

annual report 2013



protecting public health since 1919

foreword

SHASTA MOSQUITO AND VECTOR CONTROL DISTRICT

19200 Latona Road, Anderson, CA 96007

Telephone: (530) 365-3768 Fax: (530) 365-0305

Web: shastamosquito.org

To the Residents of the Shasta Mosquito and Vector Control District,

As another year comes to a close, we take the opportunity to highlight the hard work that the District accomplishes each season. This year we experienced lower overall numbers of adult mosquitoes but still had relatively high levels of WNV. In Shasta County we had 38 dead birds, 15 mosquito samples, 21 positive sentinel chickens and a positive human for West Nile virus. West Nile virus continues to be a major issue locally, statewide and nationally. As much as this annual report is meant to be a look back at the year, for this report we will spend time looking at our plans for the future.

This year the District took time to look forward and completed the District's first Strategic Plan. This plan will set the groundwork for the District moving forward and help staff and Trustees alike communicate expectations. To show how a strategic plan can set a solid path for District operations, we have included those goals for the future as part of each program section throughout the annual report; this will help the reader know where we have been and a sense of where we are headed.

Two other major accomplishments occurred in 2013; the installation of the District's new aquaculture system and the adoption of the District's first MOU with the newly established UPEC 792 chapter. In an effort to maintain more control and increase our output, the District purchased and installed a three tank aquaculture system that will give us the ability to keep and distribute mosquito fish whenever they are needed. Additionally, UPEC and the District signed a three year memorandum of understanding; which after hard work by both sides brings stability to the organization.

This year we also regretfully said goodbye to three longtime employees; Tim Mickela, Joe Mimbs and Betty Willis. All three officially retired from the District at the end of the year and we wish them the best in their ventures in the future. Their contributions to the District will be greatly missed. We did begin replacing some of those positions this year and we said a big hello to our newest Administrative Office Manager Darcy Buckalew. We also saw the addition of a new Board Member; in 2013, we welcomed Dale Dondero to our Board of Trustees representing Shasta County at large.

The District continues our firm commitment to the residents of SMVCD. Going forward, we hope to continue fostering cooperation with residents, property owners, community groups, as well as other governmental agencies, to enhance the impact we have on vector control. We look forward to providing our services to you in the future. If you have any questions about this report or District services, please visit our website at www.shastamosquito.org or call us at (530) 365-3768.

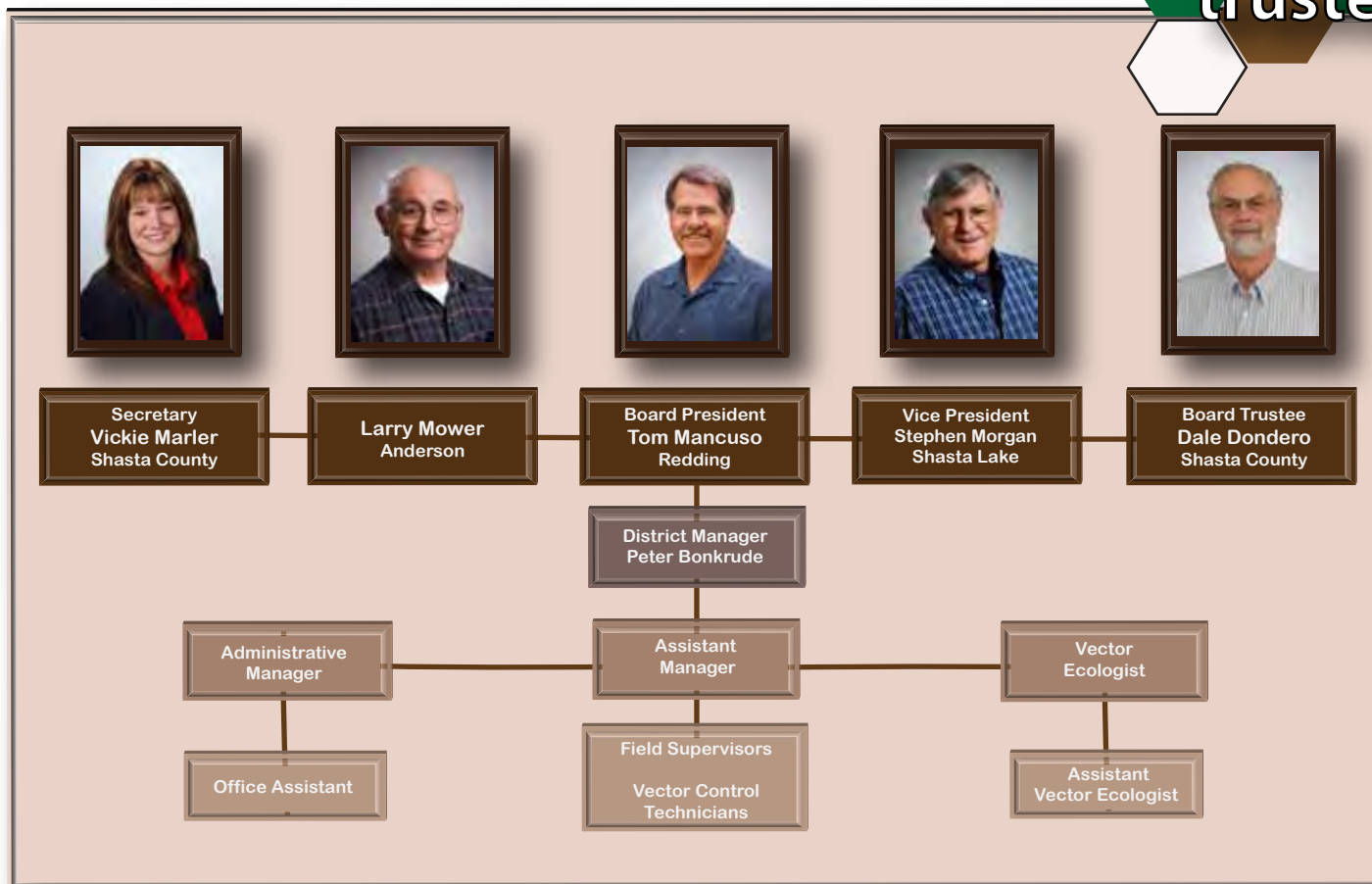
Sincerely,

Peter Bonkrude
District Manager

Tom Mancuso,
2013 President, Board of Trustees

Our Mission: "To protect the public's health from vector-borne disease and nuisance, through a comprehensive mosquito and vector control program focused on innovation, experience and efficiency."

board of trustees



staff



Back Row:

(Left to right)
 Al Shabazian
 Joe Mimbs
 Corey Boyer
 Geoff Taylor
 Haley Bastien
 John Albright
 Guangye Hu,
 Kendra Angel-Adkinson
 Kevin Pearson
 Kelly Cleland
 Peter Bonkrude

Front Row:

(Left to right)
 Tim Mickela
 Betty Willis
 Darcy Buckalew
 Valerie Peterson
 missing:
 Mike Alexander

district history

The first local mosquito control district was formed in 1919 in the Redding area. Mosquitoes were transmitting malaria, a mosquito borne disease that was prevalent in the region. The formation of other districts in the Anderson and Cottonwood areas quickly followed. The Anderson, Cottonwood and Redding areas had some of the highest malaria rates in the continental United States.

Through the years, the local mosquito control districts evolved to meet the needs of the growing communities.

