Butte County Mosquito and Vector Control District

2010 Annual Report

Butte County Mosquito & Vector Control District
Since 1948

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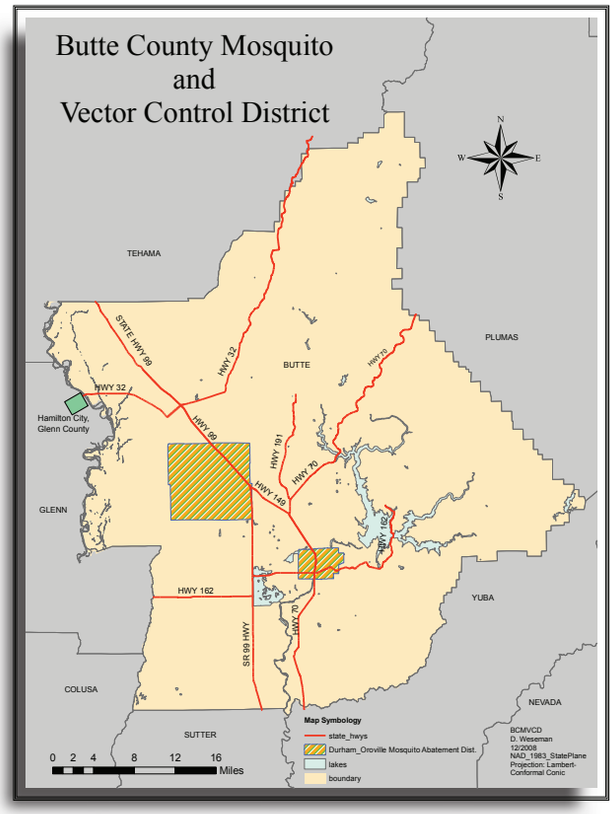
Contact Information

Butte County Mosquito
and Vector Control District
5117 Larkin Road, Oroville, California 95965
(530) 533-6038 (530) 342-7350
Fax (530) 534-9916

BCMVCD Jurisdiction

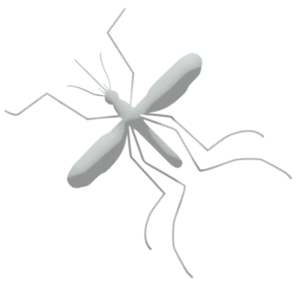


History

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.

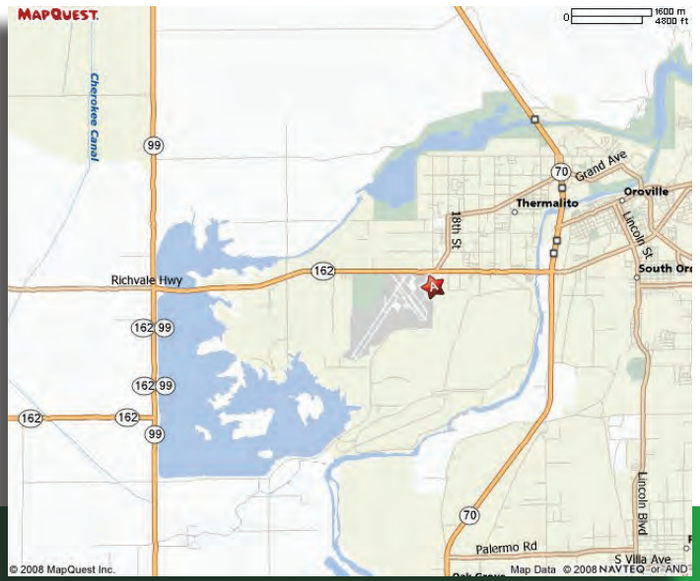
Mission

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.



Office Location

5117 Larkin Road
Oroville, CA. 95965



FOREWORD

I am extremely excited and honored to submit the 2010 Annual Report for the Butte County Mosquito and Vector Control District (District). The District had an extremely successful year in reducing human West Nile virus (WNV) infections, lowering mosquito populations, and completing several very large projects. The District was successful at lowering mosquito populations and reducing WNV infections by utilizing an integrated vector management approach which included public education and outreach, vector surveillance, reduction of mosquito 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 it's primary goal of protecting public health.

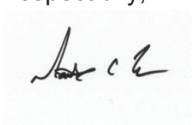
"The Mission of the Butte County Mosquito and Vector Control District is primarily to suppress mosquito-transmitted disease and to also reduce the annoyance levels of mosquitoes and diseases associated with ticks, fleas, and other vectors through environmentally compatible control practices and public education." The prevention of vector-borne disease outbreaks remains the District's primary goal and it's most important responsibility to the public. WNV is now considered to be endemic in the state of California and remains our largest public health concern. Butte County's human infection rate has decreased from 34 in 2006, 16 in 2007, 5 in 2008 to 2 in 2009 and now 1 in 2010.

With the current 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 bred mosquitoes. Regardless of drought conditions, the over watering of landscaped yards and environments continues to add to the mosquito breeding problems in urban mosquito sources and extends the length of our mosquito season. In addition to urban mosquito breeding problems, the District continues surveillance and control in agricultural, rural, and wetland areas that breed mosquitoes.

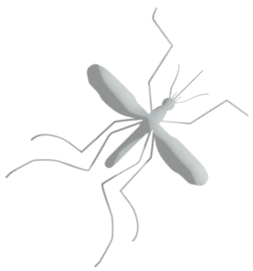
I am proud to announce that the District has completed construction of it's new Chico substation in Chico, California. The project has taken many years to complete and the District is extremely thankful for all involved in the project. Additionally, the District has created and completed the Best Management Practices to Reduce Mosquitoes manual. This manual will serve as an educational tool aimed at aiding property owners/managers with the tools to instill land management and water conveyance practices to minimize mosquito production. The District is nearing completion of a programmatic environmental impact report for the Districts control program which should be completed in early 2011.

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 out the most effective ways to improve our programs to be prepared of 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. 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

Back Row: President Al Beck, Bill Thebach, Vice President Lynn Vanhart, Assistant Secretary Charles Bird
Front Row: Jack Bequette, Allan Seefeldt, Jerry Ann Fichter, Terry Mallan
Seated: Secretary Tom Anderson
Not Pictured: Dan Hutfless

