

BUTTE COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT

WWW.BCMVCD.COM



2011 ANNUAL REPORT

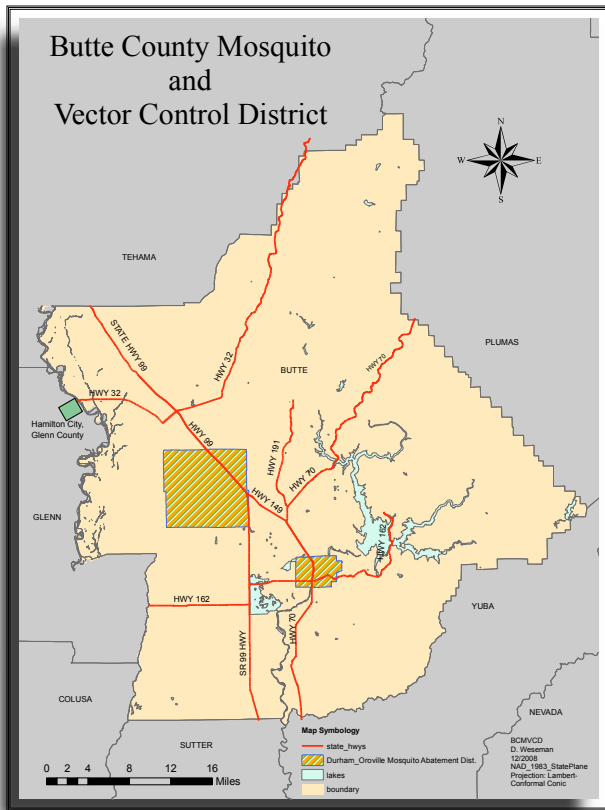
Table of Contents

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
Sevice Requests.....	14-15
Vector and Vector-Borne Disease Surveillance.....	16-23
Biological Control.....	24
Chemical Control.....	25
Materials Used and Acres Treated.....	26
Going Green and Programmatic Environmental Impact Report.....	27
District Shop, District Hangar, District Administration.....	28
Board of Trustees, Employees.....	29
2011 Financials.....	30-31

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.BCMVCD.com**

BCMVCD Jurisdiction



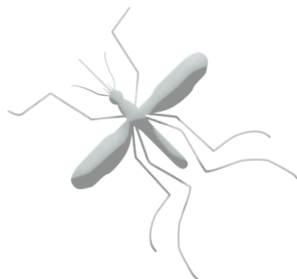
History

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.



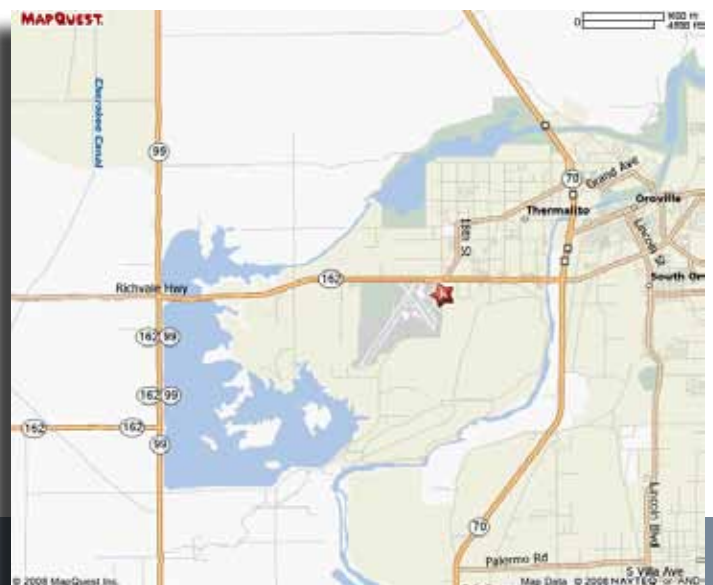
Mission

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



Forward

It is with great pleasure that I submit the 2011 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.

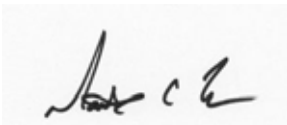
The prevention of vector-borne disease outbreaks remains the District's primary goal and it's most important responsibility to the public. West Nile virus (WNV) is now considered to be endemic in the state of California and remains our largest public health concern. The state observed an increase from 103 WNV human infections to 154 in 2011. Butte County's human infection rate has also increased from 1 in 2010 to 3 in 2011. Butte County has had confirmation of 93 WNV human infections with 7 fatalities since the virus's arrival in 2004. Since 2003 when WNV first appeared in California, 2988 human infections with 101 fatalities have been confirmed.

With the continued economic recession and the decline of the housing market, the District is continuing to see an increase in the number of vacant homes with abandoned swimming pools, spas, and other water features that breed mosquitoes. The District continues to aggressively control 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 breed 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.

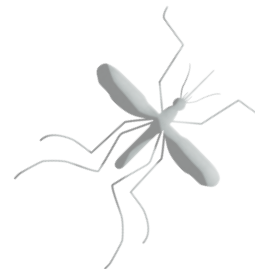
"The Mission of the Butte County Mosquito and Vector Control District is primarily to suppress mosquito-transmitted disease and to also reduce the annoyance levels of mosquitoes and diseases associated with ticks, fleas, and other vectors through environmentally compatible control practices and public 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.BCMVCD.com or call us at 530-533-6038 or 530-342-7350.

Respectfully,



Matthew C. Ball
District Manager



Board of Trustees

Left to right: Vice President Lynn Vanhart, President Al Beck, Dan Hutfless, Jack Bequette, Jerry Ann Fichter, Assistant Secretary Charles Bird, Secretary Tom Anderson, Allan Seefeldt, Bo Shepard.

Not Pictured: Terry Mallan



Staff

Back row, Left to right: Del Boyd, Pilot; Pete Gibson, Mechanic; Phillip Henry, MVCS; Shane Robertson, MVCS; Jim Richards, MVCS; Aaron Goff, MVCS; Bill Kunde, Regional Supervisor; Aaron Lumsden, MVCS; Glen Williams, MVCS; front row, left to right: Don Lasik, MVCS; Beth Vice, MVCS; Ryan Rothenwander, MVCS; (MVCS: Mosquito and Vector Control Specialist)