In the mid 1950s, the three districts consolidated into one comprehensive district. When it became necessary, the district expanded its boundaries to include surrounding areas; effectively providing public health protection to a larger number of Shasta County residents.

In 2004 when West Nile virus (WNV) was first detected in Shasta County, the District encompassed 384 square miles. Due to the need to provide protection against WNV beyond those boundaries, the District was expanded through an election that annexed and provided a benefit assessment to fund services in outlying areas. Today, Shasta Mosquito and Vector Control District serves 1086 square miles of Shasta County.

Early mosquito abatement vehicle

integrated vector management

What's a Vector

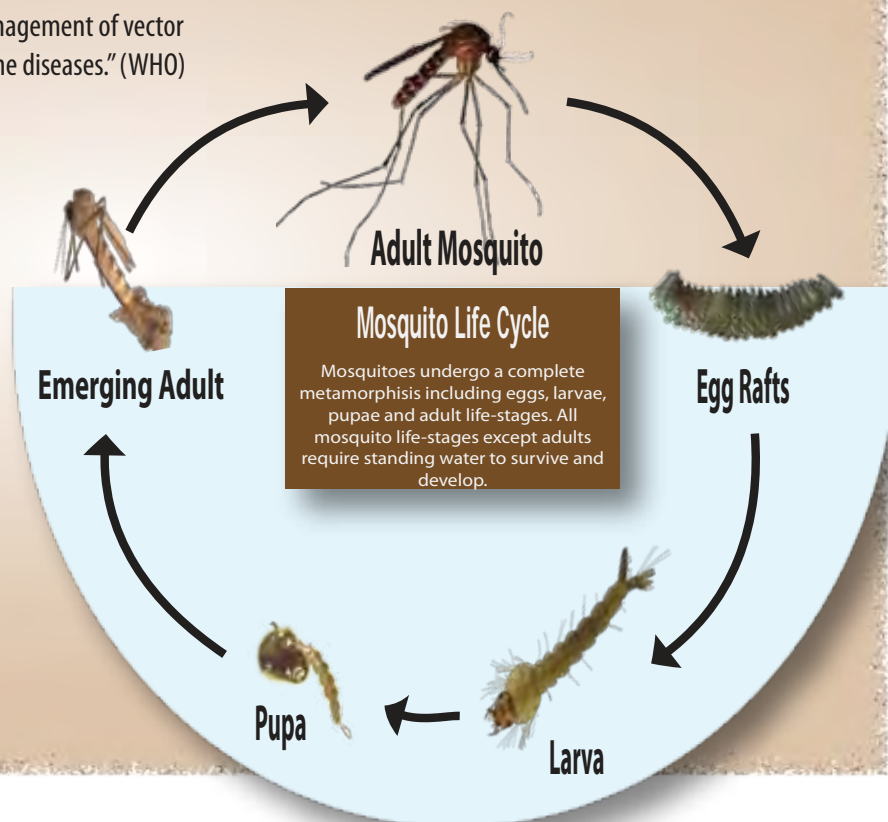
A vector is an insect or living carrier that transmits an infectious agent.

What is Integrated Vector Management (IVM)

Shasta Mosquito and Vector Control utilizes an Integrated Vector Management approach to controlling mosquitoes within our District boundaries. IVM is defined as "a rational decision-making process for the optimal use of resources in the management of vector populations, so as to reduce or interrupt transmission of vector-borne diseases." (WHO) Its characteristic features include:

- Selection of proven vector control methods based on knowledge of local vector biology and ecology, disease transmission and morbidity;
- Utilization of a range of interventions, separately or in combination and often synergistically;
- Collaboration within the health sector and with other public and private sectors that impact on vector breeding;
- Engagement with local communities and other stakeholders;
- A public health regulatory and legislative framework;
- Rational use of insecticides;
- Good management practices.

An IVM approach takes into account the available health infrastructure and resources and integrates all available and effective measures whether chemical, biological or environmental (WHO).



Shasta MVCD West Nile Virus Activity Highlights 2013

Activity levels were similar to 2012. Both 2013 and 2012 experienced high levels of virus activity, these were the highest levels of activity since 2007.

2013 had higher infection rates than 2012. For example, there were 15 WNV positive samples out of 262, about 5.7% in 2013. In 2012, there were 17 positive samples out of 679, about 2.5%.

This year had the highest incidence of WNV in sentinel chickens in the District's history (21 positive birds).

There were no confirmed WNV infection in horses.

Shasta County had one confirmed WNV human case.



Birds in California are most at risk of contracting West Nile virus during the months of July and August. In 2013 there were 1,235 positive birds in CA.

West Nile Virus Activity Highlights in California, 2013

Overall there were lower levels of West Nile virus (WNV) in 2013 compared to 2012.

California has the most human cases of WNV in the nation.

Shasta Mosquito and Vector Control District West Nile virus Activity 2006-2013

	2013	2012	2011	2010	2009	2008	2007	2006
Humans	1	1	0	0	0	1	9	4
Horses	0	5	0	0	1	0	3	2
Sentinel Chickens	21	6	0	0	0	3	7	4
Mosquito Samples	15	17	1	0	2	0	17	7
Dead Birds	38	36	0	4	9	7	45	88
Squirrels	1	1	0	0	0	0	0	2

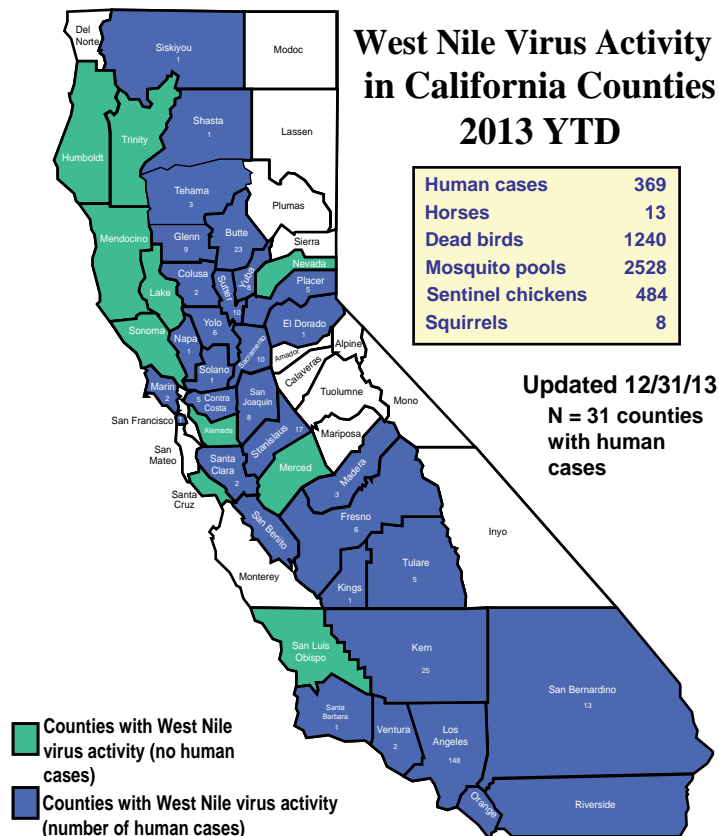
California 2012 vs 2013

As of Jan 1, 2014	2012	2013
Counties	42	43
Human cases	451	366
Horses	22	13
Dead birds	1642	1240
Mosquito samples	2848	2528
Sentinel chickens	540	484
Squirrels	23	8

