<1%
6	<u>Culex pipiens</u>	961	<1%
7	<u>Aedes vexans</u>	299	<1%
8	<u>Aedes washinoi</u>	208	<1%
9	<u>Culex Erythrothorax</u>	77	<1%
10	<u>Culex stigmatosoma</u>	25	<1%
11	<u>Aedes sierrensis</u>	21	<1%
12	<u>Anopheles franciscanus</u>	6	<1%
13	<u>Anopheles punctipennis</u>	3	<1%
14	<u>Aedes nigromaculis</u>	0	<1%

**Total Identified = 225432**

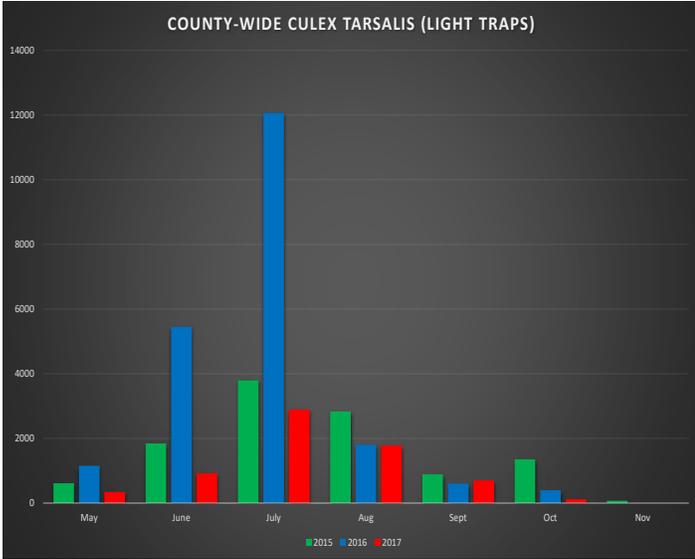
**100.00%**

### Light Trap Mosquito Collection Totals For 2017

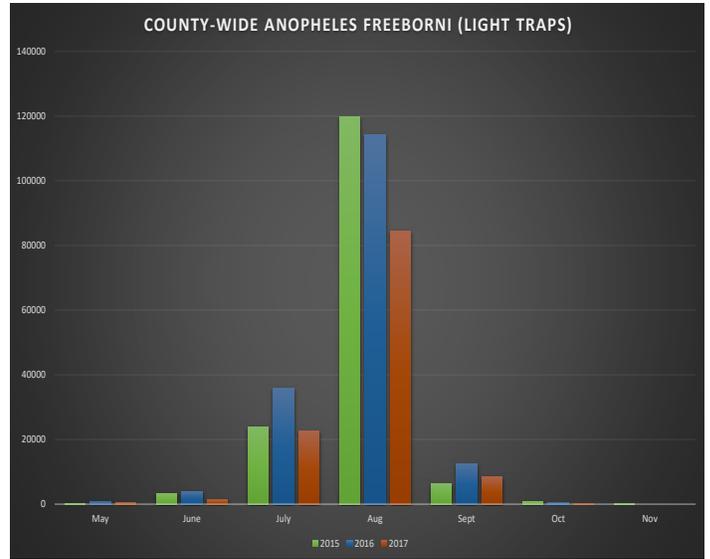


# NEW JERSEY LIGHT TRAP SEASONAL FLUCTUATION OF VECTOR-BORNE DISEASE VECTORS

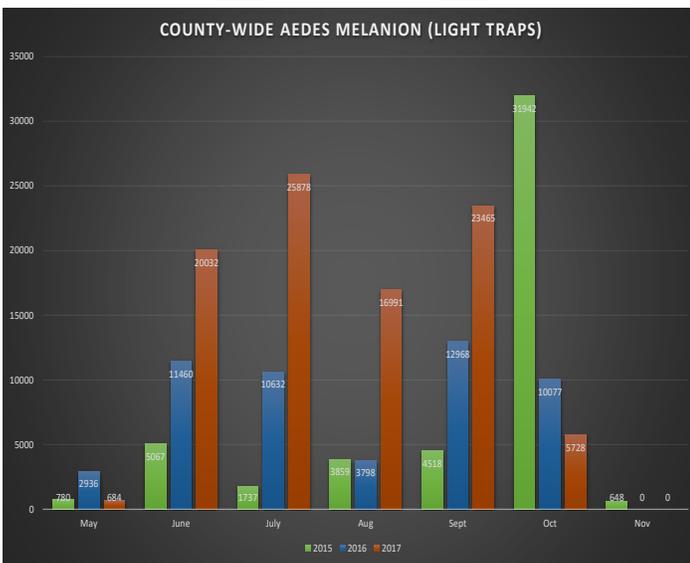