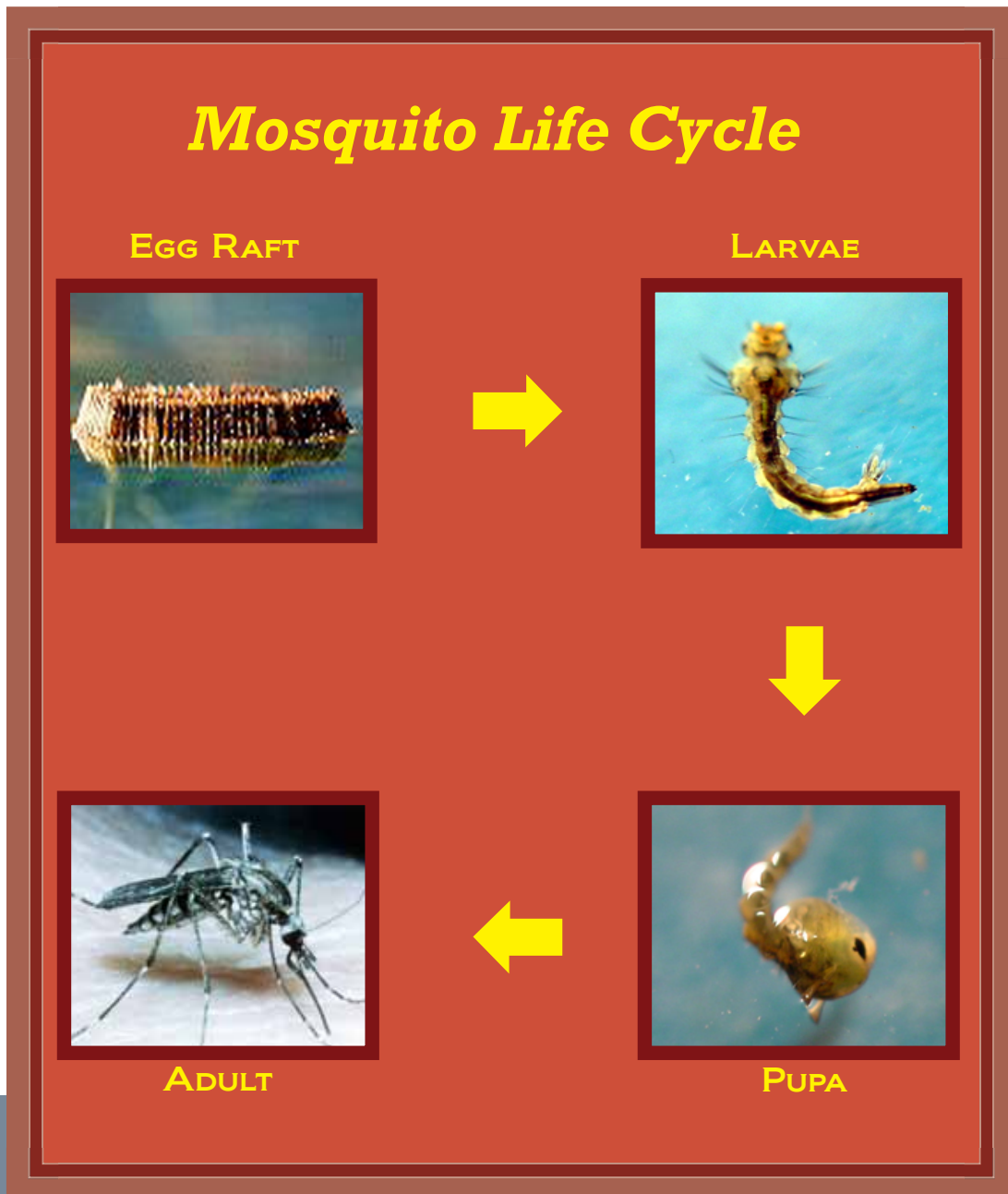
Administrative Staff

Left to right: Doug Weseman, Public Information Officer; Jodi Sneeringer, Receptionist; Eric Gohre, Entomologist; Matt Ball, District Manager; Dan Moench, Assistant Manager; Darlene Starkey, Office Manager



Mosquito Biology and Development

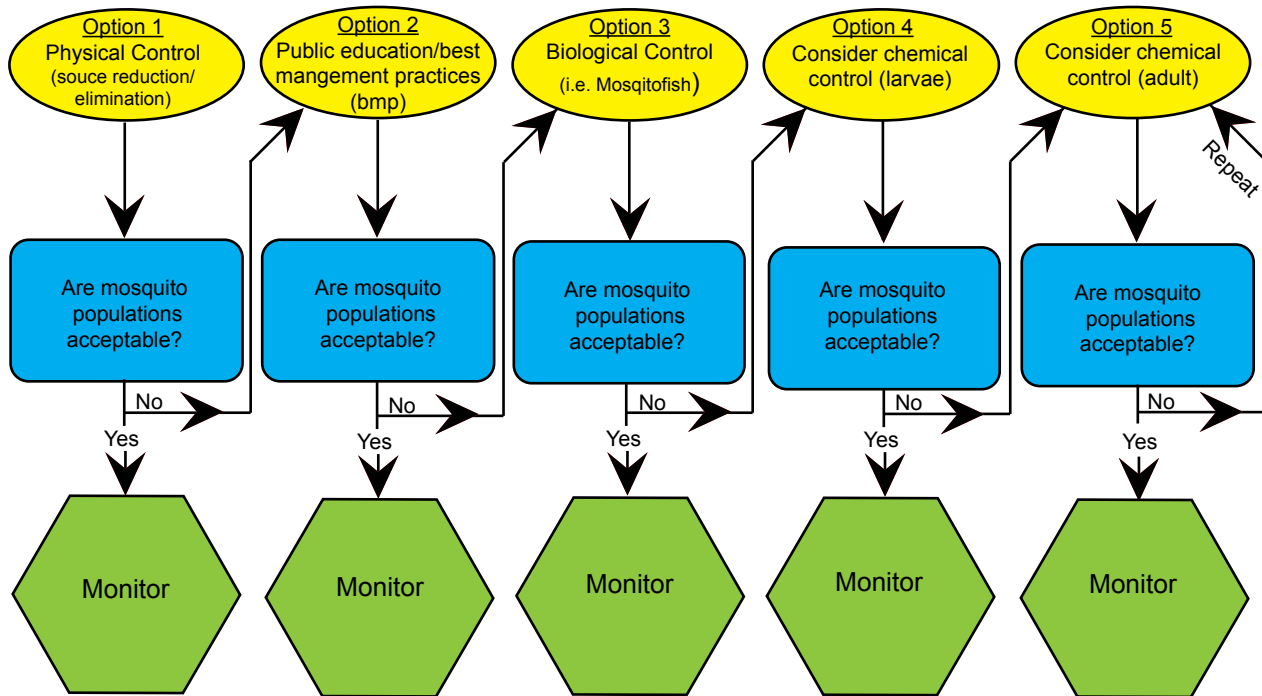
There are approximately 3,500 species of mosquitoes distributed worldwide. In California there are 53 species of mosquitoes and 25 of these are commonly found in Butte County. Mosquitoes, like other animals, must have water, food and some protection from the elements to survive. Mosquitoes undergo complete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



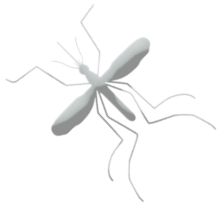
Neglected swimming pool surveillance



Fogger education

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.



Mosquito and Vector Control Specialist dumping standing water out of a cemetery flower vase

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 to 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 the 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.BCMVCD.com.

2011 Public Education

In 2011 the Butte County Mosquito and Vector Control District's (District) Public Education Department continued to improve on its successful public outreach campaigns.

The District again teamed up with Stott Advertising for a county wide billboard advertising campaign. The billboards utilized the District's 2011 public outreach theme "Got Mosquitoes?". The billboards were placed in Chico, Gridley, Oroville, and Paradise and rotated throughout these cities during mosquito season.

The District also partnered with Enloe Hospital again on a newspaper advertising campaign and a radio public service announcement program aimed at West Nile virus prevention and mosquito-breeding reduction. The newspaper advertisements were placed in the Chico Enterprise Record and the public service announcements were run on radio station KPAY. The joint venture with Enloe allows both partners to get twice as much advertising for their dollar and it promotes a unified public health message.

The District also continued its dog and cat heartworm prevention campaign at veterinarian offices throughout the county. These offices were randomly chosen to receive heartworm prevention brochures, brochure holders and a wooden mosquito model.

The District again observed the American Mosquito Control Associations (AMCA) "Mosquito Control Awareness Week" by holding an open house at the District Headquarters.

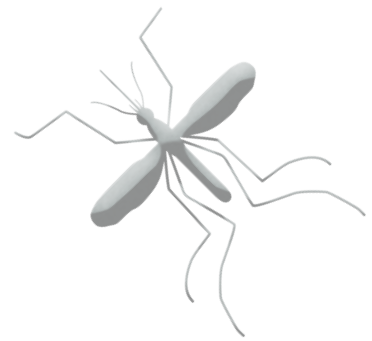
The District also continued its public information displays at the Butte County Fair in Gridley, Silver Dollar Fair in Chico, Gold Nugget Days in Paradise, Feather Fiesta Days in Oroville, Berry Creek Berry Festival, Salmon Festival in Oroville, Gridleys "It's All About Us" Day, Red Suspenders Day in Gridley, Senior Fair in Chico, Childrens Fair in Chico, and the Community Health and Safety Fair in Oroville. The District also continued its school education programs and service group presentations throughout the County, as well as its "Report Standing Water" campaign.



Public education brochures

2011 Public Education Highlights

- Newspaper and Radio West Nile Virus Awareness/Protection Campaign
- Billboard Advertising Throughout the County
- Butte County Fair, Gridley (Booth)
- Silver Dollar Fair, Chico (Booth)
- Gold Nugget Days, Paradise (Booth)
- Feather Fiesta Days, Oroville (Booth)
- Berry Creek Berry Festival (Booth)
- Salmon Festival, Oroville (Booth)
- Senior Fair, Chico Area Recreation and Parks (Booth)
- Red Suspenders Day, Gridley (Booth)
- Sons In Retirement, Paradise (Presentation)
- K-6 Classroom Presentations Throughout the County
- Butte County Agencies/Businesses “Report Standing Water” Campaign
- Home Depot Contractors Day/ Safety Fair (Booth)
- “It’s All About Us”, Gridley (Booth)
- Rotary Club, Paradise (Presentation)
- Community Health and Safety Fair, Oroville (Booth)
- Childrens Fair, Chico (Booth)
- City of Chico Management Staff, Chico (Presentation)
- AMCA National Mosquito Control Awareness Week, Open House at District Office





New display at the Butte County Fair



Guided tour of the Chico substation



Billboard advertising



Butte County standing water outreach campaign



City of Chico staff presentation



Salmon Festival in Oroville

GIS/GPS System

Over the past three 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 current system which utilizes 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 9.2. 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.BCMVCD.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 who 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. 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.