West Nile Virus Activity in California Counties 2013 YTD

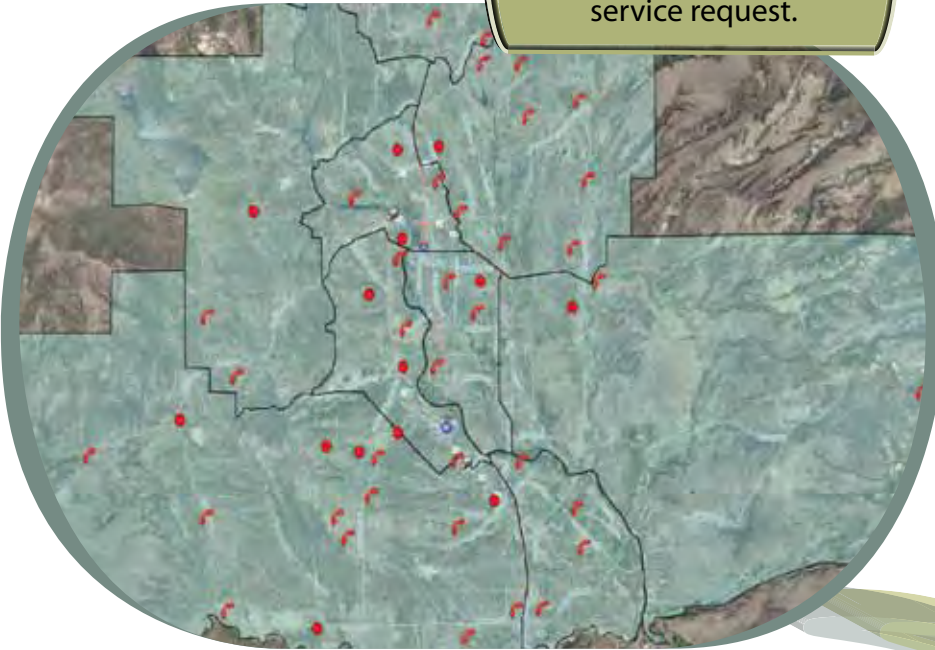
Human cases	369
Horses	13
Dead birds	1240
Mosquito pools	2528
Sentinel chickens	484
Squirrels	8

Updated 12/31/13
N = 31 counties
with human
cases



service requests

This map is an image of what the District's computer system in mid-April looks like. Each red telephone represents a service request.



Service Requests

District staff utilizes service requests for various reasons including: finding new mosquito breeding habitats, nuisance mosquito notification, dead bird WNV surveillance, mosquito fish delivery and neglected pool reports.

We consider it our best connection with the district residents and pride ourselves on our quick, courteous and responsive answers to requests.

These calls are an important source of information for the district and residents are encouraged to call or submit a request online. We strive to respond to service requests within one or two business days.

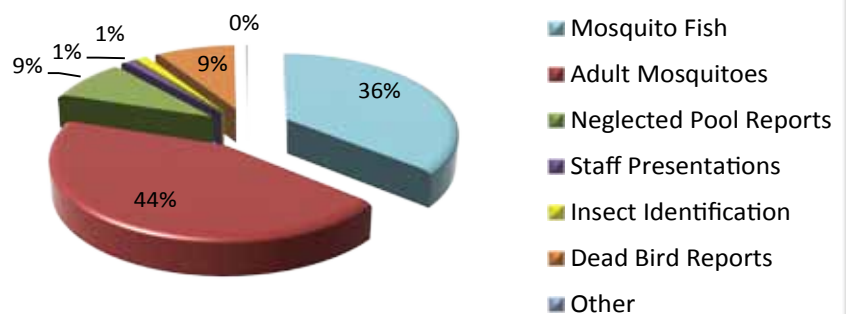
Service Requests by Community

Community	Requests
Anderson	184
Bella Vista	18
Castella	5
City of Shasta Lake	57
Cottonwood	79
Enterprise	24
French Gulch	3
Happy Valley	38
Igo	16
Jones Valley	2
Lakehead	26
Millville	13
Mountain Gate	4
Palo Cedro	71
Redding	774
Shasta	20
TOTAL	1334

Looking to the future...

- Decrease time from request to service
- Assure quality via customer satisfaction survey

2013 Service Requests by Type



Getting to kNOw Mosquitoes!

Do you know anyone who actually likes mosquitoes? Most people wonder what good they are. True, mosquito larvae are food for fish, and adult mosquitoes are food for birds, bats, and spiders, but they are also a nuisance and potentially dangerous to us.

The Deadliest Animals on Earth!

More deaths are associated with mosquitoes than any other animal on the planet. It's important to learn about them. Don't give them places to breed at your house, and prevent yourself from getting bitten!

Different kinds of mosquitoes develop in various types of standing water sources. At least 15 species of mosquitoes are known to occur in aquatic habitats found at Turtle Bay. Common mosquito types found at Turtle Bay include the western treehole mosquito, encephalitis mosquito, northern house mosquito and the woodland malaria mosquito. The diseases associated with these mosquitoes include canine heartworm, West Nile virus, malaria, western equine encephalomyelitis and Saint Louis encephalitis.

Do All Mosquitoes Bite?

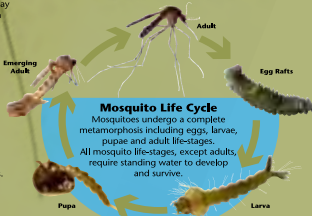
Male and immature mosquitoes do not bite. Only adult female mosquitoes feed on blood in order to promote egg development. Though many mosquitoes bite people, most mosquitoes feed on wildlife found where mosquitoes breed.

Depending on the species and time of year, adult mosquitoes live from about a week to several months. Some adult mosquitoes "hibernate" and live through the entire winter on food energy stored in their bodies.

Standing Water Breeds Mosquitoes

All mosquito life-stages except adults require standing water to survive and develop. Wetland habitats, such as those found at Turtle Bay Exploration Park, provide many permanent or temporary sources of standing water that breed mosquitoes including: seasonal runoff, intermittent flooding, seepage, isolated sources along streams and river banks, artificial containers and debris, beaver dams and rainfilled treeholes.

Dump standing water out of planters, trash cans, pet food bowls, and any other vessel that holds water to keep your home as mosquito-free as possible. Mosquito control starts with you!



Surveillance is Essential
Mosquito control professionals survey the Turtle Bay area regularly for the presence of mosquito adults and the diseases they carry. A CO2-baited trap (shown above left) and the new Jersey-style light trap (mounted here next to the boardwalk) are checked weekly to monitor adult mosquito species and abundance in this area. Turtle Bay is built on wetlands that are regularly monitored and managed to prevent larval development (shown above right).

outreach



before

SMVCD display at Turtle Bay Exploration Park gets total renovation in 2013



after

Turtle Bay Exploration Park

In conjunction with Turtle Bay Exploration Park, District staff completely renovated the display within the park. With its new prominent position on the board walk, the SMVCD display is an eye catching summary of mosquito habitat, life cycle, and mosquito borne diseases. The vivid pictures and informative text is a great way to educate visitors of all ages about how to prevent mosquitoes.

Looking to the future...

- Increase PR event venues
- Increase use of social media for PR
- Revise and update literature
- Evaluate outreach events and allocate resources accordingly

District Website
www.shastamosquito.org
Website Traffic in 2013
3,875 visits
2,533 guest
10,476 views

Shasta MVCD continues to engage the community and establish contacts for public outreach.