## CULEX TARSALIS



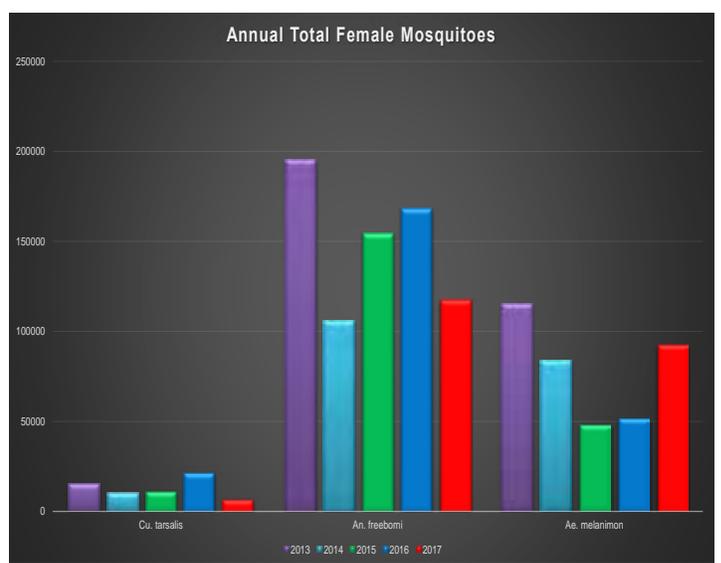
## ANOPHELES FREEBORNI



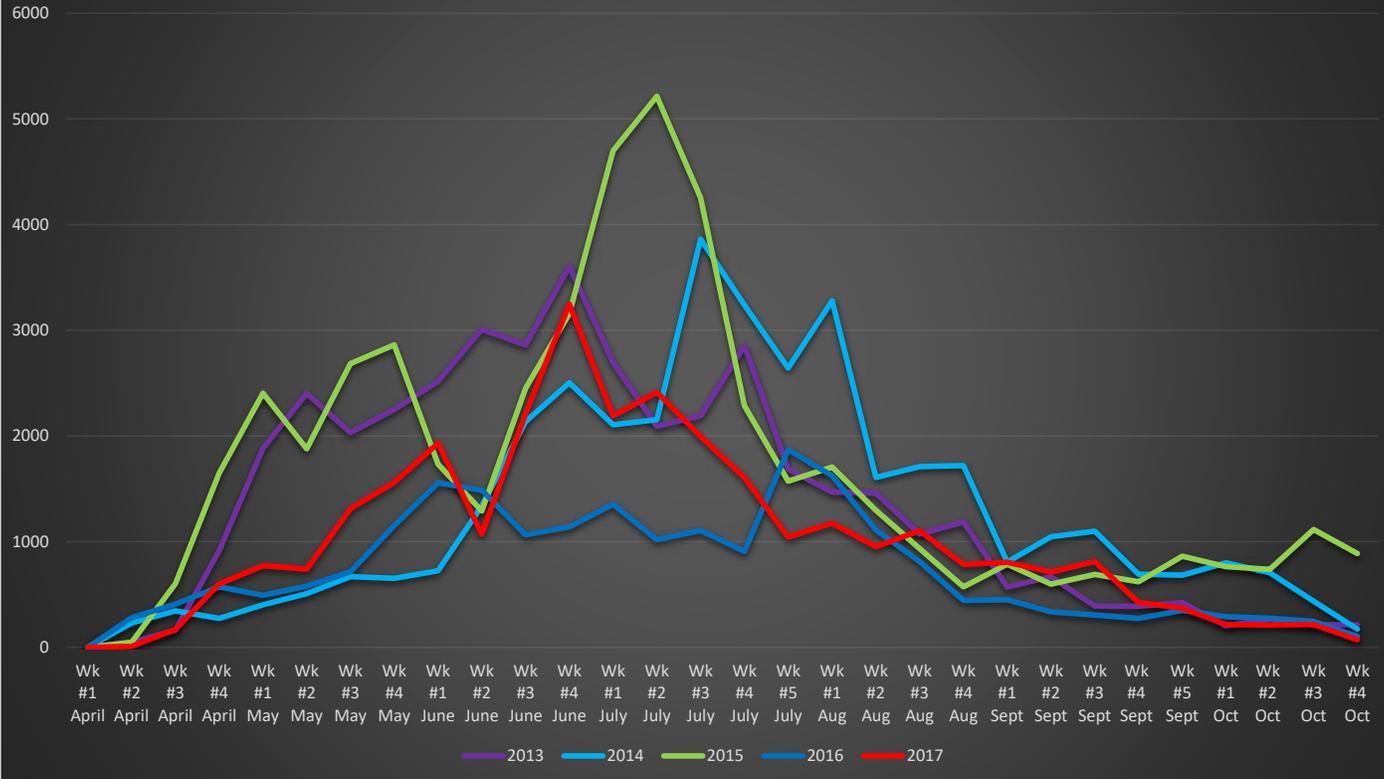
## AEDES MELANIMON



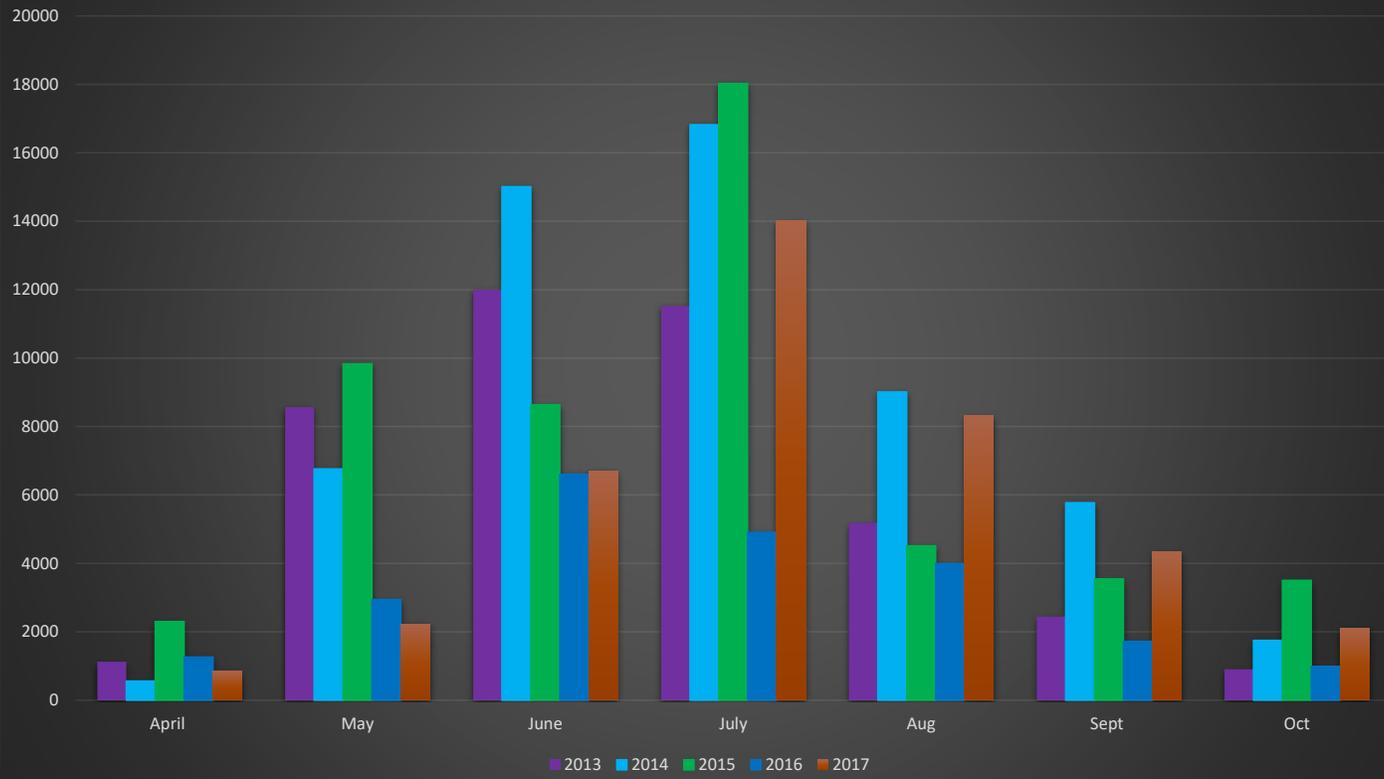
## ANNUAL TOTAL FEMALE MOSQUITOES



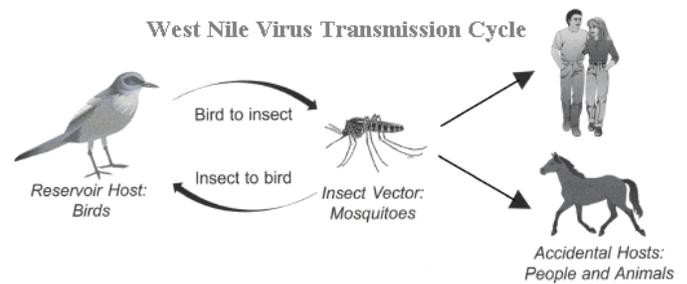
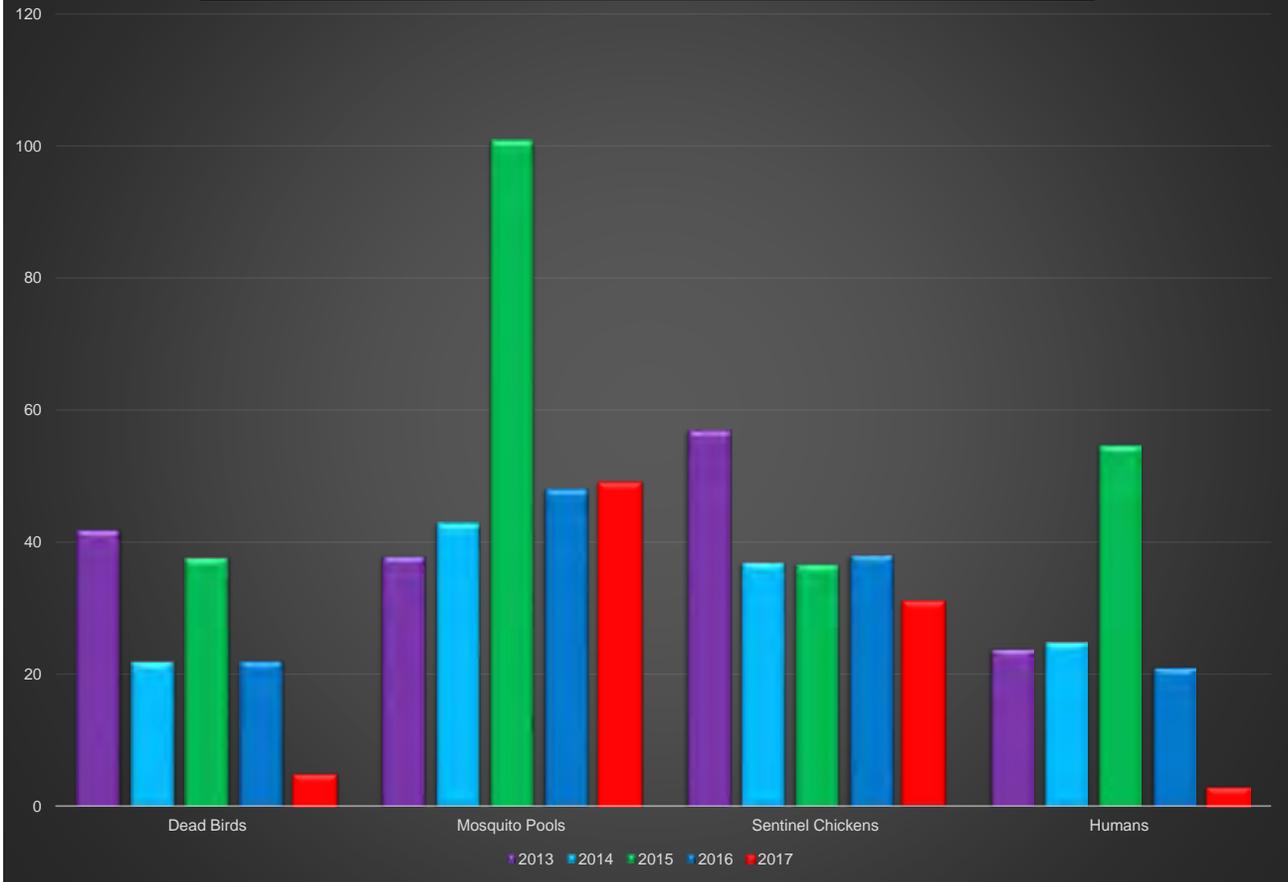
## GRAVID TRAP FLUCTUATION BYWEEK