Butte County Mosquito and Vector Control District

Fogging Notification

Mosquito Fogging will take place on 07/15/2010 in Gridley and East Gridley. Please see attached maps for detailed information. If you are unable to open or view the map because of browser, memory space, or software problems please see the same maps at our website at <http://www.bcmvcd.com/advisory.php>. The fogging will take place from approximately 8:30 PM to 11:30 PM. Fogging operations may be canceled due to unfavorable weather conditions.

The product used in these areas will be Anvil 10 + 10 ULV

Links To:

Anvil 10 + 10 ULV
[Label](#)

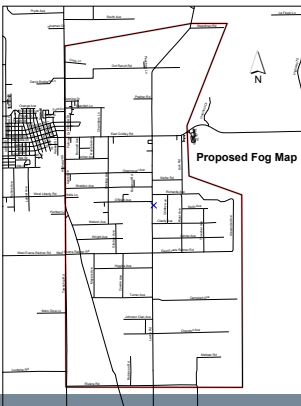
[MSDS](#)

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

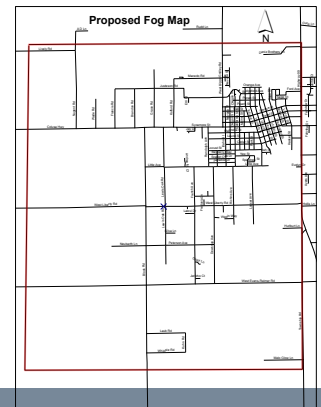
[Clarke Mosquito Control](#)
[Adapco](#)
[McLaughlin Gormley King Company](#)
[Crop Data Management Systems](#)

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

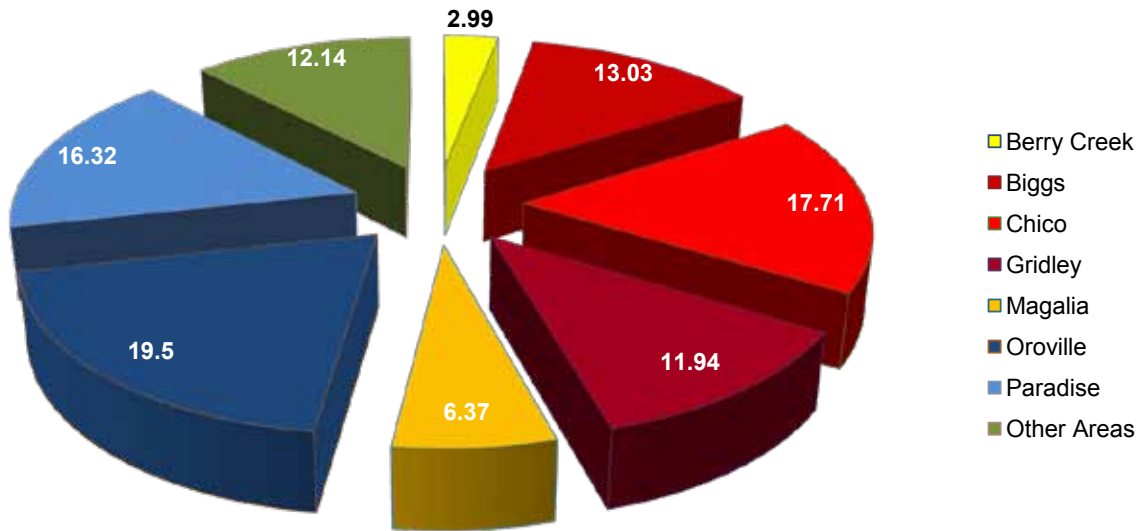
Example of Constant Contact email notification