- Love your Pet Expo
- Redding Rancheria Health Fair
- Redding Rancheria Save the Earth Day
- Whole Earth & Watershed Day Festival
- NorCal Sport & Rv Show
- Redding Home & Garden Show
- Spring Home & Garden Show
- Redding Rancheria Save the Earth Day
- Career Day, Shasta Lake School
- Buckeye School of the Arts presentation
- Redding School of the Arts presentation
- KQMS AM Interviews About Mosquitoes
- Local TV Interviews about Mosquitoes and Ticks
- Shasta District Fair
- Donated DEET Wipes to Camp Hope and Project Homeless Connect

The district purchased a pop up canopy for outdoor events. The canopy is a great addition as it increases the visibility of the display.

biological control

Mosquitoes have natural predators that feast on their larvae and pupae, such as dragonfly larvae, beetles, tadpoles, and bats. Although these predators alone are not always able to do the job, mosquitofish are scientifically proven to be the most effective biological control agent for mosquitoes. A total of 413 requests were received for mosquito fish and District staff made 769 applications of fish throughout the District.

During 2013, the District placed approximately 38,000 mosquitofish in ponds, swamps, swimming pools, bird baths and animal troughs. In addition to considering mosquito larvae a delicacy (so we think), Gambusia reproduce very rapidly once placed in their new environment, so they provide on-going control. Using mosquitofish reduces or eliminates the need to use pesticides. This is a big plus for both the environment and the budget. When the water bodies become dry, mosquito fish can become a food source for wading birds.

fish transfer



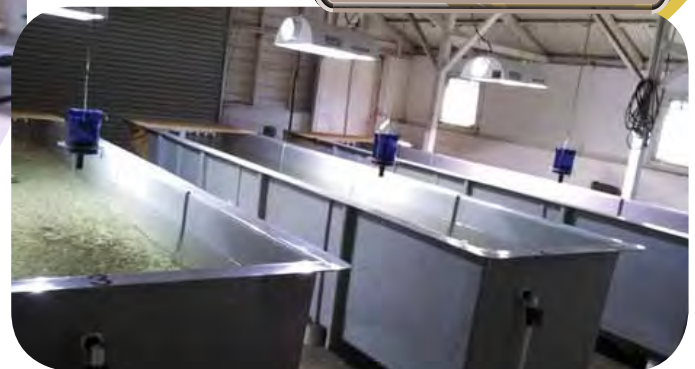
aquaculture center

Looking to the future...

- Rear and hold mosquitofish
- Meet demands for mosquitofish
- Evaluate Best Management Practices for stocking mosquitofish



arrival of fish tanks



The fall of 2013 the District started an indoor fish rearing program. It is intended that without the interference of cold weather the fish will continue to grow and reproduce, enabling earlier spring deliveries. The rearing system with controlled environmental elements has a potential of 300 lbs. of annual production of mosquitofish. This will save staff time travelling to the field ponds to collect and transport fish for release.

physical control

before



Physical control is an important component of an Integrated Vector Management (IVM) program. It can eliminate or reduce mosquito breeding grounds by improving drainage. Additionally, physical control can facilitate identifying and treating of mosquito sources by improving access to breeding habitats.

The common practices of physical control include:

- cleaning ditches with heavy equipment
- controlling massive overgrown vegetation by hand brushing
- controlled burning and herbiciding to open up paths and brushing

The District collaborates with the local California Department of Fish and Wildlife for environmental concerns and uses the CalFire Sugar Pine crews to overcome the shortage of our manpower and budget.

after



clearing brush



Looking to the future...

- Identify and complete permanent control projects
- Increase inter agency collaboration to generate more effective control measures

immature mosquito control

Larval control: Three of the four life cycle stages of mosquitoes develop in water. It is more effective to kill mosquito larvae and pupae before they begin to fly, as they are restricted to water bodies or aquatic habitats, relatively immobile and condensed.

treatment at local lumber mills



The District inspected 15,032 sites for mosquito breeding and treated 2,033 sites to kill mosquito larvae and pupae, a total of 945.28 acres.

The pesticides used to kill mosquito larvae and pupae are called larvicides, and are approved for use by both U.S. and California environmental agencies. Larvicides either destroy mosquito larvae or pupae or prevent larvae from completing their life cycle and becoming adult mosquitoes.

The larvicides used in our program are naturally occurring bacteria (e.g. Spinosad and Bti), Insect Growth Regulator (IGR, methoprene), or surface oils. Used at the label rates, these larvicides are considered to not be harmful to humans and animals.

Catch basins can cause a serious mosquito-breeding problem in the urban and suburban areas. The water retained in the catch basins from rain and excessive irrigation of lawns and gardens, provide breeding areas for *Culex* spp mosquitoes that are an important vector of West Nile virus (WNV).

The District inspected 7,265 catch basins and treated 2,127 for mosquito breeding.



larviciding

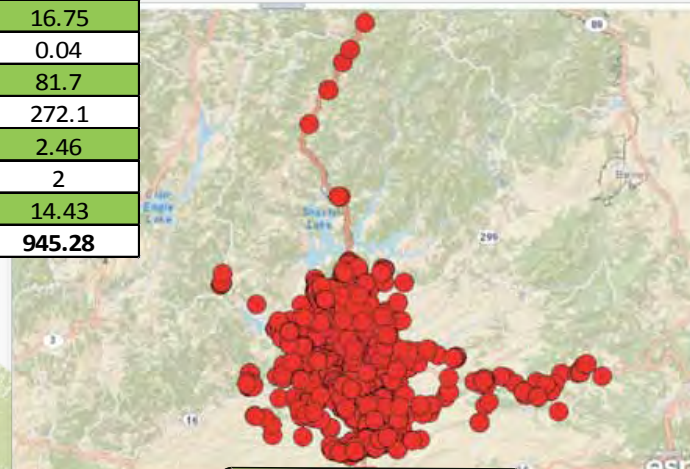
Immature Mosquito Control			
Community	Site Inspected	Sites Treated	Area Treated
Anderson	4373	444	243.39
Bella Vista	571	14	0.79
Castella	44	2	0.15
Cottonwood	1576	356	223.46
Enterprise	1309	268	81.51
French Gulch	254	8	4.5
Happy Valley	329	20	0.3
Igo/Ono	101	9	1.62
Jones Valley	348	6	0.08
Lakehead	87	0	0
Millville	397	36	16.75
Mountain Gate	104	4	0.04
Palo Cedro	384	71	81.7
Redding	4497	741	272.1
Old Shasta	109	11	2.46
Shasta Lake	470	16	2
Shingletown	82	27	14.43
TOTAL	15032	2033	945.28

Looking to the future...

- Evaluate new techniques, products, etc. for control
- Improve quality control/treatment efficacy



drain inspection



treatment sites 2013



**adult mosquito control
fogging routes**

Each technician has a GPS device on their laptops, which tracks each of their routes as they are fogging and all applicable information required.



Fogging Truck

Adult Mosquito Control Operations			
Community	Application	Miles Driven	Est. Acres Treated
Anderson	122	1,564.78	56,901.08
Bella Vista	9	119.09	4,330.40
Castella	3	14.43	524.80
City of Shasta Lake	25	264.24	9,608.84
Cottonwood	47	774.43	28,161.00
Enterprise	56	919.27	33,428.11
French Gulch	1	13.07	475.43
Happy Valley	9	99.32	3,611.70
Igo	3	105.26	3,827.81
Lakehead	2	9.22	335.36
Millville	8	283.04	10,292.42
Mountain Gate	1	22.63	822.86
Palo Cedro	2	31.26	1,136.76
Redding	124	1,389.06	50,511.34
Shasta	1	6.69	243.20
Shingletown	7	54.51	1,982.29
Totals	420.00	5,670.32	206,193.39

Looking to the future...