Staff

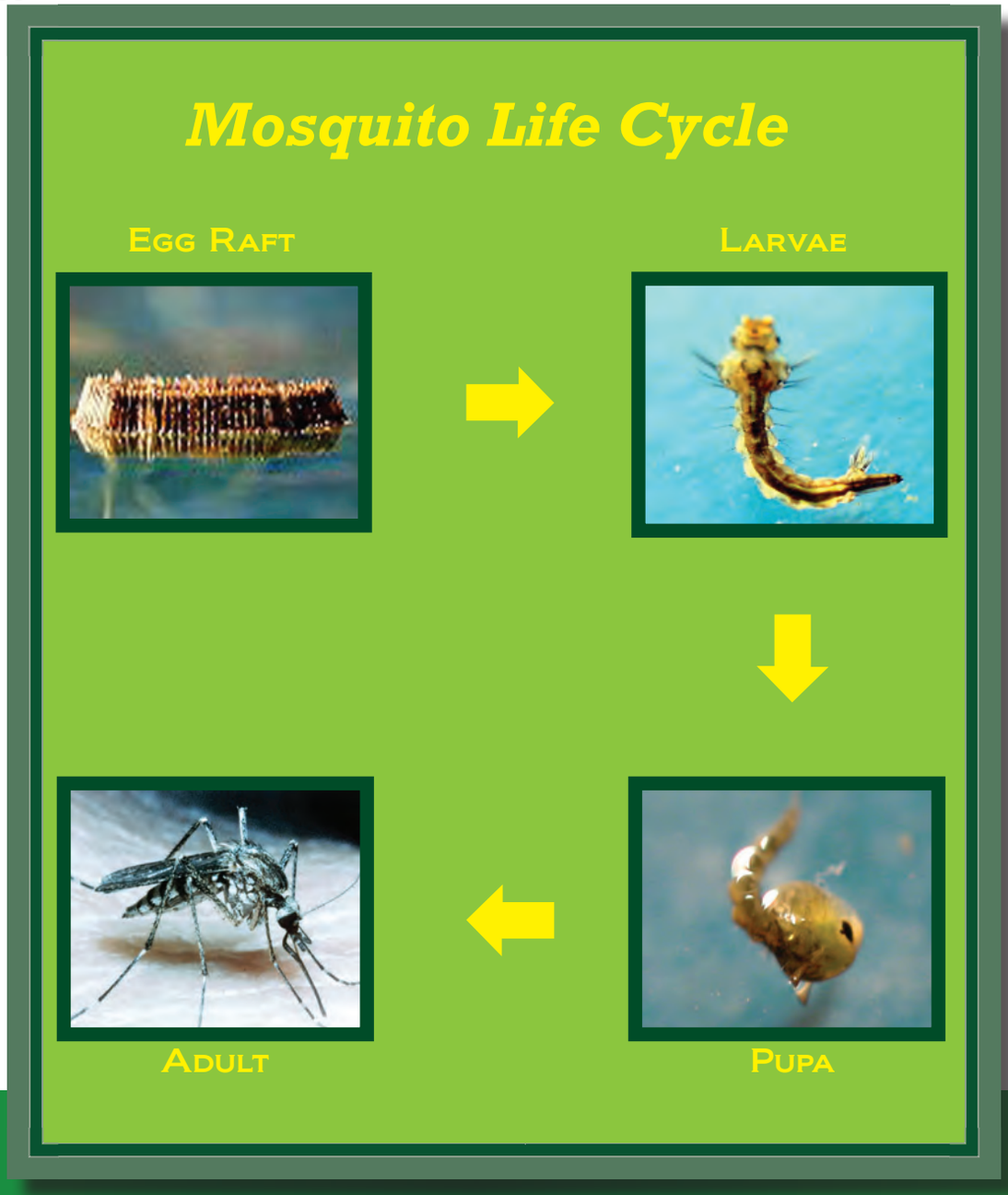
Left to right: Glen Williams, MVCS; Del Boyd, Pilot; Pete Gibson, Mechanic; Ryan Rothenwander, MVCS; Aaron Goff, MVCS; Phillip Henry, MVCS; Shane Robertson, MVCS; Bill Kunde, Regional Supervisor; Beth Vice, MVCS; AAron Lumsden, MVCS;
Not pictured: Don Lasik, MVCS; Jim Richards, MVCS
(MVCS: Mosquito and 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

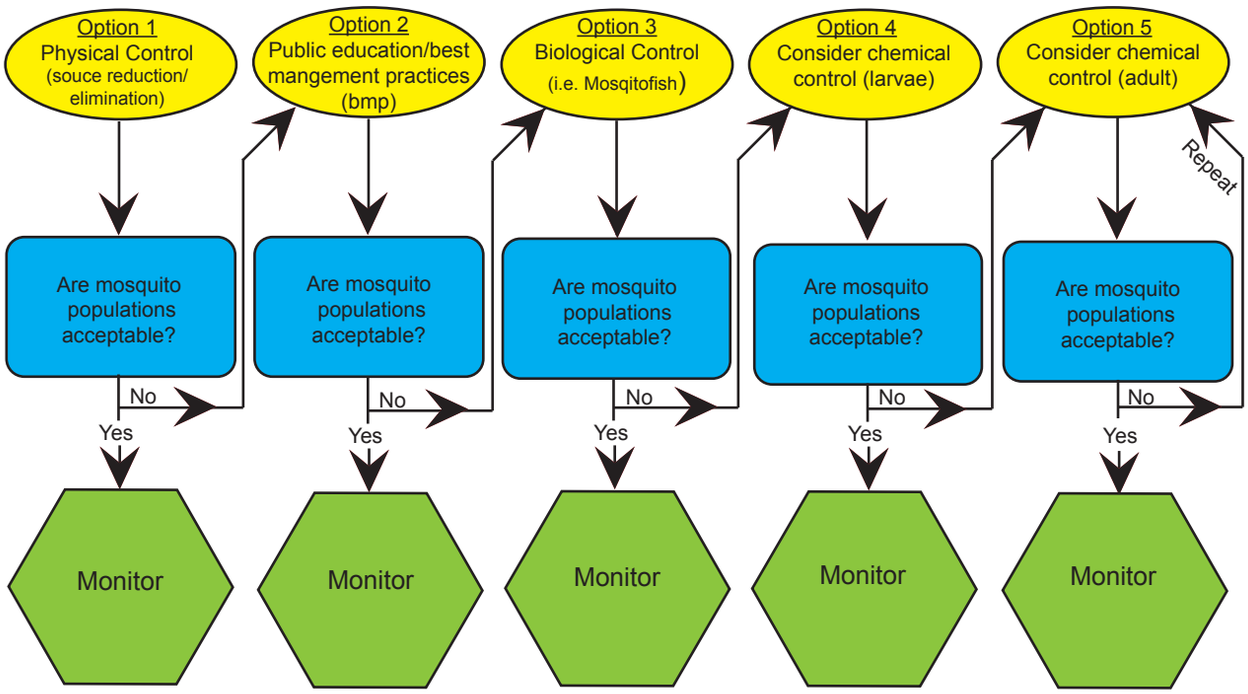
There are approximately 3,500 species of mosquitoes distributed worldwide. In California there are 53 species of mosquitoes and 25 of these are commonly found in Butte County. Mosquitoes, like other animals, must have water, food and some protection from the elements to survive. Mosquitoes undergo complete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



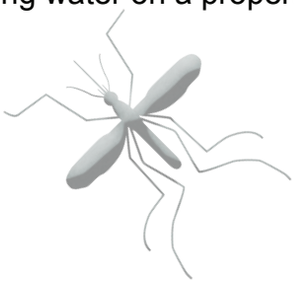
Neglected swimming pool surveillance

Seigning fish

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 pumping standing water out of a tank that was breeding mosquitoes.



Public Education and Outreach / 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.

2010 Public Education

In 2010 the Butte County Mosquito and Vector Control District's (District) Public Education Department continued to improve on it's 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 2010 public outreach theme "Mosquito Prevention Is A Great Invention". 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 new 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 stations KPAY, KBQB, and KCEZ. 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 it's 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 observed the Mosquito and Vector Control Association of California (MVCAC) "Mosquito Control Awareness Week" by holding an open house at the District Headquarters.