Sample Fogging Maps



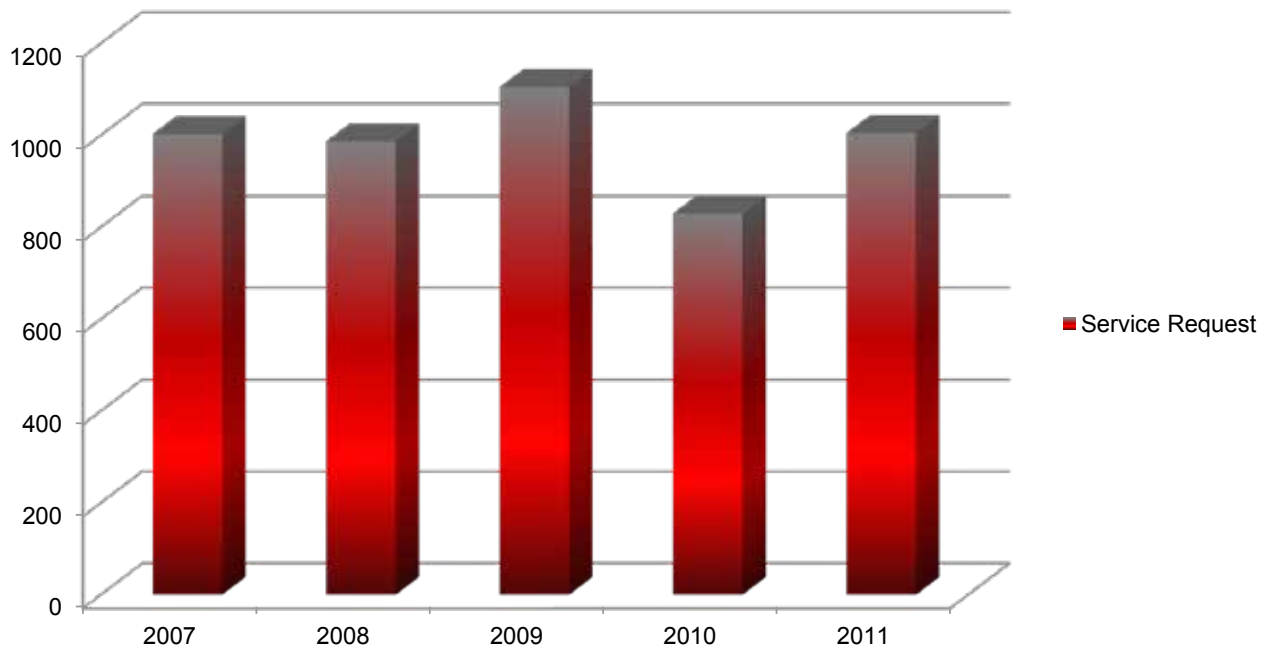
2011 Service Request Percentages



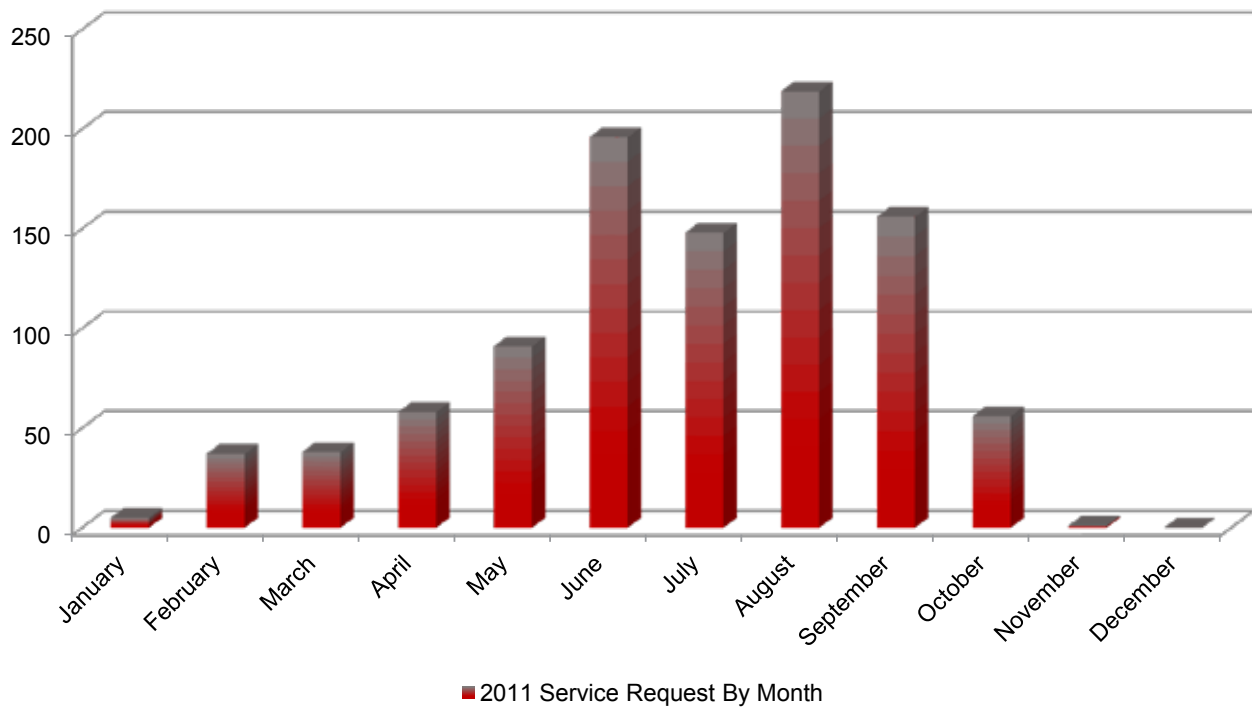
2011 Service Requests

Area	# of Requests	Percentage
Bangor	3	0.30%
Berry Creek	30	2.99%
Biggs	131	13.03%
Brush Creek	6	0.60%
Chico	178	17.71%
Concow/Yankee Hill	1	0.10%
Dayton	7	0.70%
Durham	1	0.10%
East Biggs	18	1.79%
Forbestown	24	2.39%
Forest Ranch	4	0.40%
Gridley	120	11.94%
Honcut	6	0.60%
Lake Madrone	3	0.30%
Lovelock	3	0.30%
Magalia	64	6.37%
Nelson	1	0.10%
Oroville	196	19.50%
Palermo	9	0.90%
Paradise	164	16.32%
Richvale	15	1.49%
Stirling City	21	2.09%
Totals	1005	100.00%

Annual Service Requests



2011 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, 21 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 daily routine inspecting standing water such as rice, wetlands, storm drains, ponds, ditches, swimming pools, bird baths, fountains and other man made containers for larvae.

The District utilizes an entomology department (Lab) that is staffed with an Entomologist and a Lab Technician. 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 of 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

Did You Know?

Mosquitoes are responsible for more human deaths than any other living creature. World-wide, nearly 4 million people die each year from various mosquito-borne diseases.

Virus Surveillance

2011 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 eleven 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 2011, 20 sentinel chickens from 4 of the 7 District flocks tested positive for WNV.



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 2011 the District sent 125 mosquito pool samples with 1 returning positive for WNV.



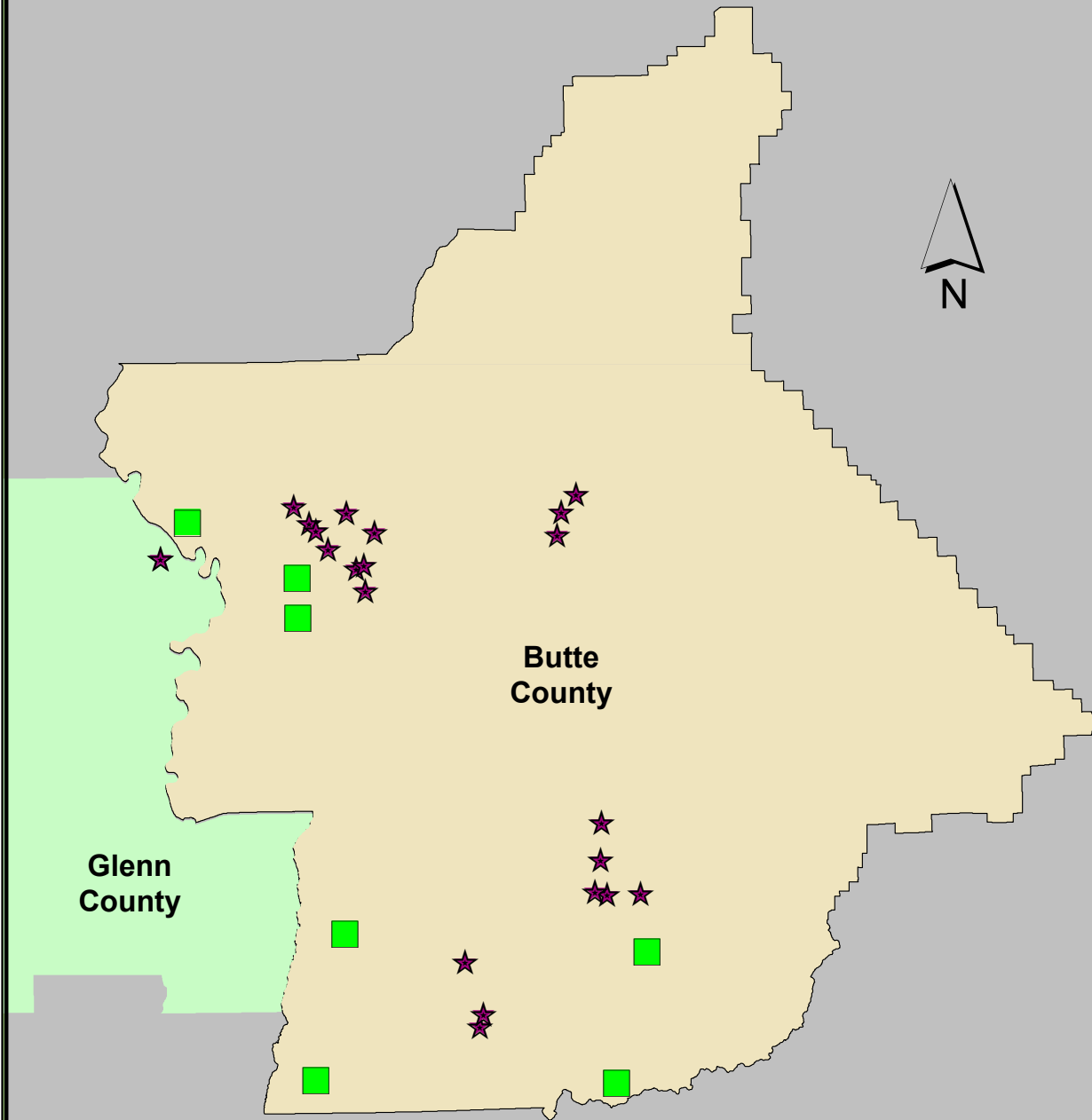
Dead Bird Surveillance and Testing

For more than five 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 county or by submitting an online form at one of these two websites, (www.westnile.ca.gov) or (www.BCMVCD.com). After a dead bird has been reported, CDPH notifies the District and District staff retrieves the bird and submits it for WNV testing.



Butte County West Nile Virus Statistics

<i>Year</i>	<i>Humans</i>	<i>Horses</i>	<i>Dead Birds</i>	<i>Mosquito Pools</i>	<i>Sentinel Chickens</i>	<i>Squirrels</i>
2004	7	18	118	1	50	0
2005	25	7	79	4	15	0
2006	34	0	40	1	49	1
2007	16	0	27	5	32	0
2008	5	0	38	5	31	0
2009	2	0	13	5	36	0
2010	1	1	6	7	7	1
2011	3	0	0	1	20	0
Total	93	26	321	29	240	2