## GRAVID TRAP FLUCTUATION BYMONTH



## 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.

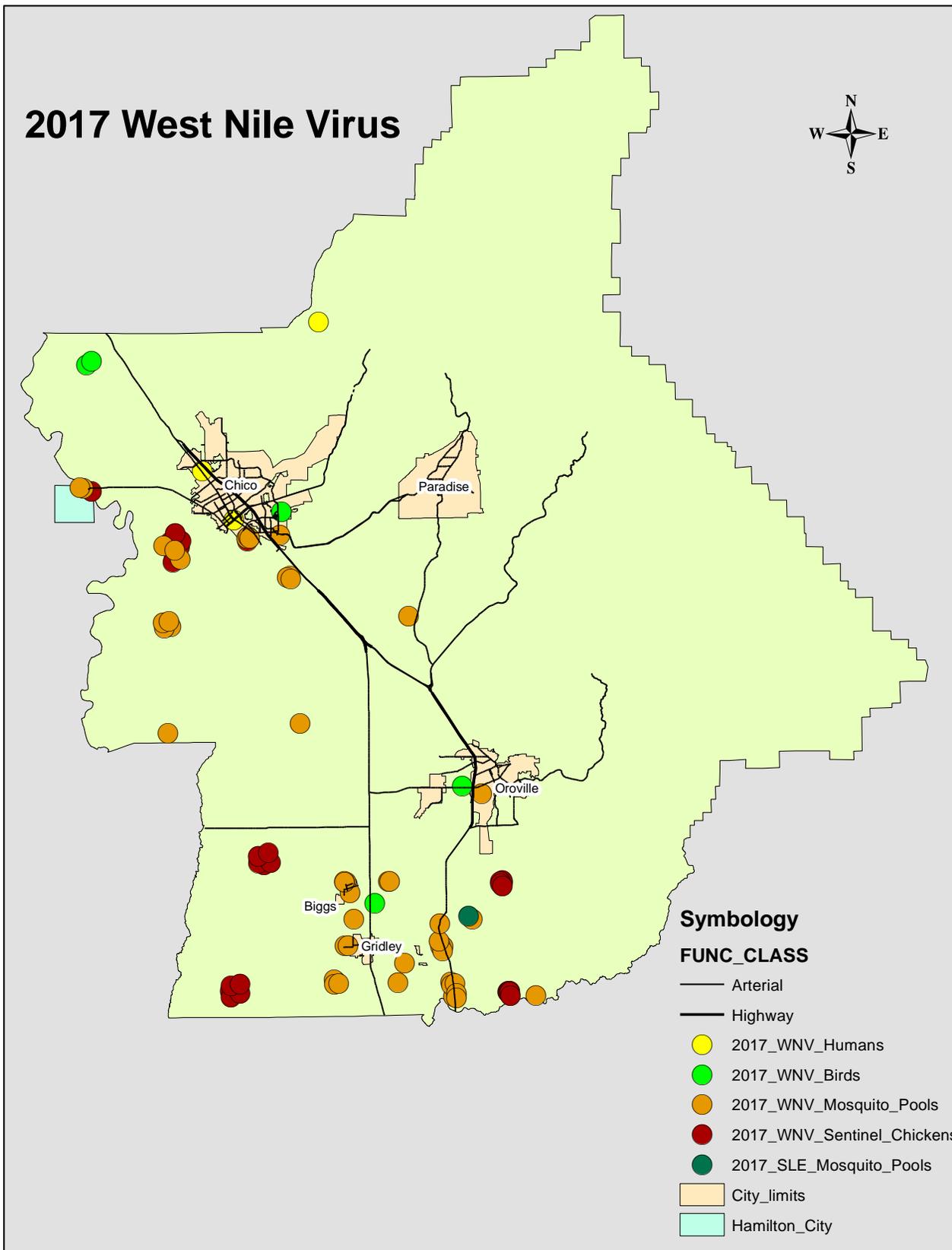
### MILDER SYMPTOMS IN SOME PEOPLE

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.