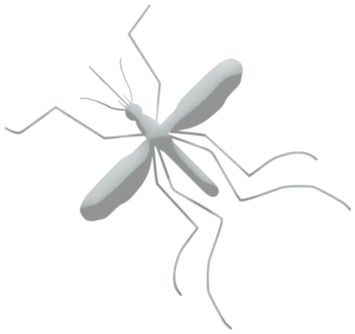
The District also completed the project of creating all new public education brochures. These ten new brochures cover the most important topics relating to public health education and vector related concerns.

The District launched it's first annual standing water campaign. This was done to enlist the help of other agencies/businesses in Butte County to report standing water to the District.

New public education brochures

2010 Public Education Highlights

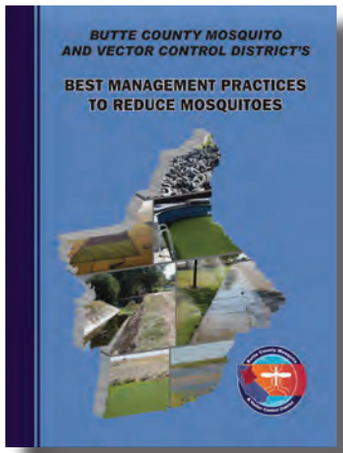
- New Public Education Brochures
- Best Management Practices Manual
- Newspaper and Radio West Nile Virus Awareness/Protection Campaign
- Billboard Advertising Throughout the County
- Butte County Fair, Gridley (Booth)
- Silver Dollar Fair, Chico (Booth)
- Gold Nugget Days, Paradise (Booth)
- Feather 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)
- Garden Club, Gridley (Presentation)
- Durham Rotary Club, Durham (Presentation)
- Model A Club, Oroville (Presentation)
- Quota Club, Gridley (Presentation)
- California Conservation Corps, Chico (Pesentation)
- K-6 Classroom Presentations Throughout the County
- New Canopy and Table Skirts for Outdoor Fairs/Special Days
- New Display for the Silver Dollar and Butte County Fairs
- Butte County Agencies/Businesses “Report Standing Water” Campaign



New display at the Butte County Fair

Billboard advertising

Gold Nugget Days in Paradise



New Best Management Practices manual

Butte County standing water outreach campaign

Model A Club visits the District

Salmon Festival in Oroville

NEW 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 sytem. 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 2010 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:

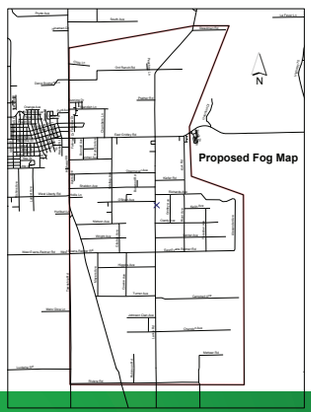
Anvil 10 + 10 ULV
Label

MSDS

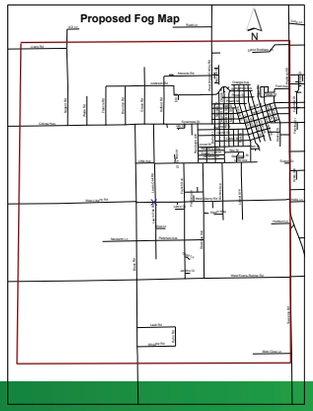
Additional information can be obtained by viewing the manufacturers websites at:
Clarke Mosquito Control
Adapco
McLaughlin Gormley King Company
Crop Data Management Systems

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



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 and helper Ryan Rothenwander testing new rotator trap

Did You Know?

Women are usually more attractive to mosquitoes than men because of the difference in hormones produced by the sexes.

Virus Surveillance

2010 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 2010, 7 sentinel chickens from 3 of the 7 District flocks tested positive for WNV.

Mosquito Pools

Each week the District's entomology staff strategically place traps known as encephalitis virus surveillance (EVS) or carbon dioxide traps (CO_2) 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 2010 the District sent 122 mosquito pool samples with 7 returning positive for WNV.

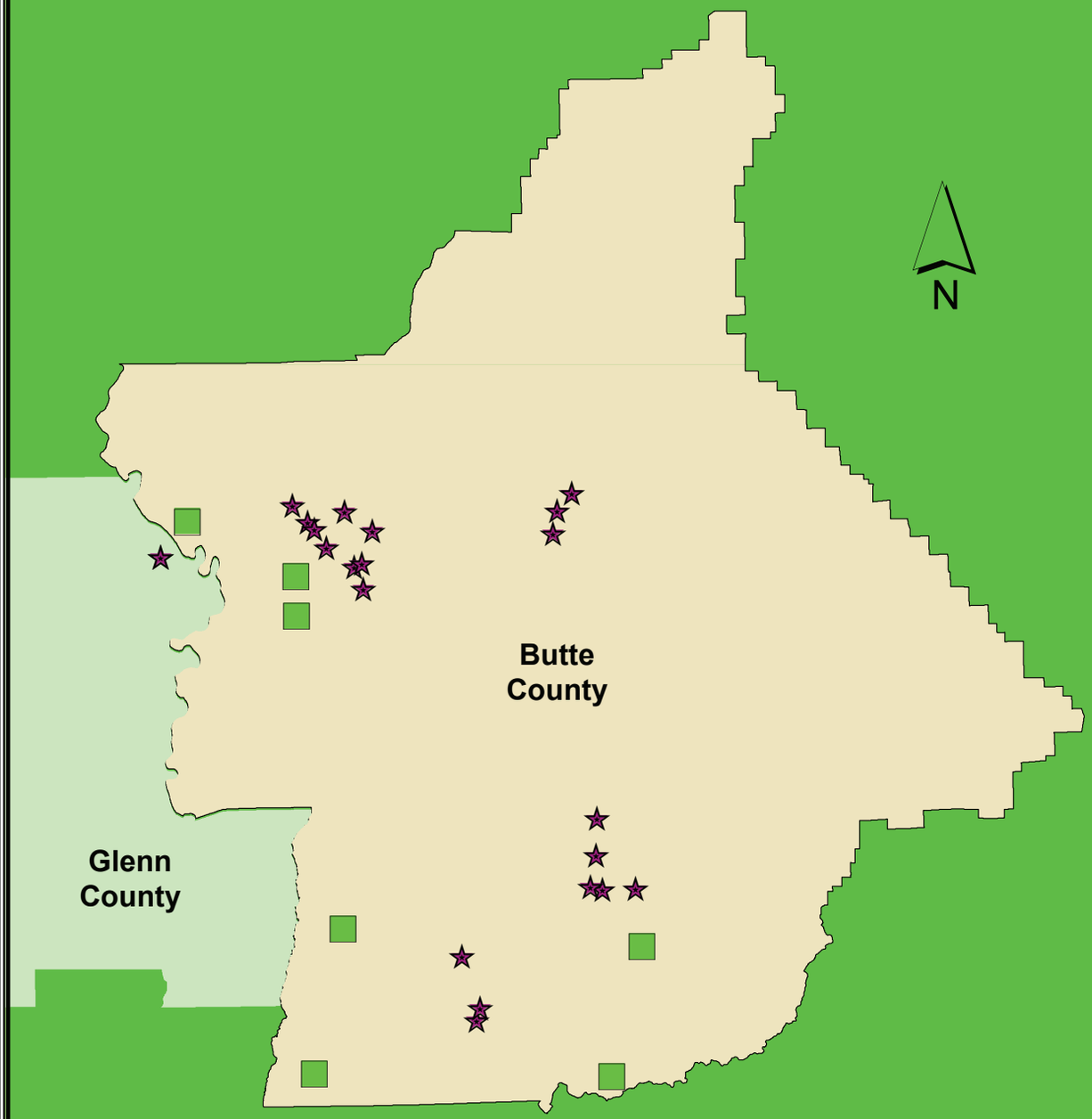
Dead Bird Surveillance and Testing

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

Year	Humans	Horses	Dead Birds	Mosquito Pools	Sentinel Chickens	Squirrels
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
Total	**90**	**26**	**321**	**28**	**220**	**2**