BCMVC D Sentinel Chicken Flock and Gravid Trap Locations

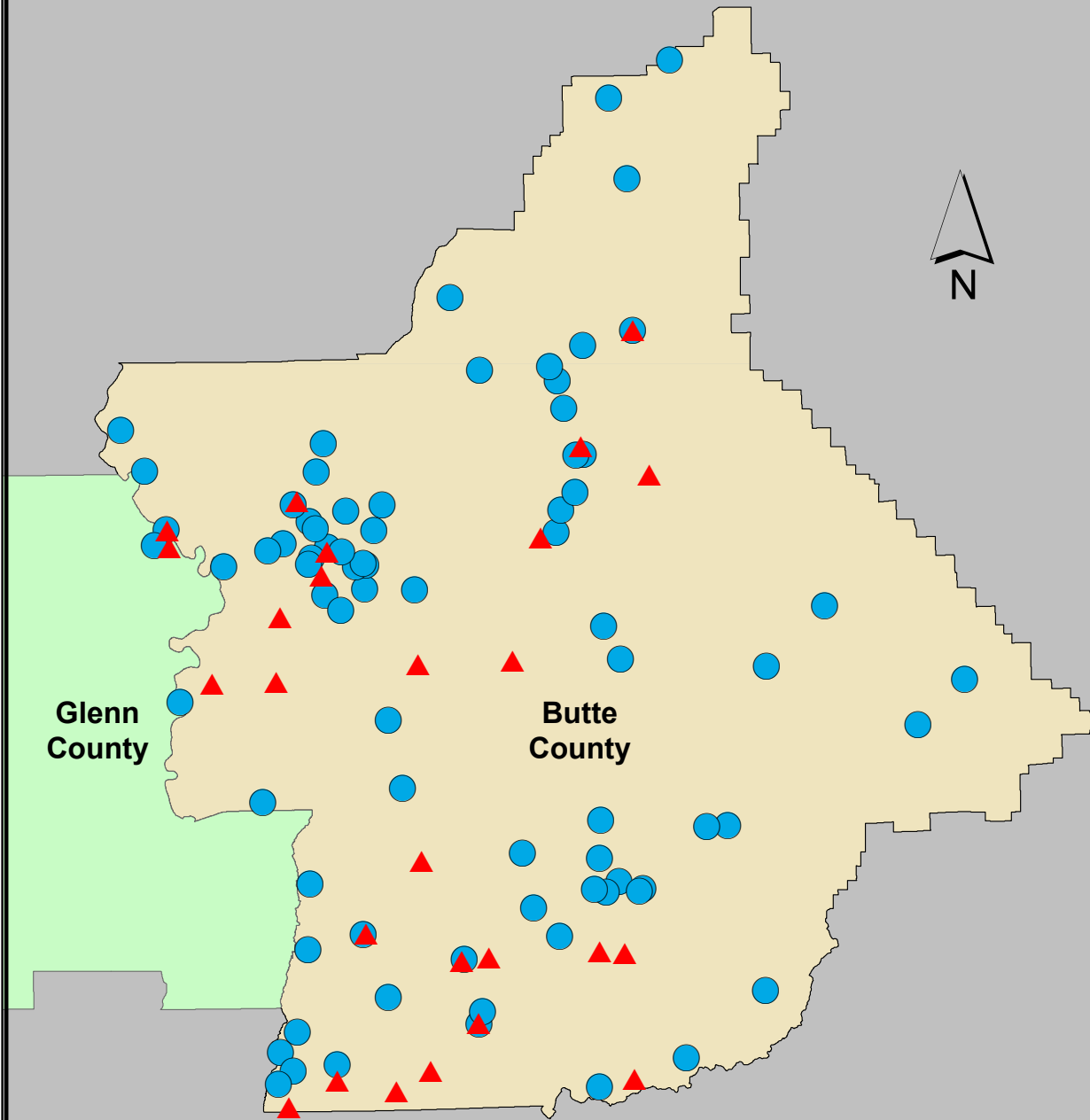


Map Symbology

-  Sentinel_Chicken_Flock_Locations
-  Gravid_Trap_Locations

BCMVC D 12/08
D. Weseman

BCMVD New Jersey Light Trap Locations and Surveillance Site Code Locations



Map Symbology

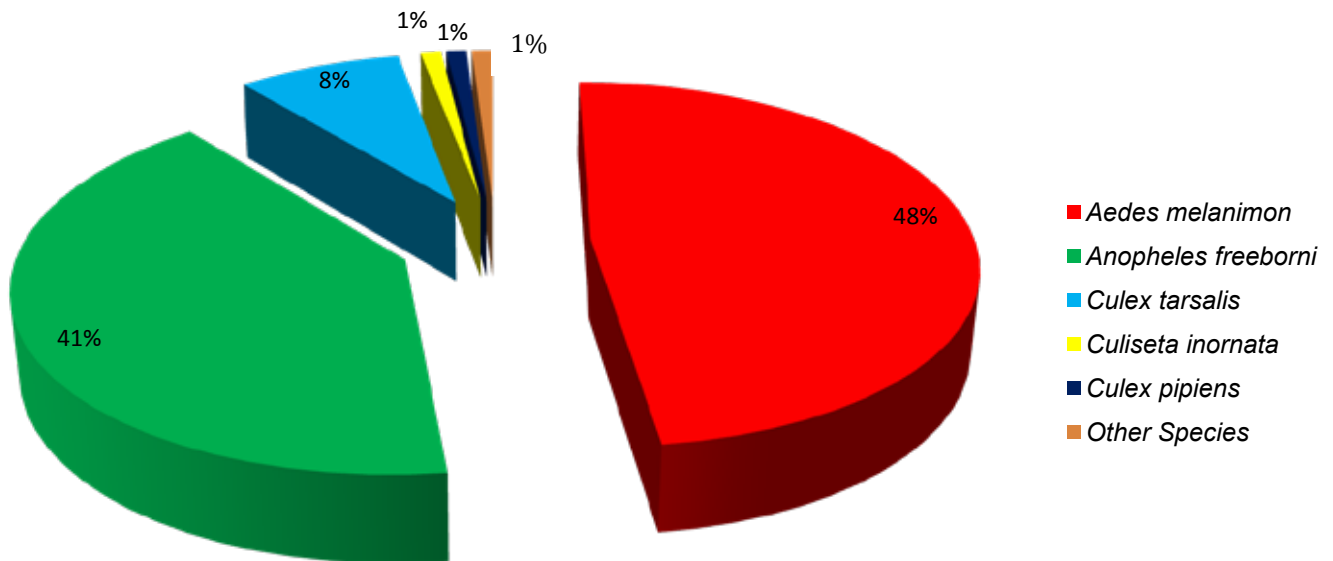
- ▲ New_Jersey_Light_Trap_Locations
- Surveillance_Site_Code_Locations

2011 New Jersey Light Trap Collections (Females Only) March 2011 - November 2011

Ranking	Mosquito Species	Number Collected	% (Rounded)
1	<u><i>Aedes melanimon</i></u>	103,700	48%
2	<u><i>Anopheles freeborni</i></u>	89,468	41%
3	<u><i>Culex tarsalis</i></u>	17,848	8%
4	<u><i>Culex inornata</i></u>	2,686	1%
5	<u><i>Culiseta pipiens</i></u>	2,645	1%
6	<u><i>Culiseta incidens</i></u>	308	1%
7	<u><i>Aedes sierrensis</i></u>	160	0%
8	<u><i>Aedes washinoi</i></u>	73	0%
9	<u><i>Anopheles punctipennis</i></u>	18	0%
10	<u><i>Culex stigmatosoma</i></u>	11	0%
11	<u><i>Aedes nigromaculis</i></u>	2	0%
12	<u><i>Aedes vexans</i></u>	2	0%
13	<u><i>Aedes sticticus</i></u>	0	0%
14	<u><i>Aedes dorsalis</i></u>	0	0%
15	<u><i>Anopheles franciscanus</i></u>	0	0%
16	<u><i>Culex erythrothorax</i></u>	0	0%
17	<u><i>Culex boharti</i></u>	0	0%
18	<u><i>Culex thriambus</i></u>	0	0%
19	<u><i>Culex restuans</i></u>	0	0%
20	<u><i>Culiseta particeps</i></u>	0	0%