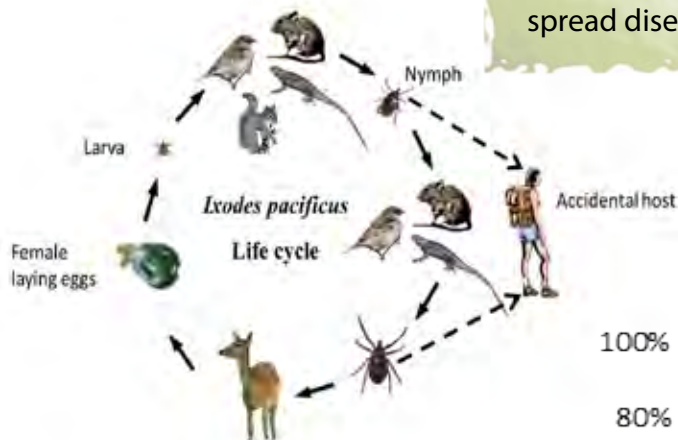
Evaluate alternative control techniques:

- Barrier treatment
- Toxic sugar baits
- Lethal trapping
- Evaluate adult control efficacy

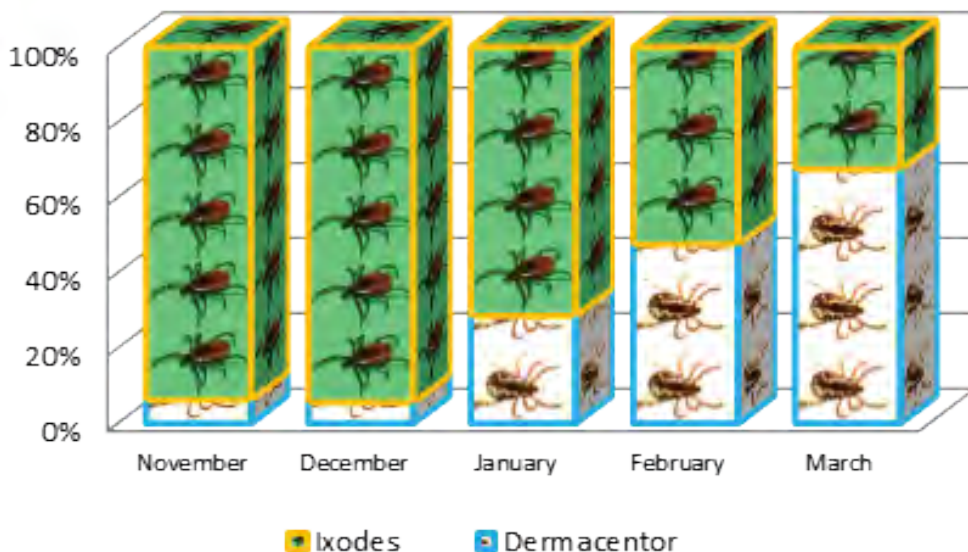
Adult mosquito control is initiated as part of an IVM program as the only way to interrupt disease transmission by lowering adult numbers and reducing the potential for the spread of the pathogen. The District makes ultra-low volume (ULV) applications of pesticides for the control of adult mosquitoes; however spraying for adult mosquitoes is only conducted when specific criteria are met, including: population density, species composition, and disease risk. As with larvicides, all adulticide products are registered by the EPA and are applied in strict accordance with the pesticide label requirements. Materials are applied as ultra-low volume fogs by truck at dusk or dawn, when the target mosquitoes are active, but bees and other non-target organisms would not be exposed.

Other vectors

The District began its tick surveillance program in 2009. Twenty-one locations are sampled on a weekly basis between November and March. The ticks are counted and identified to gather statistics on tick populations over time. Two types of hard ticks are generally found within the District: *Ixodes pacificus* and *Dermacentor* spp. Last season, 239 samples of up to five *Ixodes pacificus* ticks each were tested for the presence of Lyme disease. No positive samples were found during the 2013-2014 season. *Dermacentor* spp. ticks are not known to spread diseases within the District, though they can spread diseases such as Rocky Mountain spotted fever in other areas.



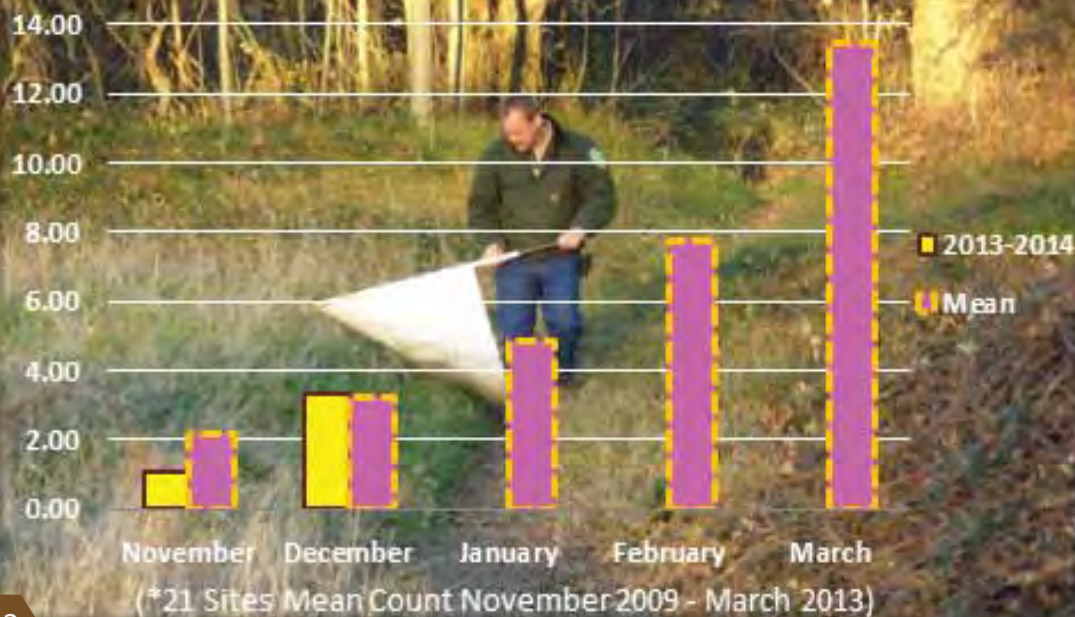
Mean Distribution of Ticks by Species
(2009-2013 at 21 sites in Shasta MVCD)



Looking to the future...

- Use PR and outreach to communicate increased risk of tick borne diseases
- Expand tick testing
- Work with land use agencies to placard areas with tick borne disease information

2013-2014 Ticks per Hour vs Seasonal Average^{2c}



looking for ticks

In 2013 we said goodbye to three of the District's staff.

Tim Mickela- Mosquito Control Technician for 13 years and well versed in structural pest control.

Joe Mimbs- Mosquito Control Technician for 18 years and specialized equipment operator.

Betty Willis - Administrative Manager for 12 years and handled all aspects of the District's financials and administrative duties.

We thank our retiring staff for their time with us and wish them the best in retirement.

Joe Mimbs



Betty Willis



Tim Mickela



other district activities



preparation

Looking to the future...