BCMVCD Sentinel Chicken Flock and Gravid Trap Locations

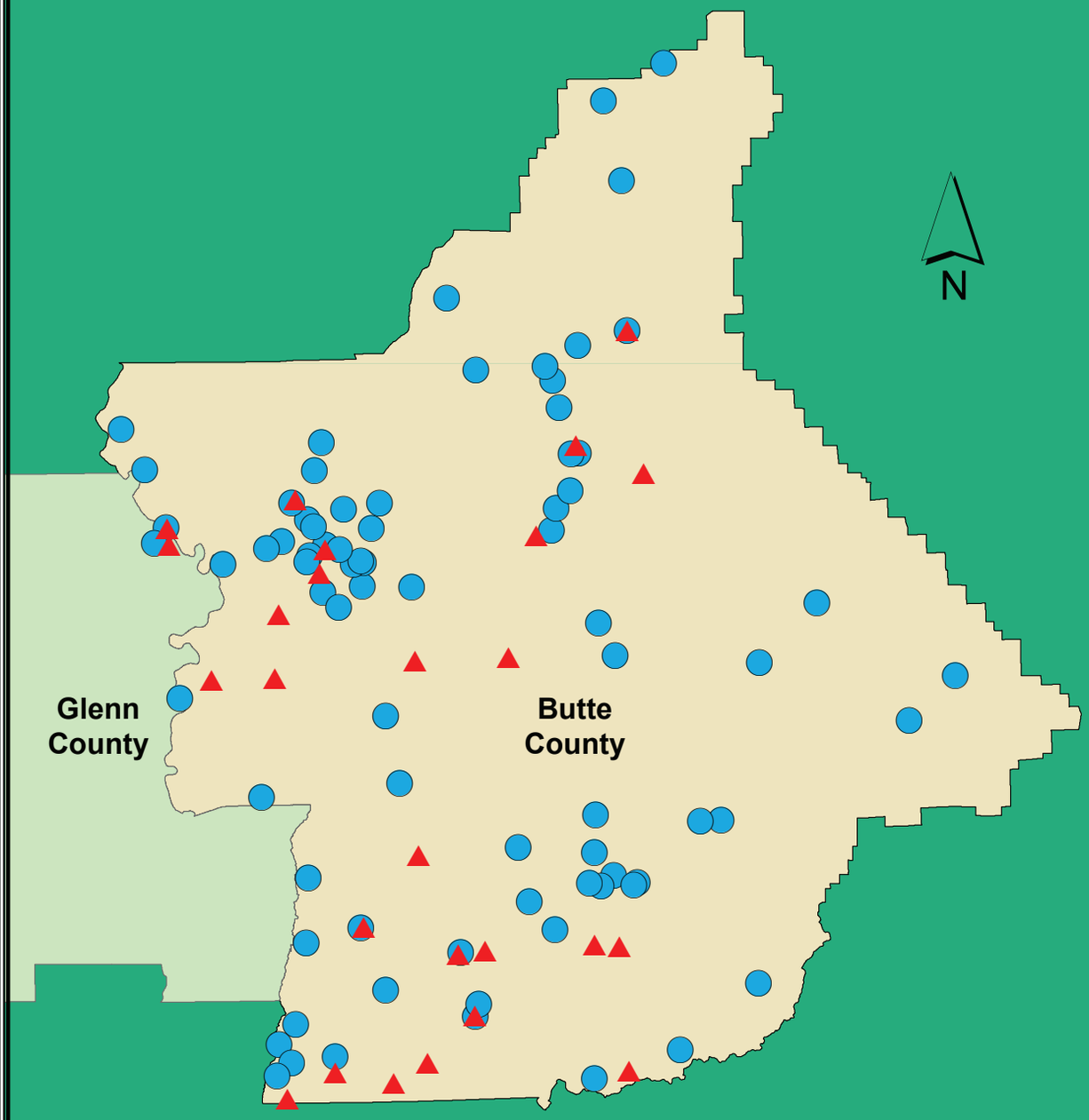


Map Symbology

- Sentinel_Chicken_Flock_Locations
- Gravid_Trap_Locations

BCMVCD 12/08
D. Weseman

BCMVCD New Jersey Light Trap Locations and Surveillance Site Code Locations

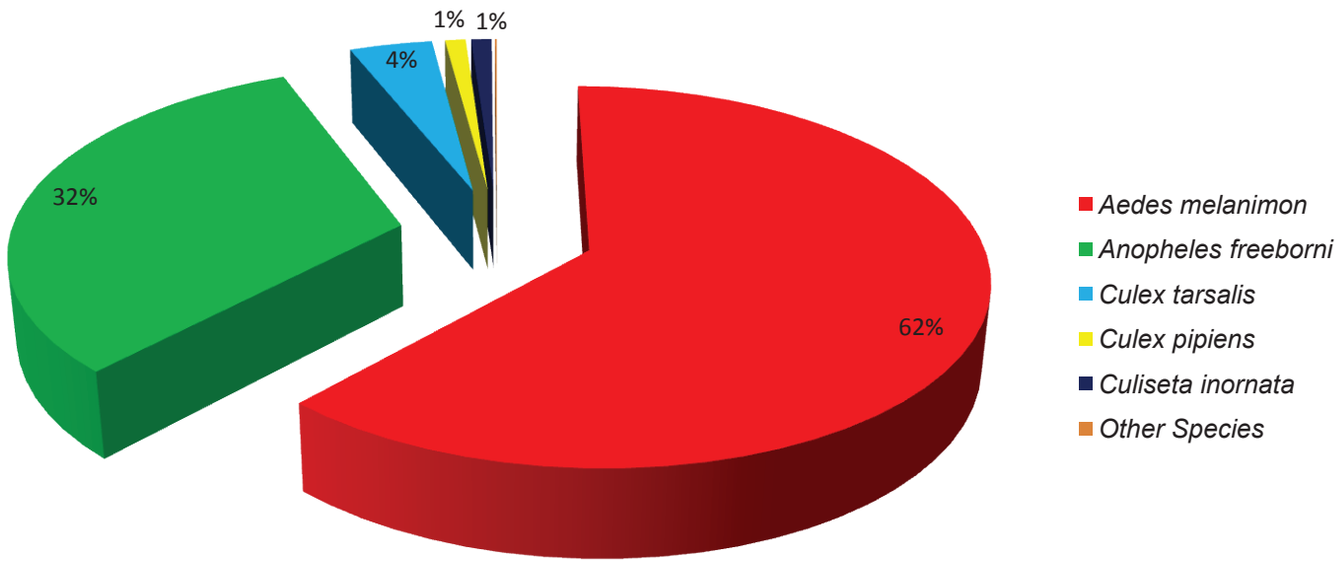


Map Symbology

- New_Jersey_Light_Trap_Locations
- Surveillance_Site_Code_Locations

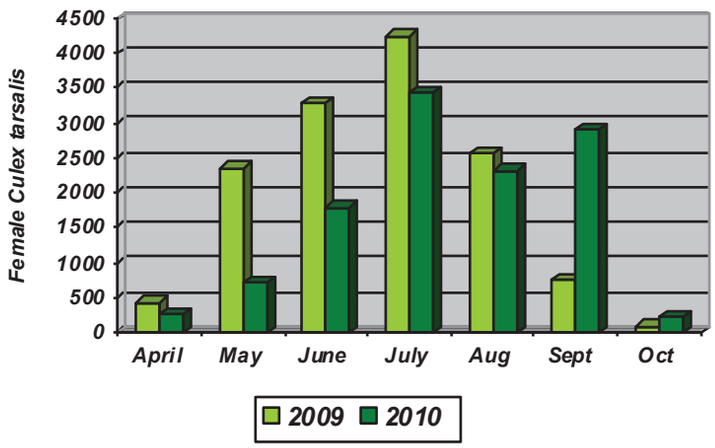
2010 New Jersey Light Trap Collections (Females Only)
March 2010 – November 2010

Ranking	Mosquito Species	Number Collected	% (Rounded)
1	*Aedes melanimon*	179,402	62%
2	*Anopheles freeborni*	91,551	32%
3	*Culex tarsalis*	11,961	4%
4	*Culex inornata*	2,667	1%
5	*Culiseta pipiens*	1,801	1%
6	*Culiseta incidens*	329	0%
7	*Aedes nigromaculis*	277	0%
8	*Culex erythrothorax*	186	0%
9	*Aedes sierrensis*	113	0%
10	*Aedes washinoi*	41	0%
11	*Culex stigmatosoma*	21	0%
12	*Anopheles puntipennis*	17	0%
13	*Anopheles franciscanus*	4	0%
14	*Aedes vexans*	0	0%
15	*Culex boharti*	0	0%
16	*Culex thriambus*	0	0%
17	*Culex restuans*	0	0%
18	*Culiseta particeps*	0	0%
19	*Aedes dorsalis*	0	0%
20	*Aedes sticticus*	0	0%
	Total Identified =	***288,370***	***100.00%***

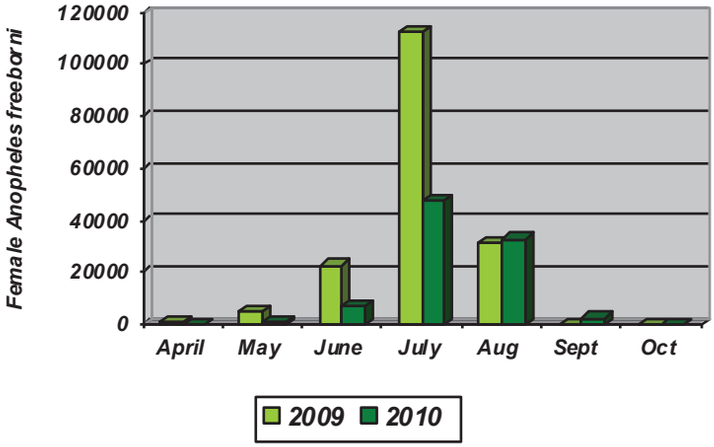


Seasonal Fluctuation in Numbers of Mosquito Vectors of Disease in Butte County in 2010 Virus Surveillance Season New Jersey Light Traps