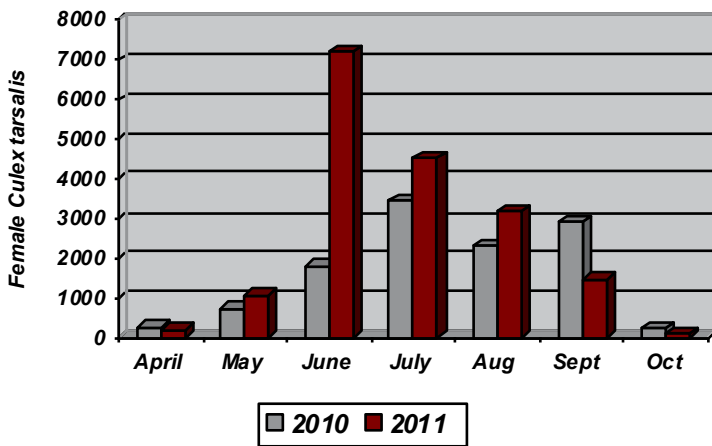
Total Identified = 216,921

100.00%

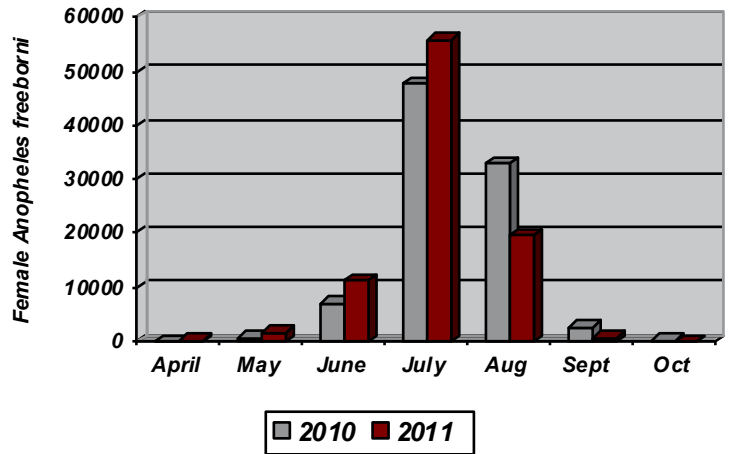


New Jersey Light Trap Seasonal Fluctuation of Vector-Borne Disease Vectors

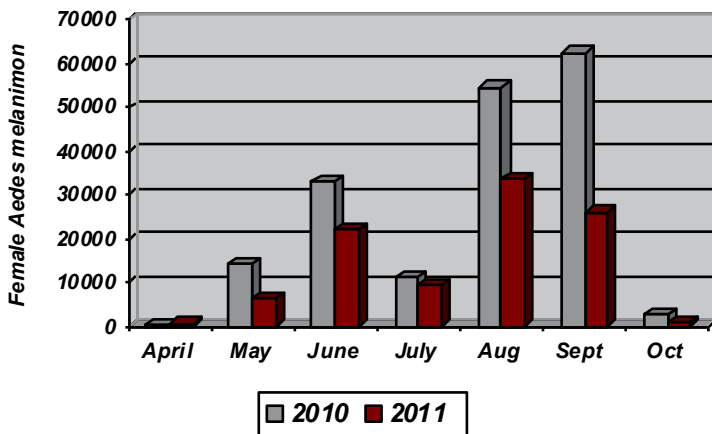
Culex tarsalis



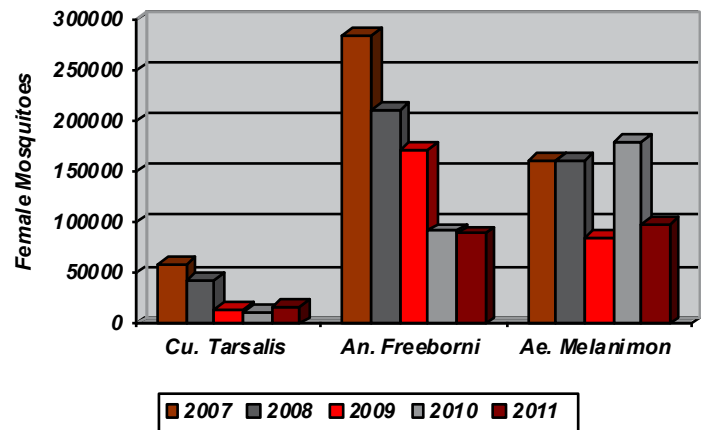
Anopheles freeborni



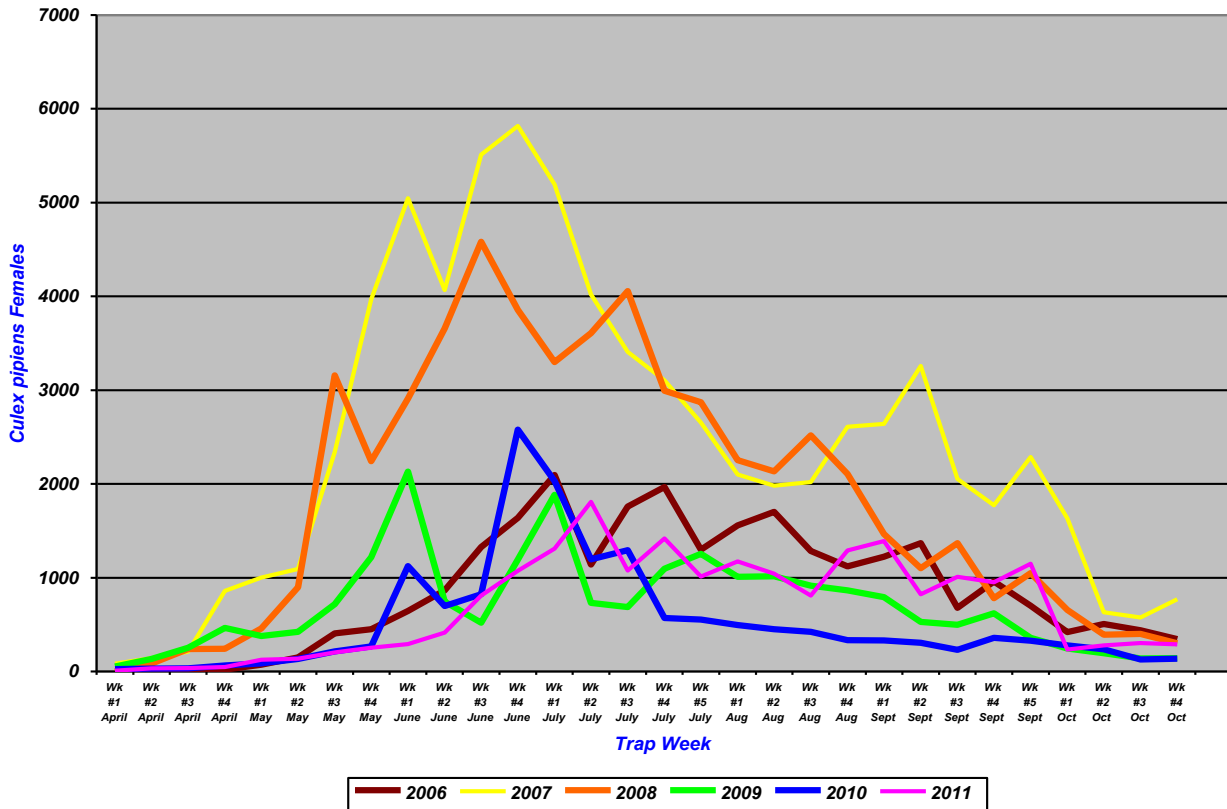
Aedes melanimon



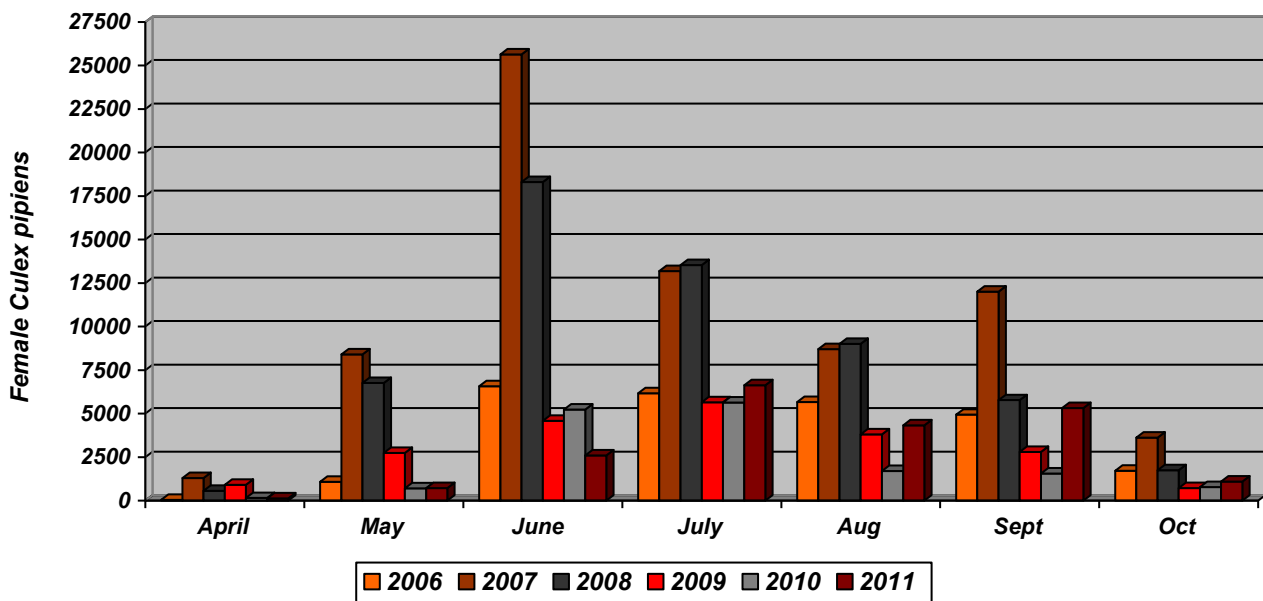
Annual Total Female Mosquitoes



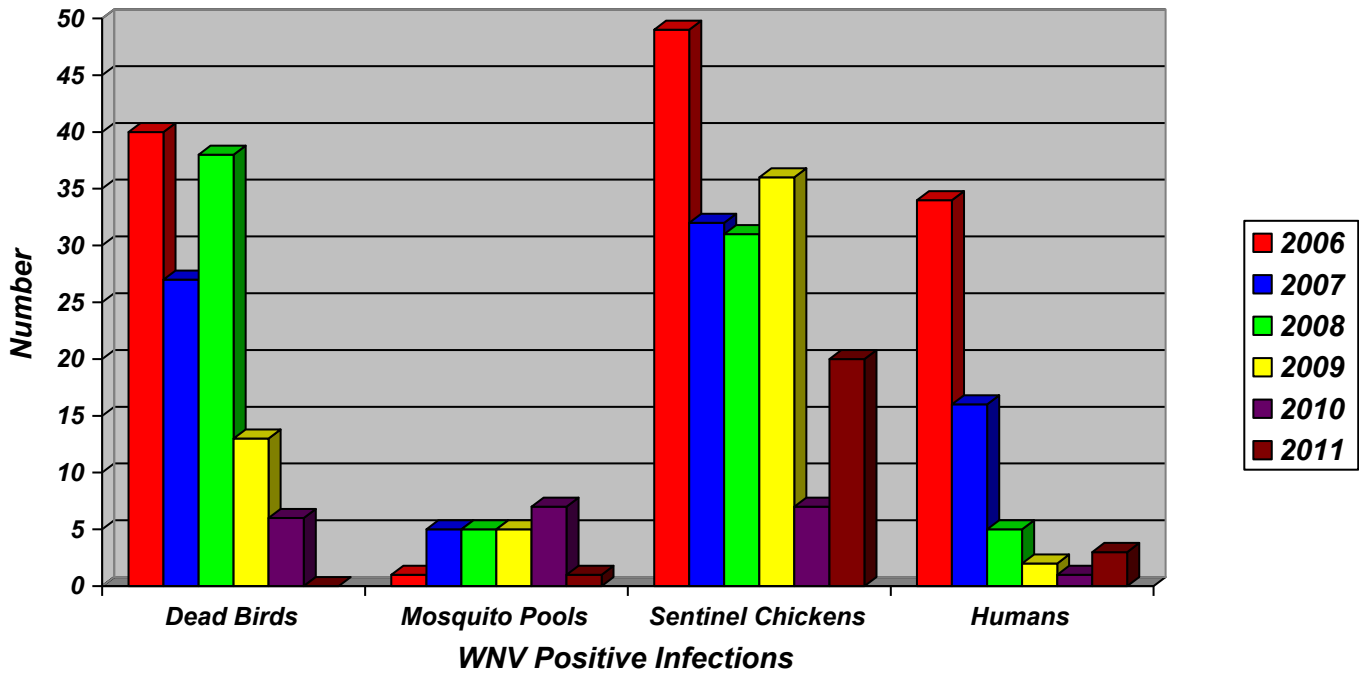
Gravid Trap Fluctuation by Week



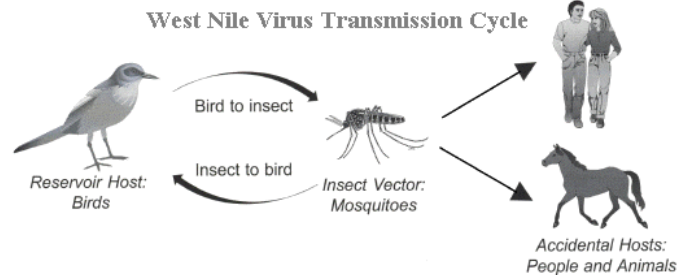
Gravid Trap Fluctuation by Month



West Nile Virus Activity



WNV Disease Cycle



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.

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 500 larvae per day! All ages, sexes, and sizes of these fish eat mosquito larvae, other small aquatic invertebrate insects, 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 mosquitoes.

Mosquitofish (*Gambusia Affinis*) 2011

Mosq. Breeding Source Treated	lbs. of Fish Planted	Acres Treated	Apps. Made
Rice	6	12	2
Stock Pond	0.38	0.18	3
Dredger Pit Ponds	4.12	10.8	12
Irrigation	51.37	169.18	82.5
Sump	2.74	5.22	9
Irrigation Seepage / Leaks	0.15	0.18	4
Managed Wetlands	171.36	1595.58	74
Seepage	5.34	2.22	15
Water Trough	9.051	10.83	8
Field Drain	29.06	57.63	77
Dist. Grounds/Fish Ponds	283.4	22.775	141
Residential Fish Pond	4.971	8.563	92
Swimming Pool / Spa	10.193	26.025	92
Misc. Container	37.692	4.21	144
Catch Storm/Basin	0.32	0.18	9
Flood Control Channel	0.3	0.35	2
Freeway/Road Drain	1.29	0.53	6
Sewage Ponds	0.82	0.37	4
Pot Holes	0.26	1.07	3
Retention Detention/Ponds	1.571	2.951	11
Industrial Commercial	4.592	0.636	30
Waste Water	0.09	0.18	2
Misc. Container	11.97	1.6	69
Depressions	0.36	0.63	4
Pond, Seepage, Slough, Springs	69.71	63.097	90
Sentinel Fish Tanks	530	1112	41
Large Area/Many Source Type	12.3	23.36	14
Annual Totals	1249.41	3132.347	1040.5



Mosquitofish eating mosquito larvae

Did You Know?

A vector is any animal or insect that is capable of transmitting a disease or considered a public health nuisance.

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 flying a rice field in Biggs for mosquitoes



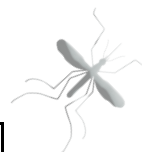
Truck mounted fogger in the wetlands west of Gridley