- Chemical hazard training
- Driver training
- Eye and face protection training
- Spill prevention and containment training
- ATV training



maintenance



training



research

Vector ecology is a dynamic field of study that is affected by advances in diagnostic methods, development or lack of new control products and techniques, regional environmental conditions, introduction of new species and diseases, short term weather conditions and long-range changes in climate. In addition to the routine tracking of statistics on past and current mosquito populations and disease transmission, the district will continue to undertake short and long-term research projects to assess and develop strategies to deal with important factors such as the development of pesticide resistance in local mosquitoes, and assessing and improving the efficiency and effectiveness of control methods.



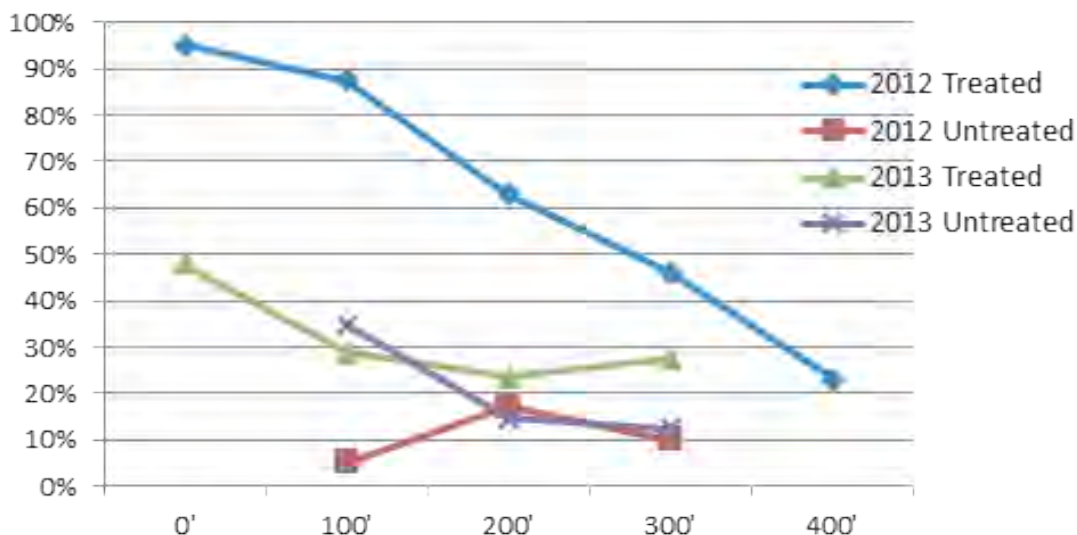
District staff at various stages of the ULV larvicide application experiment.

Looking to the future...

- Expand lab to accommodate increased research and surveillance responsibilities
- Expand in house testing abilities
- Evaluate new products

Control of Mosquito Larvae 0' to 400' from Point of Application

ULV Aerosol Application of Methoprene in Dense Oak Woodland



The District is in its second year of experiments to assess whether ultra-low volume (ULV) applications of larval control products could be applied to drift into thick vegetation to control mosquito larvae in cryptic sources such as treeholes and standing water sources. To test this idea, plastic cups with mosquito larvae were distributed in a grid pattern throughout dense stands of scrub oak trees. A truck-mounted ULV device was used to dispense a larval control product into the air drifting through the oak groves. In 2012, the results seemed to indicate that significant control was achieved. Conversely, two trials run in 2013 using superior equipment and under better field conditions did not show that any control of larvae was achieved. Further experimentation will be needed to determine why there was such a wide discrepancy.

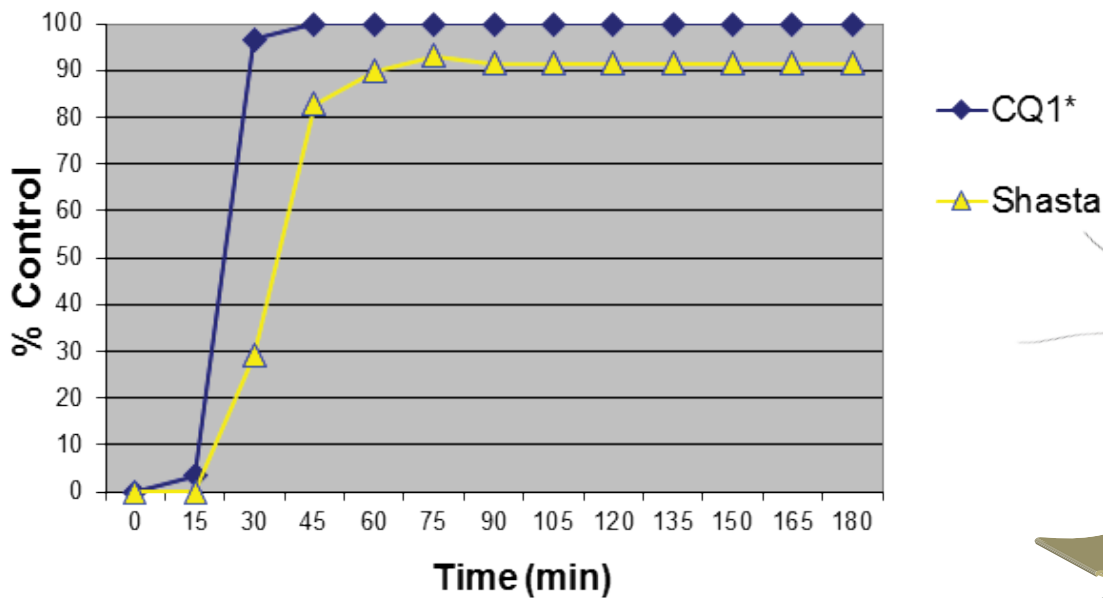
Mosquito districts have limited options when it comes to the number of chemicals that can be used for mosquito control. Historically, repeated applications of a limited assortment of insecticides to control insects have led to resistance to those pesticides in many important insect species.

To address this problem, Sacramento Valley Region vector control districts joined together for a bottle bioassay workshop in Elk Grove on July 27, 2013. Bottle bioassays of commonly used mosquito control products were performed on local mosquitoes from throughout northern California, including Shasta MVCD. The pesticides were shown to be effective against local mosquitoes. However, evidence of wide variability in susceptibility among northern California mosquitoes of the same species shows the importance of the continued expansion of pesticide resistance testing by the District in the future.



Cx pipiens - Sumithrin (22 ug/bottle)

*Laboratory reared mosquitoes known to be susceptible.



How does it work?

Bottle bioassays are tests designed to detect resistance to adult mosquito control products in local mosquito populations. Local mosquitoes are placed in bottles with precisely measured amounts of mosquito control products. The length of time it takes to kill the mosquitoes in the bottles can be used to evaluate their relative tolerance to the products that we use.



Looking to the future...