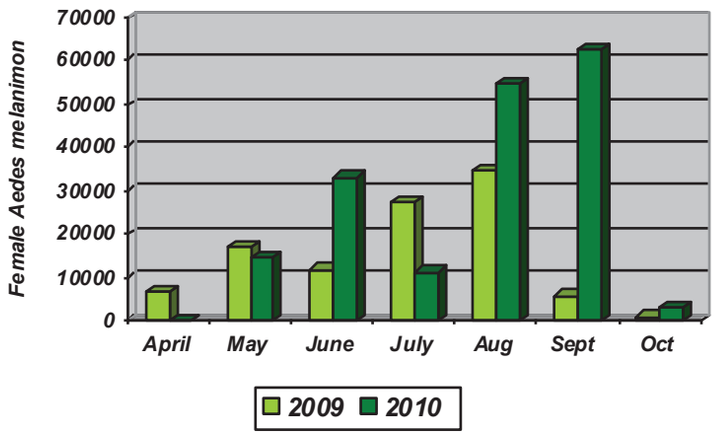
Culex tarsalis



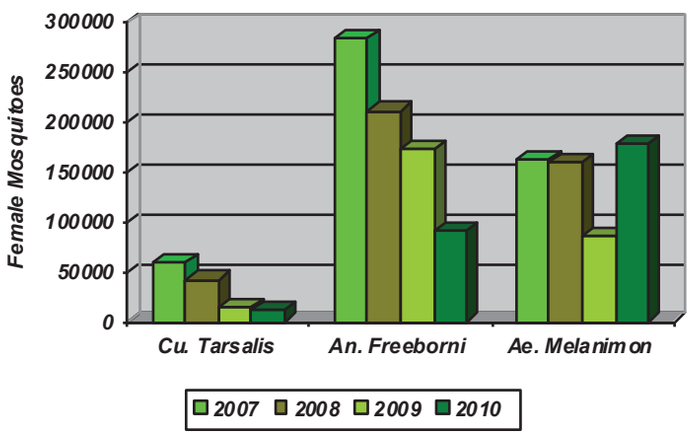
Anopheles freeborni



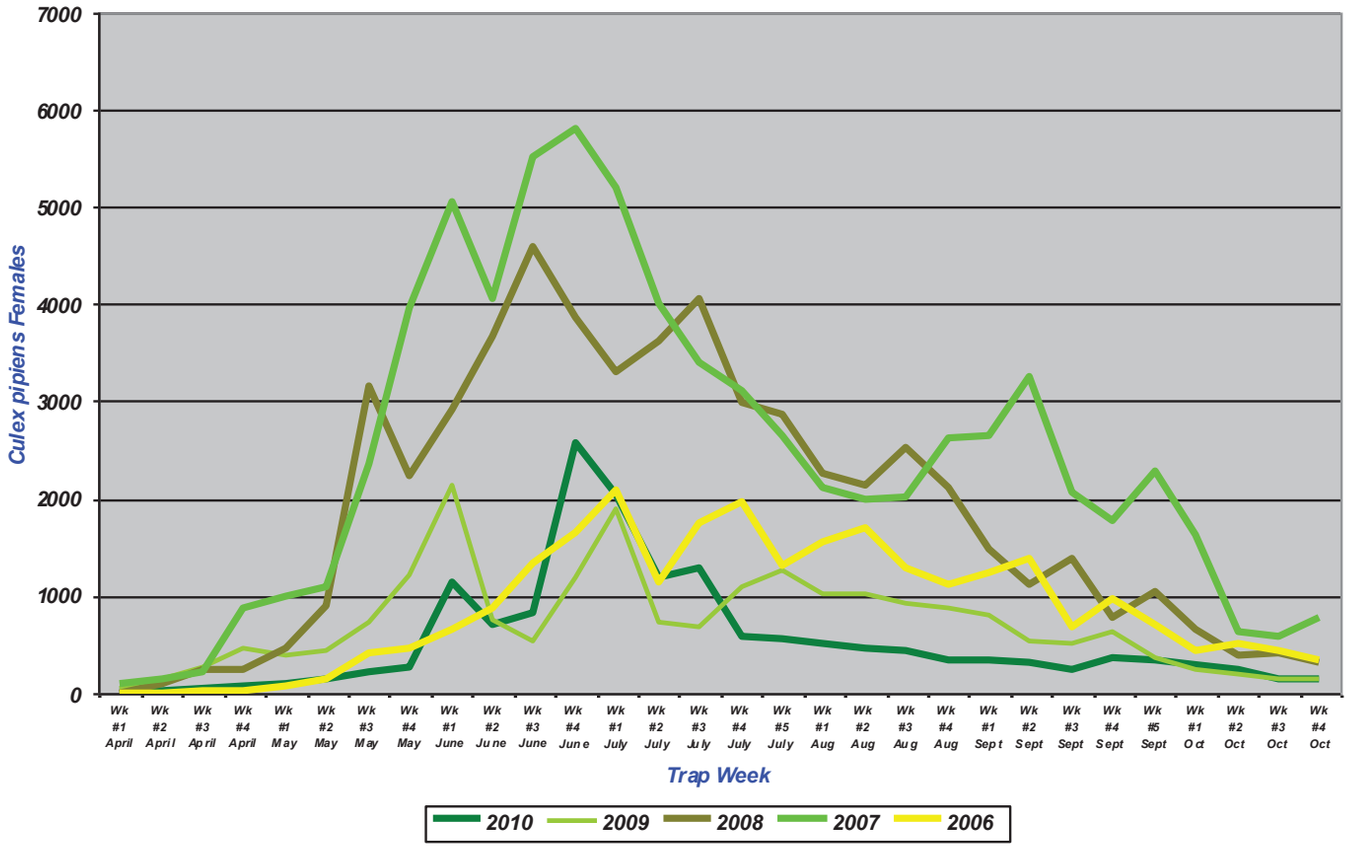
Aedes melanimon



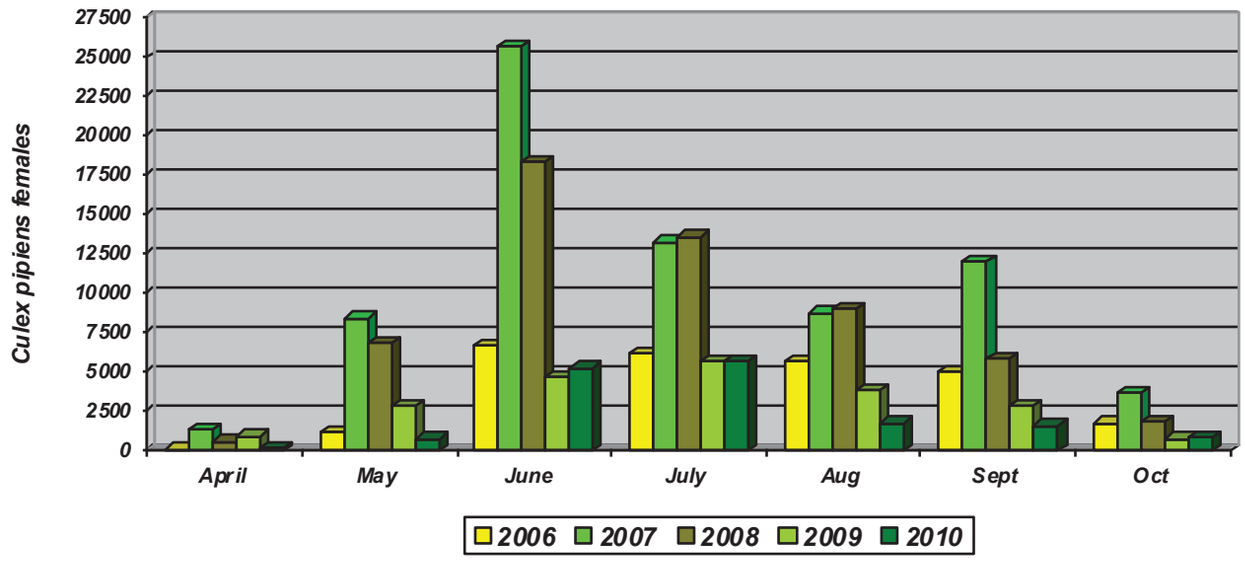
Annual Total Female Mosquitoes



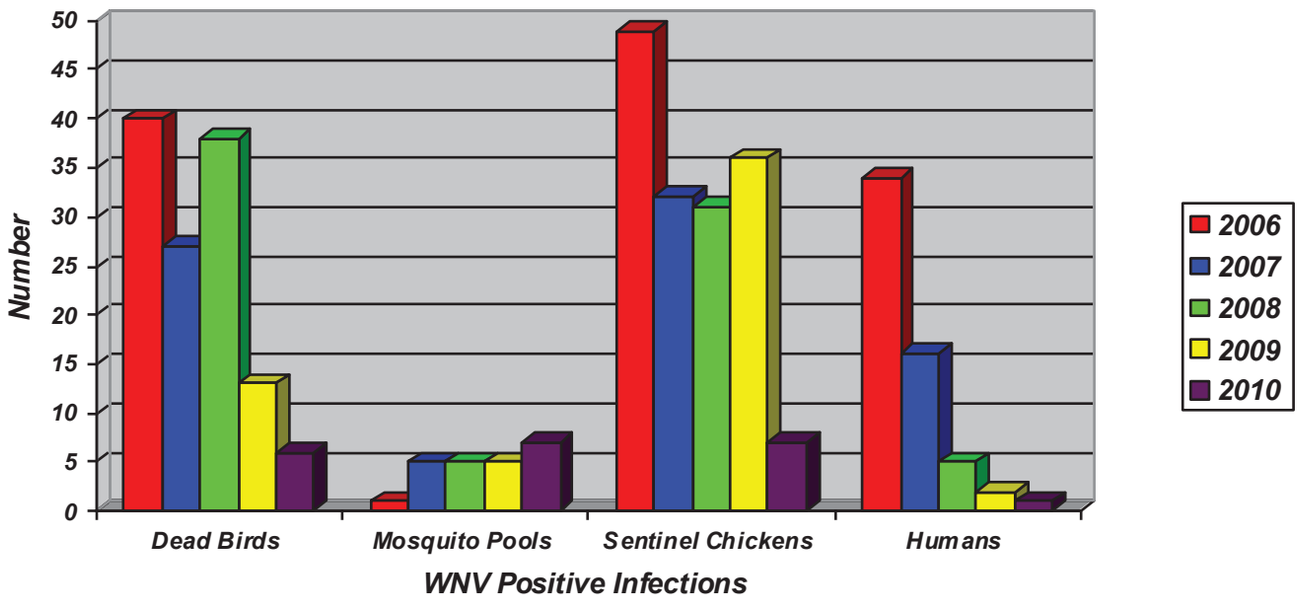
Gravid Trap Flucuation by Week



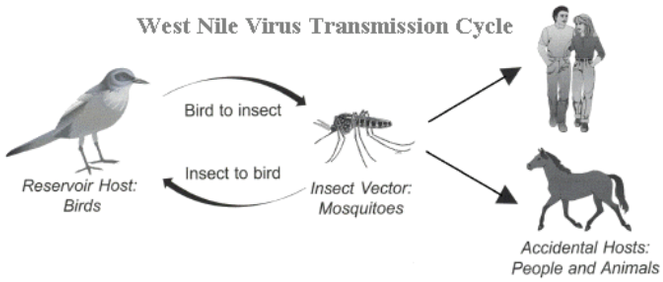
Gravid Trap Fluctuation by Month



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) 2010

Mosquito Breeding Source Treated	Pounds of Fish Planted	Acres Treated	Applications Made
Wetlands	-	-	-
Natural Sources/Wildlife Areas	57.13	192.79	82
Irrigation Ponds	-	-	-
Canals	10.20	22.40	19
Retention and Detention Ponds	1.75	1.98	16
Freeway Road Drains	1.24	1.18	12
Streams and Creeks	8.38	8.89	18
Dredger Pits and Ponds	6.40	19.00	12
Water Troughs	6.06	9.68	59
Sloughs	0.55	1.10	2
District Ponds and Nursery	265.06	530.12	135
Sentinel Public Tanks	468.00	936.00	26
Natural Sources/Ponds	47.51	81.97	35
Residential Misc.Containers	25.21	5.83	115
Sewage Ponds	4.32	8.63	11
Duck Clubs	113.50	1,885.10	47
Ornamental Ponds	0.86	1.72	15
Swimming Pools	15.70	21.38	127
Depressions	-	-	-
Field Drains	42.66	123.27	87
Fish Ponds	11.04	14.60	77
Industrial Misc.	75.99	3.07	124
Nurseries	11.80	1.04	18
Waste Ponds/Drains	1.75	8.00	3
Ditches	16.47	43.33	54
Wells	0.35	0.70	2
Annual Totals	1,191.93	3,921.78	1,096

Mosquitofish eating mosquito larvae

Did You Know?

The correct plural form of the word mosquito in English is “mosquitoes”, but in Spanish it is “mosquitos”.

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.

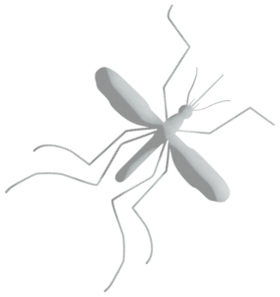
Ag-Cat flying a rice field in Biggs for mosquitoes

Truck mounted fogger in the wetlands west of Gridley.

Did You Know?