Droplet testing the foggers



"Back canning" a pond



**M
A
T
E
R
I
A
L
S

U
S
E
D**



<u>Materials</u>	<u>Amount of Materials</u>	<u>Acres Treated</u>	<u>Number of Applications</u>
Larvicides			
Abate 4E	0.036 gal.	3	3
Altosid Briquettes	0.525 lbs.	0.35	3
Altosid SR-20	0.0718 lbs.	9	8
Altosid Pellets	26.162 lbs.	9.36	12
Agnique	1.548 gal.	7.66	62
Aqualuer	1.99 gal.	1102	4
BVA Oil	5 gal.	1.9	2
Golden Bear	738.3731 gal.	349.9845	712
Natular G	360.6 lbs.	42.088	2
Skeeter Abate	3 lbs.	1.5	3
Vectobac 12AS	1226.235 gal.	34048.58	359
Vectobac G	53,234.24 gal.	5932.57	134
Vectolex WDG	5 lbs.	10	10
Vectolex WSP	325.073 lbs.	55.317	1007
		41573.3095	2321

Adulticides			
Anvil 10+10	424.1755 gal.	137484.7	1042
Duet	27.02 gal.	4597	103
Kontrol	34.869 gal.	3738.33	80
Trumpet	600 gal.	77898.5	10
		223718.53	1235

Barrier Sprays			
Suspend	6.1076 gal.	18.9529	127
		18.95	127

Yellow Jacket Control			
Drione	0.25 lbs.	0.211	3
Knox Out 2 FM	0.09 gal.	0.115	12
		0.326	15

Herbicides			
Aquamaster	2.316 gal.	1.99	12
Round Up Pro Max	3.069 gal.	4.9	18
Dimension	0.8198 gal.	3.55	3
		10.44	33

Aircraft Spraying	
Total Acres Treated	117,211
Total Acres Rice	33,412
Managed Wetlands	5,974
Total Acres ULV	77,899
Total Acres Other	4,097

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 Specialist’s that ride the bikes can triple their days workload, reaching many more mosquito populations in much less time.



Electric “Zap” truck



Checking standing water for mosquito larvae

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 EIR on the District’s website at www.BCMVCD.com.



Granular testing



Tick Flagging

District Shop

At the Oroville facility, the District employs one full time Mechanic and one seasonal Shop Assistant. The District's shop provides the maintenance and repairs for 30 vehicles, 3 forklifts, 1 backhoe, 3 ATV's, 2 amphibious Tritons, 1 nurse 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 Hangar

At the Oroville facility, the District employs one full time Advanced Pilot II and has an additional pilot on standby for emergency needs. 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 Advanced 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 and one full time Receptionist. 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.