- Increase pesticide resistance testing
- Evaluate novel application techniques and equipment

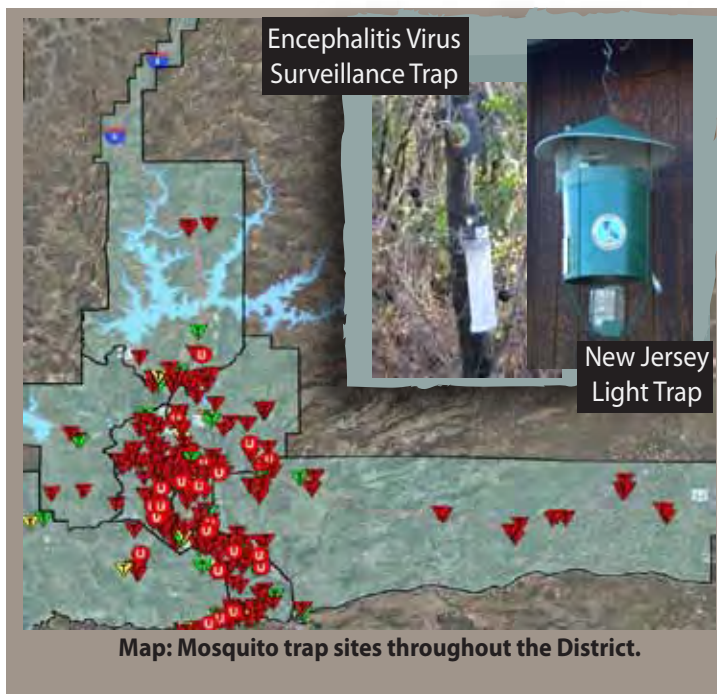
vector & disease surveillance

One of the most essential components of a successful Integrated Vector Management Program is the surveillance of vectors and the diseases they transmit.

The public health risk of

mosquitoes within the District depends on space, time and prevalence of certain species of mosquitoes and incidence of disease.

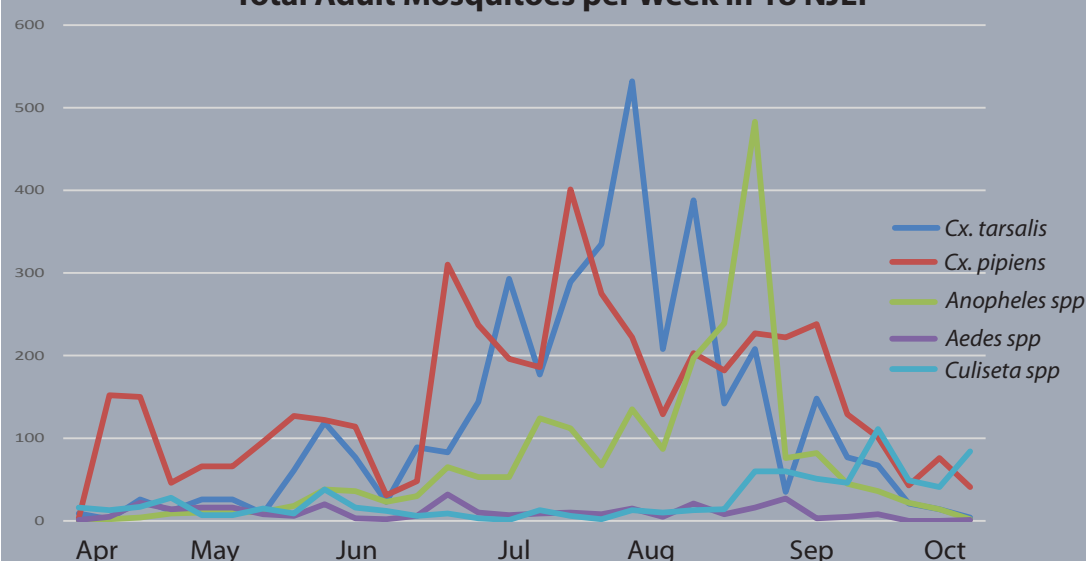
By effectively monitoring the abundance of vectors and the occurrence of disease, the District is better able to provide effective and focused public health vector control. Historically malaria, Saint Louis encephalitis, western equine encephalomyelitis, canine heartworm and West Nile virus have been transmitted by mosquitoes within the District. This year the District utilized two trap types to gather abundance and disease data; New Jersey light traps and encephalitis virus surveillance (EVS) traps.



New Jersey light traps

New Jersey light traps placed at 18 fixed locations throughout the District use a timed light source to attract mosquitoes overnight in jars that are collected on a weekly basis. Mosquitoes from the jars are identified to sex and species and counted on a weekly basis from April through October. Though these traps are not used for disease detection, they provide useful mosquito population trend information since they have been in use since 1976.

2013 Mosquito Population Total Adult Mosquitoes per Week in 18 NJLT



EVS traps

Encephalitis virus surveillance (EVS) traps use CO₂ gas to attract and collect mosquitoes seeking a blood meal. EVS traps are set for one night per week at each of 27 fixed locations throughout the District. The following morning they are collected and the mosquitoes therein are identified and counted. Additional "floater" traps are set in other problem areas as needed based on service requests, infected birds and other factors.

Since the mosquitoes in EVS traps are freshly caught, mosquitoes of appropriate species from these traps can be submitted in samples (pools of 12 to 50 mosquitoes) to UC Davis on a weekly basis to be tested for the presence of infectious agents. Although the number of mosquito samples submitted in 2013 (264) was less than half the number submitted in 2012 (679), the number of samples positive for WNV was nearly the same for both years (15 positive samples in 2013 compared to 17 in 2012).

Looking to the future...

- Evaluate new trap types
- Increase trapping
- Increase laboratory capacities
- Increase surveillance for emerging diseases

dead bird surveillance



West Nile virus (WNV) often kills birds, especially crows and their close relatives such as magpies and jays. Historically, dead birds reported to the District by the public have been tested for WNV and mapped as indicators for further mosquito trapping and possible increased control efforts. The number of dead birds found positive for WNV within the District in 2012 (36) and 2013 (38) resurged to levels not seen in this area since 2007. This is likely an indication that cyclic increases in WNV activity may be expected every few years within the District.