Most adult female mosquitoes live 2-3 weeks. Some species that over-winter in garages, culverts and attics can live as long as 6 months.

MATERIALS USED

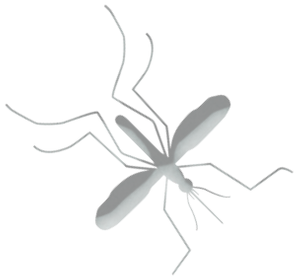


Materials	Amount of Materials		Acres Treated	Number of Applications
Larvicides				
Abate 4E	0.072	gal.	6.0	6
Agnique MMF	3.068	gal.	12.9	162
Altosid Pellets	130.900	lbs.	353.9	137
Altosid Pellets WSP	170.132	lbs.	112.8	762
Altosid SBG	53,787.950	lbs.	7,565.0	163
Altosid SR-20	0.071	gal.	9.0	8
Bactimos Briquettes	5.111	lbs.	1.9	8
Golden Bear	1,000.942	gal.	347.5	896
Vectobac 12AS	1,296.581	gal.	20,358.5	396
Vectobac G	1,031.000	lbs.	117.6	5
Vectolex WDG	7.000	lbs.	13.0	14
			28,898.1	2557
Adulticides				
Anvil 10 + 10 ULV	529.032	gal.	161,684.4	1198
Anvil 2 + 2 ULV	0.402	gal.	5.3	2
Natular G	1,691.000	lbs.	175.0	5
Trumpet	750.348	gal.	95,851.5	286
			257,716.2	1491
Barrier Sprays				
Baytex 7lb	0.592	gal.	1.8	14
Dursban 4E	2.192	gal.	8.9	64
Suspend SC	1.225	gal.	3.5	18
			14.2	96
Yellow Jacket Control				
Droine	0.013	gal.	0.0 *	1
Knox Out 2 FM	0.093	gal.	0.9	17
			0.9	18
Herbicides				
Aquamaster	0.016	gal.	0.1	1
Glypro Plus	0.021	gal.	0.2	1
Round Up Pro	2.717	gal.	4.2	18
Round Up Pro Max	1.736	gal.	2.6	17
			7.1	37

* = The area treated was less than one tenth of an acre.

Aircraft Spraying

Total Acres Treated	124,049
Total Acres Rice	19,800
Total Acres Duck Clubs	7,879
Total Acres ULV	95,851
Total Acres Other	519



Going Green

In an effort to reduce it's "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 it's 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 accessability 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 Storm Drain for standing water

Tire Amnesty Day