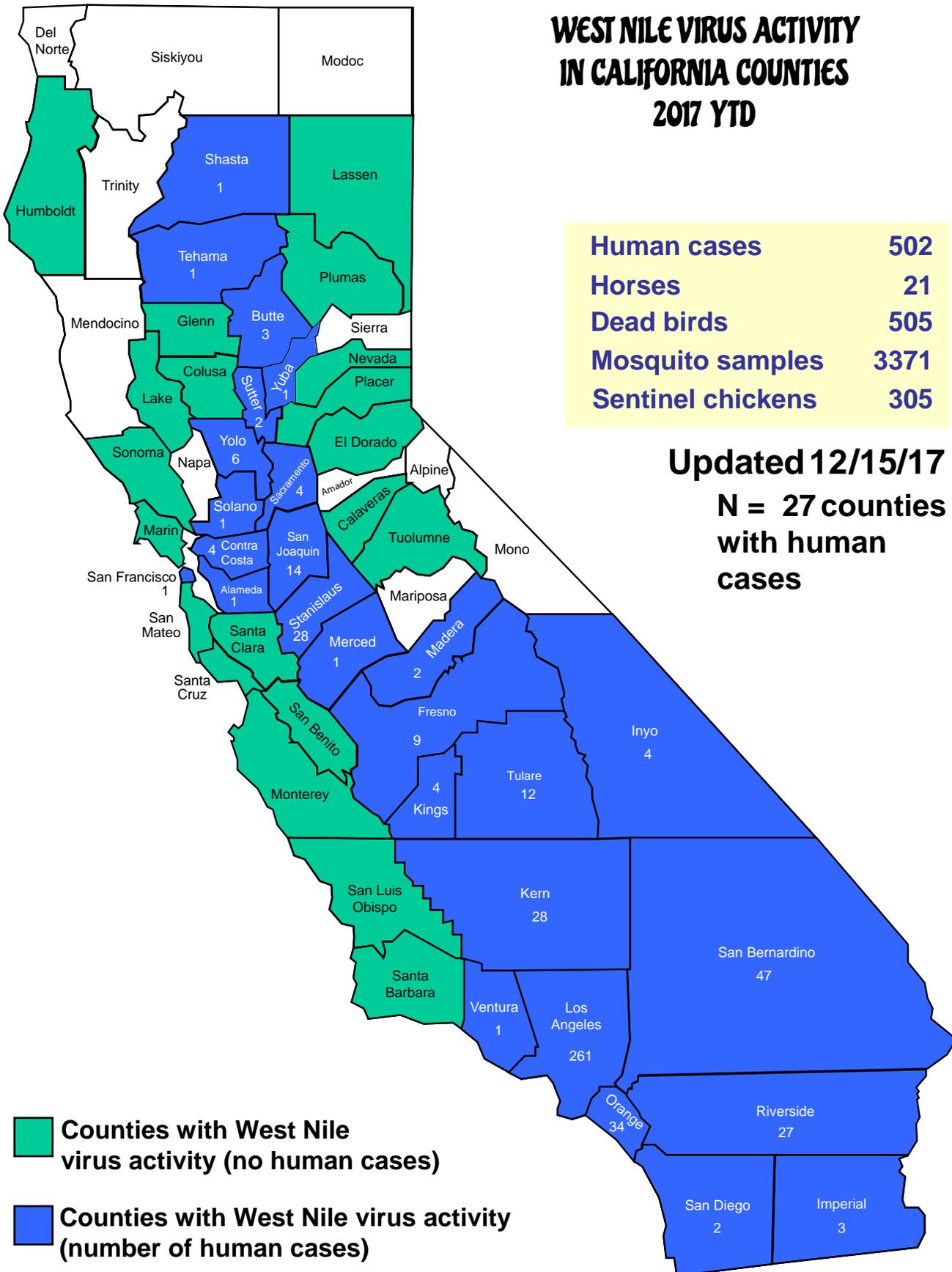
# 2017 BUTTE COUNTY WEST NILE VIRUS MAP



## WEST NILE VIRUS ACTIVITY IN CALIFORNIA COUNTIES 2017 YTD

Human cases	502
Horses	21
Dead birds	505
Mosquito samples	3371
Sentinel chickens	305

**Updated 12/15/17**  
**N = 27 counties**  
**with human**  
**cases**



**Green** Counties with West Nile virus activity (no human cases)

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

## 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 six 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.

Mosquitofish ( <i>Gambusia affinis</i> ) 2017			
Mosq. Breeding Source Treated	lbs. of Fish Planted	Acres Treated	Apps. Made
Stock Pond	1	2	16
Dredger Pit/ Ponds	5	50	9
Irrigation (Canal, Ditch, Pond,)	67	181	621
Managed Wetlands	109	534	136
Seepage/Leaks	4	11	49
Water Trough	3	7	95
Field Drain	53	123	418
Dist. Grounds/Fish Ponds	5	1	3
Residential Fish Pond	21	46	162
Swimming Pool/Spa	5	10	60
Residential Misc. Container	1	1	12
Public Domain/Flood Control	1	1	3
Freeway/Road Drain	1	1	11
Sewage Ponds	10	19	85
Retention Detention/Ponds	1	1	10
Industrial/Commercial	1	2	5
Natural Sources/Wildlife Area	2	3	17
Rice	14	28	11
Pond, Seepage, Slough, Creek	42	107	227
Sentinel Fish Tanks	40	4	242
Large Area/Many Source Type	1	2	3
<b>Annual Totals</b>	<b>386</b>	<b>1133</b>	<b>2195</b>



*Mosquitofish*

**Did You Know?** Male mosquitoes usually live about five to seven days, while females can live two weeks to a month, under ideal conditions. However, the females of some species hibernate during winter, so they can live several 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 six 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 sein size. This allows small fish to pass through and only large adults will be taken for District needs. BCMVCD has produced 197,744 fry for the year of 2017 that should be ready for the upcoming 2018 season.