2011 Butte County Mosquito and Vector Control District Board of Trustees

Name	Title	Area Represented	
Lynn Vanhart	Board Vice President	County District 1	Bill Connelly
Dan Hutfless	Board Trustee	County District 2	Larry Wahl
Charles Bird	Board Assistant Secretary	County District 3	Maureen Kirk
Jack Bequette	Board Trustee	County District 4	Steve Lambert
Allan Seefeldt	Board Trustee	County District 5	Kim Yamaguchi
Bo Sheppard	Board Trustee	City of Biggs	City Council
Albert Beck	Board President	City of Chico	City Council
Jerry Ann Fichter	Board Trustee	City of Gridley	Rob Hickey
Terry Mallan	Board Trustee	Town of Paradise	Town Council
Tom Anderson	Board Secretary	Hamilton City	Bd of Supervisors
Vacant		City of Oroville	City Council

2011 Butte County Mosquito and Vector Control District Employees

Name	Title
Matt Ball	Manager
Dan Moench	Assistant Manager
Del Boyd	Advanced Pilot II
Darlene Starkey	Office Manager
Eric Gohre	Entomologist II
Bill Kunde	Regional Supervisor
Doug Weseman	Public Information Officer
Pete Gibson	Mechanic
Jim Richards	MVCS
Beth Vice	MVCS
Phillip Henry	MVCS
Shane Robertson	MVCS
Don Lasik	MVCS
Aaron Goff	MVCS
Glen Williams	MVCS
AAaron Lumsden	MVCS
Ryan Rothenwander	MVCS
Jodi Sneeringer	Receptionist Clerk
Jerad Martinez	MVC Assistant Seasonal
Alicia Strang	MVC Assistant Seasonal
Kurtis Upton	MVC Assistant Seasonal
Patrick Self	Shop Assistant
Justin VanGilder	MVC Assistant Seasonal
La Khang	Lab Assistant
Zach Baroni	MVC Assistant Seasonal
Eric Dillard	MVC Assistant Seasonal
Dusty Alger	MVC Assistant Seasonal
Richard Roelofson	MVC Assistant Seasonal
Thai (J) Thao	MVC Assistant Seasonal
Henry (Jed) McGiluray	MVC Assistant Seasonal

Board Member Retires After 26 Years

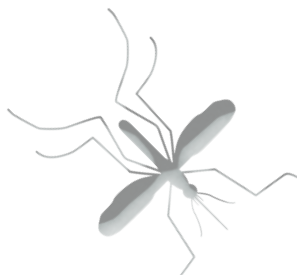
Lynn Vanhart has just completed 26 years of service as a Trustee for the District. Lynn announced at the November meeting that he wished to step down. The District's Board and staff would like to thank Lynn for his commitment and dedication over the past 26 years. Lynn's contributions to the Board and District will be missed. Best of luck with your future endeavors Lynn!



Lynn Vanhart



2011 FINANCIALS



Butte County Mosquito and Vector Control District				
For The Year Ended June 30, 2011				
				Variance
		Budgeted	Actual	Favorable (Unfavorable)
Revenue		\$ 2,503,000	\$ 2,659,532	\$ 156,532
<u>SALARIES & BENEFITS</u>				
Salaries		\$ 1,218,000	\$ 1,179,027	\$ 38,973
Workers Compensation		\$ 111,500	\$ 107,841	\$ 3,659
FICA & U I		\$ 36,000	\$ 35,000	\$ 1,000
Health Insurance		\$ 292,000	\$ 254,868	\$ 37,132
PERS		\$ 185,000	\$ 189,695	\$ (4,695)
	TOTAL	\$ 1,842,500	\$ 1,766,431	\$ 76,069
<u>SERVICES & SUPPLIES</u>				
Gas & Oil		\$ 100,000	\$ 61,924	\$ 38,076
Repairs & Parts-Airplane		\$ 13,000	\$ 12,033	\$ 967
Repairs & Parts		\$ 25,000	\$ 23,253	\$ 1,747
Office Supplies		\$ 13,000	\$ 12,310	\$ 690
Education & Publicity		\$ 20,000	\$ 23,299	\$ (3,299)
Insecticides		\$ 441,000	\$ 406,318	\$ 34,682
Expendable Equipment		\$ 20,000	\$ 28,342	\$ (8,342)
Communications		\$ 13,000	\$ 10,177	\$ 2,823
Travel		\$ 10,000	\$ 13,386	\$ (3,386)
Utilities		\$ 16,000	\$ 14,963	\$ 1,037
Rent		\$ 2,700	\$ 9,350	\$ (6,650)
Special Services		\$ 159,000	\$ 219,410	\$ (60,410)
Trustee Allowance		\$ 12,000	\$ 10,600	\$ 1,400
General Insurance		\$ 90,000	\$ 60,940	\$ 29,060
Employee Trng & Dues		\$ 7,000	\$ 5,607	\$ 1,393
District Fees and Permits		\$ 28,000	\$ 26,125	\$ 1,875
Miscellaneous		\$ 11,000	\$ 14,164	\$ (3,164)
Research Supplies		\$ 26,000	\$ 22,328	\$ 3,672
Alternate Technology		\$ 4,000	\$ -	\$ 4,000
Special Discretionary		\$ 18,000	\$ 19,314	\$ (1,314)
Gambusia		\$ 2,000	\$ 828	\$ 1,172
	TOTAL	\$ 1,030,700	\$ 994,671	\$ 36,029
<u>CAPITAL OUTLAY</u>				
Bldg & Improvements		\$ 23,000	\$ 43,991	\$ (20,991)
Vehicles		\$ 77,000	\$ 76,360	\$ 640
Spray Equipment		\$ 23,000	\$ -	\$ 23,000
Aircraft		\$ 13,000	\$ -	\$ 13,000
Office Equipment		\$ 14,000	\$ 13,926	\$ 74
Laboratory Equipment		\$ 2,000	\$ -	\$ 2,000
Shop Equipment		\$ 2,000	\$ 1,461	\$ 539
Education & Publicity		\$ 2,000	\$ -	\$ 2,000
Miscellaneous		\$ -	\$ -	\$ -
Communications		\$ 20,000	\$ 17,642	\$ 2,358
	TOTAL	\$ 176,000	\$ 153,380	\$ 22,620
Appropriation for contingencies		\$ 719,800	\$ -	\$ 719,800
Grand Total		\$ 3,769,000	\$ 2,914,482	\$ 854,518
Excess(Deficiency) of				
Revenue over Expenditures		\$ (1,266,000)	\$ (254,950)	\$ 1,011,050
Fund Balance 2010			3,232,790	
Fund Balance 2011			2,977,840	

**Butte County Mosquito and Vector Control District
Balance Sheet
Governmental Funds
For The Year Ended June 30, 2011**

Assets

Cash and Investments	2,467,172
Accounts receivable	3,204
Interest receivable	11,988
Loan Receivable - State Prop 1A	159,533
Inventories	535,775
Total Assets	<u><u>3,177,672</u></u>

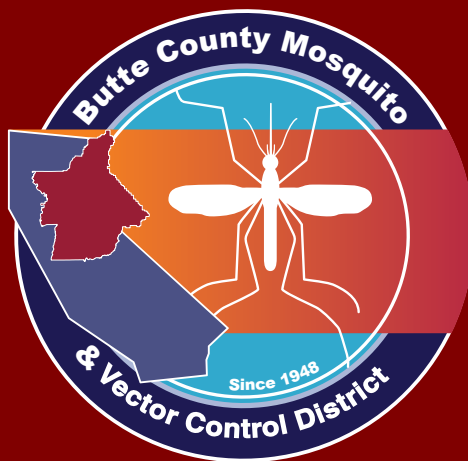
Liabilities and Fund Balance

Liabilities	
Accounts payable	14,400
Accrued Salaries and Benefits	25,899
Deferred revebue - State Prop 1A	159,533
Total Liabilities	<u>199,832</u>

Fund Balance	
Nonspendable:	
Reserved for imprest cash	1,500
Reserved for inventories	535,775
Committed to:	
Aircraft Engine	350,000
Capital outlay	550,000
Assigned to:	
Research	25,000
Vector borne Disease	105,000
Unassigned, reported in:	
General Fund	1,410,565
Total Fund Balance	<u>2,977,840</u>
Total Liabilities and Funds Balance	<u><u>3,177,672</u></u>

**Reconciliation of the Balance Sheet of Governmental Funds
to the Statement of Net Assets:**

Capital assets used in governmental activities are not financial resources and, therefore, are not reported in the funds	3,053,230
State Prop 1A recognized as revenue	159,533
Long term liabilities are not due in the current period and, therefore, are not reported in the governmental fund.	(2,522,639)
Net Assets of Governmental Activities	<u><u>3,667,964</u></u>



5117 Larkin Road
Oroville, CA. 95965

•
(530) 533-6038

•
www.BCMVCD.com