In October, 2010 the District partnered with the Butte County Public Works Department for "Tire Amnesty Day". For the District, this event was an effort to reduce the potential mosquito breeding habitat that discarded tires provide. District Manager Matt Ball said, "Tire Amnesty Day is a great opportunity to reduce mosquito populations. The most effective form of mosquito control is the eradication of potential mosquito breeding sites and standing water. Additionally, the mosquito that breeds in tires is the primary vector of West Nile virus". Tires were unloaded from vehicles and stacked into empty truck trailers by members of the Chico State Rugby Team and District personnel. Tires collected from the event may end up as rubberized asphalt concrete or tire-derived aggragate in civil engineering projects throughout the state.

Loading the trucks

Long line of pickups

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, one full time Receptionist, and one part time temporary Office Assistant. The tasks of the administrative personnel involve serving the residents of Butte County and Hamilton City, as well as, the employees of the District. Accounting, budgeting, responding to telephone inquiries, maintaining public records, coordinating policies, and reporting to the Board of Trustees are just a few of the many duties the department performs.

New Chico Substation

Five years after the agreement between the Chico RDA and the District was finalized, the District now can call 444 Otterson Drive home to its new Chico Substation. For the past year the District and Guillon Inc. have planned, designed, and constructed the facility. The District would like to thank Guillon Inc. for the nicely constructed beautiful building. Additionally, the District would like to thank the City of Chico and all the others involved with the project.