*AquaCulture Center*



*Fish Biologist Chris Ocegueda*



*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*



*Fogger Calibration*



*Calibration Training*

**MATERIALS USED 2017**

<u>Materials</u>	<u>Amount of Materials</u>	<u>Acres Treated</u>	<u>Number of Applications</u>
<b>Larvicides</b>			
Abate 4E	0.08 gal.	7	7
Agnique	1.19 gal.	1.32	48
Altosid XR Briquettes	11.51 lbs.	0.23	12
Cocobear Oil	931.84 gal.	299.12	1,074
Fourstar CRG	1.88 lbs.	6.24	5
Natular DT	4.45 lbs.	0.13	48
Natular XRT	361.01 lbs.	239.48	377
VectoBac 12AS	2,404.17 gal.	32,465.07	477
VectoBac GR	86,975.16 lbs.	8,116.97	200
VectoMax WSP	37.71 lbs.	1.97	286
		<b>41,137.54</b>	<b>2,534</b>

<b>Adulticides</b>			
Duet	1,158.61 gal.	229,492.40	1,966
Perm X ULV	243.61 gal.	20,071.70	493
Trumpet	1,079.49 gal.	141,867.50	374
		<b>391,431.60</b>	<b>2,833</b>

<b>Barrier Sprays</b>			
Suspend	7.20 gal.	21.15	224
		<b>21.15</b>	<b>224</b>

<b>Yellow Jacket Control</b>			
Drione	0.50 lbs.	0.17	8
Knox Out 2FM	0.10 gal.	0.96	23
		<b>1.13</b>	<b>31</b>

<b>Herbicides</b>			
Round Up Pro Max	0.21 gal.	0.33	4
Ground Clear	0.75 gal.	0.01	1
		<b>0.33</b>	<b>5</b>

<b>Aircraft Spraying</b>	
Total Acres Treated	<b>178,666.95</b>
Total Acres Rice	<b>32,318.134</b>
Managed Wetlands	<b>8,079.79</b>
Total Acres ULV	<b>138,269.03</b>

<b>Inspections, Applications- Ground and Aerial</b>	
	<b>Hours</b>
Ground Larvicide Treatments	1,024.45
Fish Plants	374.12
Aerial Larvicide	167.50
Ground Adulticide	738.36
Residual Sprays	160.11
Aerial Adulticide	39.50
Inspections	3,204.54



## 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 2017, 301 tick pools were sent off for testing with approximately 10% coming back positive for Lyme disease. This information can lead to risk assessment warnings to residents in areas that have high tick activity.



*Tick “flagging”*



*Locating tick on the “flag”*



*Collecting the Tick*



*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*

## GOING GREEN

In an effort to reduce its “carbon footprint” the District continually looks for ways to “go Green”. One of the first steps in doing this was the purchase of an electric powered Zap pickup. This pickup is currently being used as a yard utility vehicle at the District headquarters in Oroville. This pickup is used for many applications where a gas powered pickup or a forklift were used in the past. Additionally, the pickup is used during mosquito season in urban areas for larval surveillance and control. The District has also purchased an electric powered forklift for its Chico substation. Another step in the District’s going green plan was the purchase of four bicycles. The four bikes are used mainly in Chico to treat storm drains. These bikes are especially handy in the downtown Chico area where parking and accessibility can be an issue. The Mosquito and Vector Control Specialists that ride the bikes can triple their days workload, reaching many more mosquito populations in much less time.



*Checking a storm drain via bicycle*



*Smart car*

## PROGRAMMATIC ENVIRONMENTAL IMPACT REPORT

In 2011, the District completed its Programmatic Environmental Impact Report (PEIR). The District held a public hearing to receive comments on the District’s Draft PEIR on February 9, 2011. After receipt of comments from the State of California Department of Public Health, and from trustees, the draft PEIR was revised and a Final PEIR was available for review between February 10, 2011 & August 5, 2011. Upon conclusion of the second review period and a second public hearing on August 10, 2011 the District’s Board of Trustees adopted the District’s Final PEIR report compiled by Westech Company with changes and mitigations. This report will be used as an educational component for the District. Residents can view the PEIR on the District’s website at [www.ButteMosquito.com](http://www.ButteMosquito.com).



*Airplane larvacide calibration*



*Fogger calibration*

## DISTRICT SHOP

The District's shop provides the maintenance and repairs for 30 vehicles, 3 forklifts, 1 backhoe, 3 ATV's, 2 amphibious Tritons, 1 loader truck 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.



## 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. 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.



## 2017 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
Suzanne Hanson	Board Trustee	County at Large	December 31, 2018
Jack Bequette	Board Trustee	County at Large	December 31, 2020
Thomas Vickery	Board Trustee	County at Large	December 31, 2019
Bo Sheppard	Board Assistant Secretary	City of Biggs	December 31, 2018
Larry Kirk	Board Vice President	City of Chico	December 31, 2021
Bruce Johnson	Board Trustee	City of Gridley	December 31, 2019
Melissa Schuster	Board Trustee	Town of Paradise	December 31, 2018
Tom Anderson	Board Secretary	Hamilton City	December 31, 2021
Gordon Andoe	Board Trustee	City of Oroville	December 31, 2021

## 2017 BUTTE COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT EMPLOYEES

Name	Title
Matt Ball	Manager
Doug Weseman	Assistant Manager
Del Boyd	Pilot II
Darlene Starkey	Office Manager
Eric Gohre	Entomologist II
Bill Kunde	Regional Supervisor
Jim Richards	Regional Supervisor
AAaron Lumsden	Regional Supervisor
Chris Ocegueda	Vector Ecologist/Fish Biologist
Beth Vice	MVCS
Phillip Henry	MVCS
Shane Robertson	MVCS
Don Lasik	MVCS
Aaron Goff	MVCS
Glen Williams	MVCS
Eric Dillard	MVCS
Shane Cassity	MVCS
Kellen Larson	Shop Assistant Seasonal
Kenneth Armstrong	Shop Assistant Seasonal
Cody Scheer	Lab Assistant Seasonal
Anthony Visconte	MVC Assistant Seasonal
Frank Lopez	MVC Assistant Seasonal
Brian Jackson	MVC Assistant Seasonal
Dacoda Quinn	MVC Assistant Seasonal
Charlie Favilla	MVC Assistant Seasonal
Dan Mayer	MVC Assistant Seasonal
Cassie Doshier-McClarren	MVC Assistant Seasonal
Matthew Lasik	MVC Assistant Seasonal
Clayton Lynch	MVC Assistant Seasonal



Regional Supervisor Jim Richards retired on December 30, 2017. Jim served the District for 36 years. Resolution #17-07, a Resolution of Appreciation for Meritorious Service to the Citizens of Butte County and Hamilton City for James J. Richards was adopted at the November, 2017, Board of Trustees meeting.  
Thank You Jim! You will be missed.

## 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 demand 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 5<sup>th</sup> 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

Over the past several years, two invasive (non-native) mosquito species have been found in 183 California cities and census designated places (CDP) and there is potential for them to spread into other areas of California. For comparison, there were 79 cities/CDPs in May 2016, so 104 cities/CDPs were added in approximately 18 months. They are named *Aedes aegypti* (the yellow fever mosquito) and *Aedes albopictus* (the Asian tiger mosquito). They are relatively easy to tell apart from native mosquito species because of their color and their biting habits. Unlike most native mosquito species, *Aedes aegypti* and *Aedes albopictus* bite during the day and are extremely aggressive. Both species are small black mosquitoes with white stripes on their back and on their legs. Currently, neither of the species have been located within the District's Service Area. The District has purchased, constructed, and deployed specie specific traps to provide surveillance of these two species. These mosquitoes are responsible for transmitting chikungunya virus, dengue fever, yellow fever, Zika virus, and other viruses. Below is an update on these viruses:

### Zika

From 2016-2017 CDPH has reported 619 cases of travel-related Zika. All 619 individuals contracted Zika while traveling outside of the United States or through contact with a Zika-infected returned traveler. These infections are in residents of 36 California counties, including 10 with invasive *Aedes* mosquito detections. Of the 619 infected persons, 213 are residents in counties with known invasive *Aedes*. In 2016-2017 there were 786 cases of chikungunya reported in Mexico. Also, during this time frame in Mexico there were 26,353 cases of Dengue reported. The median age of the infected persons is 35 years, and 63% of the infections occurred in females. Of the 619 infected persons, 309 were symptomatic, with at least one symptom of fever, rash, conjunctivitis, or joint pain. CDPH updates our case numbers every Friday and posts them on the CDPH Zika website.

### Chikungunya

To date for 2017, 76 cases of chikungunya have been reported in California. These cases are from 16 counties, 8 with invasive *Aedes*.

### Dengue

To date for 2017, 272 cases of dengue have been reported in California. These cases are from 31 counties, 10 with invasive *Aedes*.