Foundation is ready

Walls are up

Awnings installed and the roof is on

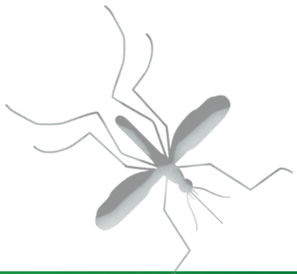
Board room and offices are coming along

Carpet is installed and the furniture arrives

Finished product

2010 FINANCIALS

Butte County Mosquito and Vector Control District For The Year Ended June 30, 2010				
				Variance Favorable
		Budgeted	Actual	(Unfavorable)
Revenue		$ 2,444,000	$ 2,593,983	$ 149,983
SALARIES & BENEFITS				
Salaries		$ 1,240,500	$ 1,106,769	$ 133,731
Workers Compensation		$ 33,000	$ 22,934	$ 10,066
FICA & U I		$ 108,000	$ 100,357	$ 7,643
Health Insurance		$ 277,000	$ 238,677	$ 38,323
PERS		$ 176,000	$ 166,059	$ 9,941
	TOTAL	$ 1,834,500	$ 1,634,796	$ 199,704
SERVICES & SUPPLIES				
Gas & Oil		$ 100,000	$ 56,056	$ 43,944
Repairs & Parts-Airplane		$ 13,000	$ 11,399	$ 1,601
Repairs & Parts		$ 22,000	$ 23,657	$ (1,657)
Office Supplies		$ 13,000	$ 11,206	$ 1,794
Education & Publicity		$ 20,000	$ 14,720	$ 5,280
Insecticides		$ 380,500	$ 449,571	$ (69,071)
Expendable Equipment		$ 20,000	$ 19,660	$ 340
Communications		$ 10,000	$ 4,664	$ 5,336
Travel		$ 10,000	$ 5,436	$ 4,564
Utilities		$ 13,000	$ 12,066	$ 934
Rent		$ 10,500	$ 10,200	$ 300
Special Services		$ 107,750	$ 97,504	$ 10,246
Trustee Allowance		$ 12,000	$ 11,300	$ 700
General Insurance		$ 80,000	$ 73,790	$ 6,210
Employee Trng & Dues		$ 18,000	$ 17,928	$ 72
Miscellaneous		$ 14,000	$ 10,626	$ 3,374
Research Supplies		$ 20,000	$ 19,974	$ 26
Alternate Technology		$ 4,000	$ -	$ 4,000
Special Discretionary		$ 30,000	$ 12,599	$ 17,401
Gambusia		$ 2,000	$ 726	$ 1,274
	TOTAL	$ 899,750	$ 863,082	$ 36,668
CAPITAL OUTLAY				
Bldg & Improvements		$ 15,000	$ -	$ 15,000
Vehicles		$ 72,000	$ 62,829	$ 9,171
Spray Equipment		$ 20,000	$ 18,174	$ 1,826
Aircraft		$ 20,000	$ 1,911	$ 18,089
Office Equipment		$ 3,000	$ 2,088	$ 912
Laboratory Equipment		$ 2,000	$ 1,993	$ 7
Shop Equipment		$ 2,000	$ -	$ 2,000
Education & Publicity		$ 5,000	$ 4,993	$ 7
Miscellaneous		$ 5,000	$ -	$ 5,000
Communications		$ 15,000	$ 23,033	$ (8,033)
	TOTAL	$ 159,000	$ 115,021	$ 43,979
Appropriation for contingencies		$ 681,875	$ -	$ 681,875
Grand Total		$ 3,575,125	$ 2,612,899	$ 962,226
Excess(Deficiency) of Revenue over Expenditures		$ (1,131,125)	$ (18,916)	$ 1,112,209
Fund Balance 2009			3,251,706	
Fund Balance 2010			3,232,790	
annual report 6-30-09				



2010 FINANCIALS

Butte County Mosquito and Vector Control District
Balance Sheet
Governmental Funds
For The Year Ended June 30, 2010

Assets	
Cash and Investments	2,716,003
Accounts receivable	18,404
Interest receivable	15,950
Loan Receivable - State Prop 1A	159,533
Inventories	505,577
Total Assets	3,415,467
Liabilities and Fund Balance	
Liabilities	
Accounts payable	4,272
Accrued Salaries and Benefits	18,872
Deferred revebue - State Prop 1A	159,533
Total Liabilities	182,677
Fund Balance	
Reserved for imprest cash	1,500
Reserved for inventories	505,577
Reserved, other	70,000
Reserved for aircraft engines	40,000
Unreserved, reported in:	
General Fund	2,615,713
Total Fund Balance	3,232,790
Total Liabilities and Funds Balance	3,415,467

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

Chico substation construction funds remaining on deposit	324,514
Capital assets used in governmental activities are not financial resources and, therefore, are not reported in the funds	3,096,962
State Prop 1A recognized as revenue	159,533
Chico substation construction contract payable	(175,255)
Chico substation construction contract retentions payable	(75,796)
Long term liabilities are not due in the current period and, therefore, are not reported in the governmental fund.	(2,502,093)
Net Assets of Governmental Activities	4,060,655

2010 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	Jane Dolan
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
William Thebach	Board Trustee	City of Biggs	Peter Carr
Albert Beck	Board President	City of Chico	David Burkland
Jerry Ann Fichter	Board Trustee	City of Gridley	Rob Hickey
Terry Mallan	Board Trustee	Town of Paradise	Frankie Rutledge
Tom Anderson	Board Secretary	Hamilton City	Bd of Supervisors
Vacant		City of Oroville	City Council

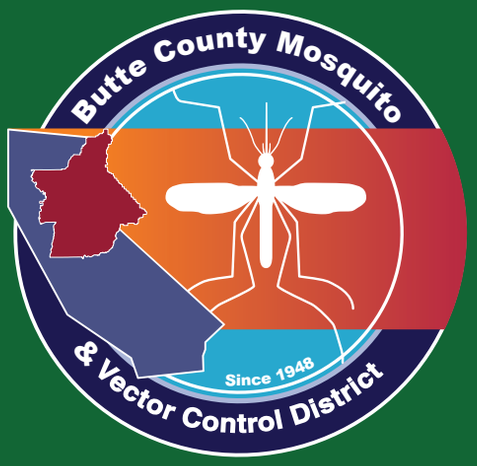
2010 Butte County Mosquito and Vector Control District Employees

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
AAron Lumsden	MVCS
Ryan Rothenwander	MVCS
Jodi Sneeringer	Receptionist Clerk
Abby Scheurer	Office Assistant
Jerad Martinez	Helper
Alicia Strang	Helper
Ryan Berryman	Helper
David Martinez	Helper
Kurtis Upton	Helper
Patrick Self	Helper
Justin VanGilder	Helper
La Khang	Helper
Zach Baroni	Helper
Jim Bundy	Helper
Eric Dillard	Helper
Stuart Handley	Helper
Christian Louis	Helper

2009 & 2010 Boyd-Ariaz Grass Roots Award Winners

In 2009 the District's very own, Beth Vice, Mosquito and Vector Control Specialist won the Boyd-Ariaz Grass Roots Award. Beth was the first in the state to receive the honor and 1 of the 8 to ever win the award in the nation. In 2010 Phillip Henry, Mosquito and Vector Control Specialist also won the same award. As of 2010, a total of 11 have now received the highest honor for a mosquito control operator and 2 of the 11 are from Butte County Mosquito and Vector Control. The Boyd-Ariaz Grass Roots Award is to recognize excellent performance and dedication to mosquito and vector control around the world. Congratulations Beth and Phillip, the District thanks you for your efforts!

NOTES:



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