*Aedes albopictus*



*Aedes aegypti*

Butte County Mosquito and Vector Control District				
For The Year Ended June 30, 2017				
				Variance
				Favorable
		Budgeted	Actual	(Unfavorable)
Revenue		\$ 3,596,700	\$ 3,953,224	\$ 356,524
<b>SALARIES &amp; BENEFITS</b>				
Salaries		\$ 1,361,000	\$ 1,296,627	\$ 64,373
Workers Compensation		\$ 60,000	\$ 56,559	\$ 3,441
FICA & U I		\$ 117,000	\$ 112,246	\$ 4,754
Health Insurance		\$ 307,000	\$ 289,315	\$ 17,685
Health Ins Reimbursement		\$ 4,800	\$ 1,327	\$ 3,473
PERS		\$ 293,000	\$ 291,290	\$ 1,710
	<b>TOTAL</b>	\$ 2,142,800	\$ 2,047,364	\$ 95,436
<b>SERVICES &amp; SUPPLIES</b>				
Gas & Oil		\$ 95,000	\$ 71,569	\$ 23,431
Repairs & Parts-Airplane		\$ 20,000	\$ 16,873	\$ 3,127
Repairs & Parts		\$ 30,000	\$ 31,328	\$ (1,328)
Office Supplies		\$ 15,000	\$ 11,569	\$ 3,431
Education & Publicity		\$ 40,000	\$ 41,625	\$ (1,625)
Insecticides		\$ 613,432	\$ 674,583	\$ (61,151)
Expendable Equipment		\$ 50,000	\$ 21,986	\$ 28,014
Communications		\$ 30,000	\$ 34,795	\$ (4,795)
Travel		\$ 15,000	\$ 4,505	\$ 10,495
Utilities		\$ 30,000	\$ 31,488	\$ (1,488)
Rent		\$ 5,000	\$ 4,242	\$ 758
Special Services		\$ 100,000	\$ 109,167	\$ (9,167)
Trustee Allowance		\$ 13,200	\$ 12,000	\$ 1,200
General Insurance		\$ 80,000	\$ 74,778	\$ 5,222
Employee Trng & Dues		\$ 15,000	\$ 7,431	\$ 7,569
District Fees and Permits		\$ 30,000	\$ 14,966	\$ 15,034
Miscellaneous		\$ 14,000	\$ 9,139	\$ 4,861
Research Supplies		\$ 57,500	\$ 50,512	\$ 6,988
Alternate Technology		\$ 1,000	\$ -	\$ 1,000
Special Discretionary		\$ 12,500	\$ 12,412	\$ 88
Gambusia		\$ 10,000	\$ 18,631	\$ (8,631)
	<b>TOTAL</b>	\$ 1,276,632	\$ 1,253,599	\$ 23,033
<b>CAPITAL OUTLAY</b>				
Bldg & Improvements		\$ 40,000	\$ 43,078	\$ (3,078)
Vehicles		\$ 140,000	\$ 115,432	\$ 24,568
Spray Equipment		\$ 23,000	\$ 21,702	\$ 1,298
Aircraft		\$ 71,000	\$ 73,997	\$ (2,997)
Office Equipment		\$ 1,000	\$ 4,325	\$ (3,325)
Laboratory Equipment		\$ 1,000	\$ -	\$ 1,000
Shop Equipment		\$ 1,000	\$ -	\$ 1,000
Education & Publicity		\$ 1,000	\$ -	\$ 1,000
Miscellaneous		\$ 1,000	\$ -	\$ 1,000
Communications		\$ 221,000	\$ 141,727	\$ 79,273
	<b>TOTAL</b>	\$ 500,000	\$ 400,261	\$ 99,739
Appropriation for contingencies		\$ 897,983		\$ 897,983
<b>Grand Total</b>		\$ 4,817,415	\$ 3,701,224	\$ 1,116,191
Excess(Deficiency) of				
Revenue over Expenditures		\$ (1,220,715)	\$ 252,000	\$ 1,472,715
Fund Balance 2016			3,388,721	
Fund Balance 2017			3,586,522	

**Butte County Mosquito and Vector Control District**  
**Balance Sheet Audit Information**  
**For The Year Ended June 30, 2017**

	General Fund	Reclassification Eliminations	Statement of Net Position
<b>Current Assets</b>			
Cash and cash equivalents	3,302,351		3,302,351
Accrued interest receivable	8,453		8,453
Accounts receivable - charges for services	12,016		12,016
Material & supplies Inventories	330,428		330,428
Prepaid expenses	24,543		24,543
<b>Total Current Assets</b>	<b>3,677,791</b>		<b>3,677,791</b>
<b>Non-current Assets</b>			
Capital assets not being depreciated		615,403	615,403
Capital assets, being depreciated		2,416,378	2,416,378
<b>Total Non Current Assets</b>	-	3,031,781	3,031,781
<b>Total Assets</b>	<b>3,677,791</b>	<b>3,031,781</b>	<b>6,709,572</b>
<b>Deferred outflows of resources</b>			
Deferred pension outflows		705,129	705,129
<b>Total deferred outflows of resources</b>	-	705,129	705,129
<b>Current Liabilities</b>			
Accounts payable & accrued expenses	21,204		21,204
Accrued salaries and benefits	70,065		70,065
Long term-liabilities due within one year			
Compensated absences		59,816	59,816
<b>Total Current Liabilities</b>	<b>91,269</b>	<b>59,816</b>	<b>151,085</b>
<b>Non-current liabilities</b>			
Long term liabilities-due in more than one year			
Compensated absences		538,340	538,340
Net pension liability		2,977,019	2,977,019
<b>Total Non-Current Liabilities</b>	-	3,515,359	3,515,359
<b>Total Liabilities</b>	<b>91,269</b>	<b>3,575,175</b>	<b>3,666,444</b>
<b>Deferred inflows of resources</b>			
Deferred pension inflows		72,295	72,295
<b>Total Deferred Inflows of Resources</b>	-	72,295	72,295
<b>Fund Balance</b>			
Nonspendable	354,971	(354,971)	-
Assigned	598,156	(598,156)	-
Unassigned	2,633,395	(2,633,395)	-
<b>Total Fund Balance</b>	<b>3,586,522</b>	<b>(3,586,522)</b>	<b>-</b>
<b>Total Liabilities and Funds Balance</b>	<b>3,677,791</b>		
<b>Net position:</b>			
Net investment in capital assets		3,031,781	3,031,781
Unrestricted		644,181	644,181

2  
0  
1  
7  
  
F  
I  
N  
A  
N  
C  
I  
A  
L  
S