vector & disease surveillance

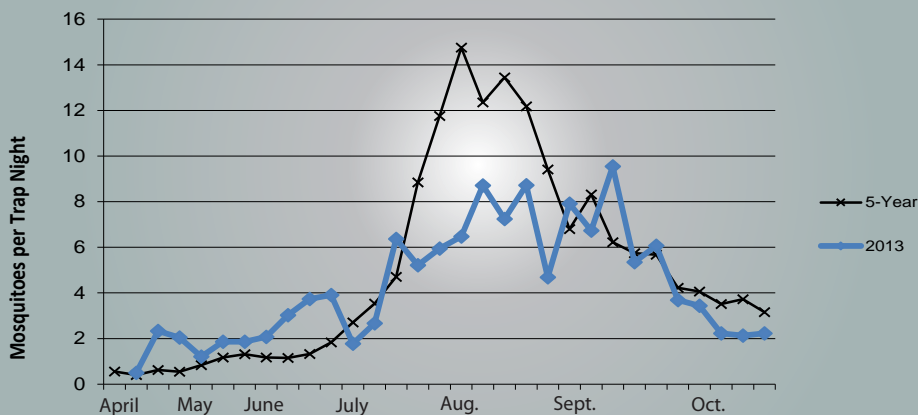


sentinel chickens

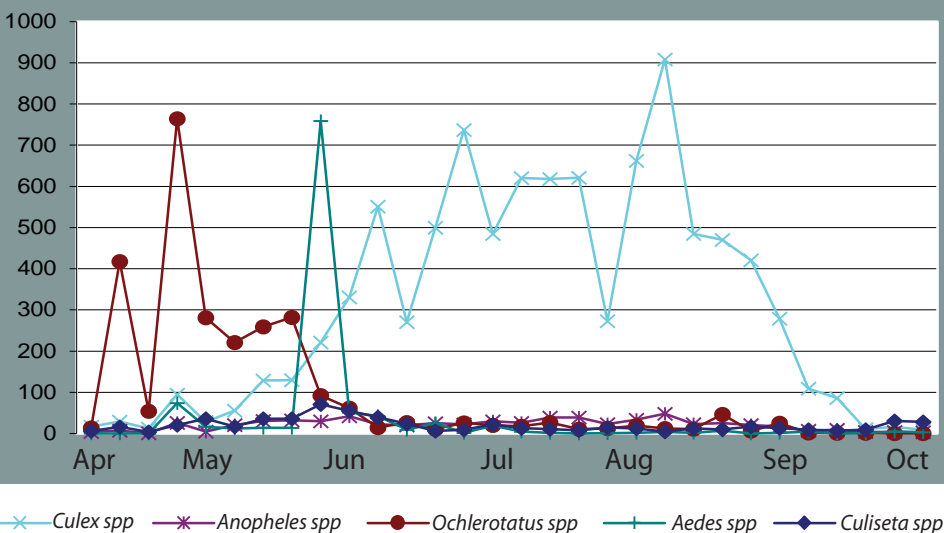
Since birds are reservoir hosts for a number of mosquito-borne diseases of public health importance, the District uses sentinel chicken flocks as an early detection system for detection of mosquito-borne disease transmission in the environment. The District maintained five sentinel chicken flocks of eight birds each spread strategically throughout the District in 2013. Blood samples were taken from the District's sentinel chickens every two weeks between the beginning of May and the end of October. WNV were found in 21 of the District's 40 sentinel chickens, which is **three times** the previous record of 7 set in 2007.

Shasta MVCD 2013 Versus Five-Year Mosquito Averages

Adult Mosquitoes Per Trap Per Night in 17 New Jersey Light Traps



2013 Mosquito Population Total Adult Mosquitoes per Week in 27 CO2 EVS Traps



neglected pools

Unattended swimming pools are contributing to a large number of mosquitoes in the District. The stagnant water in these pools attract female mosquitoes to lay eggs. In less than a week this can produce thousands of mosquitoes. As a mosquito source, each pool can threaten an entire neighborhood, supplying West Nile virus (WNV) transmitting mosquitoes.

Due to the difficulty in locating neglected pools the District contracted with a service to provide aerial surveillance. Through this surveillance, 697 pools were identified as potential mosquito sources and 58 of those required treatment.

Residents are encouraged to report pools if they are not being maintained.



Neglected Pool Procedure

Step 1. A neglected pool is discovered by someone reporting it or from the District's surveillance program.

Step 2. A technician will place notification for inspection of possible sources. If you receive a door hanger, please call so we can assist you in solving this issue.

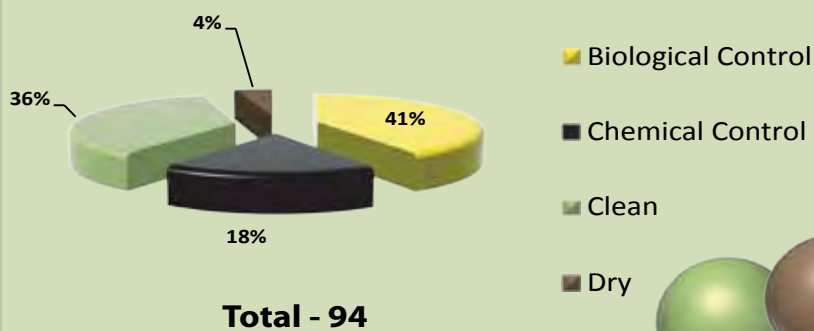
Step 3. When the resident calls, the technician will make an appointment to inspect and treat if necessary.

Step 4. If the District has not heard from the resident, a warrant to inspect and abate will be posted on the front door. The resident has 24 hours to respond.

Step 5. After the 24 hour time period has been reached and there still has not been a response from the homeowner or resident, District personnel will enter the exterior of the property.

Step 6. At this time the swimming pool will be inspected; if mosquitoes are present, District staff will provide the appropriate treatment.

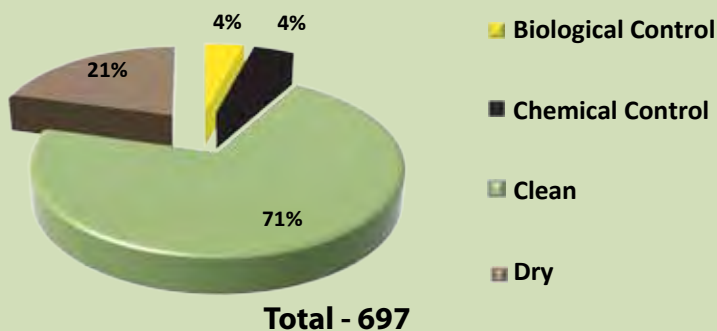
2013 Reported Pools



Looking to the future...

- Evaluate efficacy of aerial identification of neglected pools
- Evaluate new techniques for neglected pool identification

Aerial Surveillance Program



Fiscal Year 2012-2013

financial highlights

Assets

Cash and cash equivalents	3,380,510
Accounts Receivable	8,661
Due from other governments	56,223
Inventories	57,260
Non-depreciable capital assets	51,273
Depreciable capital assets, net	696,748
TOTAL	4,250,675

Liabilities

Accounts payable	27,089
Compensated Absences	124,521
Other Post Employment Benefit Liability	1,498
TOTAL LIABILITIES	153,108

Fund Balance/Net Assets

Nonspendable	57,260
Committed	593,977
Assigned capital projects	624,048
Unassigned	2,185,889
TOTAL FUND BALANCE	3,461,174
TOTAL LIABILITIES AND NET ASSETS	3,461,174

Change in Net Assets

Change in Net Position	(126,767)
Fund Balance Net Position- Beginning of Year	4,224,334
Fund Balance/Net Position -End of Year	4,097,567

Net Assets

Investments in Capital Assets	748,012
Unrestricted	3,349,546
Net Assets End of Year	4,097,558

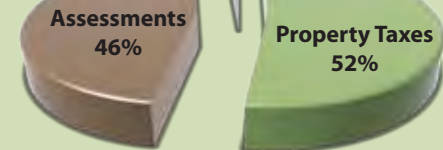
Funding Sources - Property taxes represent 52.29% of the District's funding. This includes Current Secured, Current Supplemental, and Current Unsecured property tax. The District's other main source of revenue is through two benefit assessments that assess individual properties. Benefit Assessment revenue represents 46.3% of District Funding. The remaining 1.41% of revenue comes from interest earned and miscellaneous sources.

2012-2013 REVENUES

Property Taxes	1,270,905	52.29%
Assessments	1,125,510	46.30%
Interest & Miscellaneous	34,250	1.41%
TOTAL	2,430,665	100%

Interest & Miscellaneous
2%

REVENUES



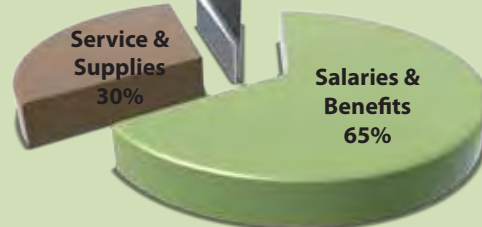
2012-2013 EXPENDITURES

Salaries and Benefits	1,672,606	65.41%
Service and Supplies	766,088	29.96%
Utility Expense	15,890	0.62%
Capital Outlay	952	0.04%
Depreciation	101,696	3.98%
TOTAL	2,557,232	100%

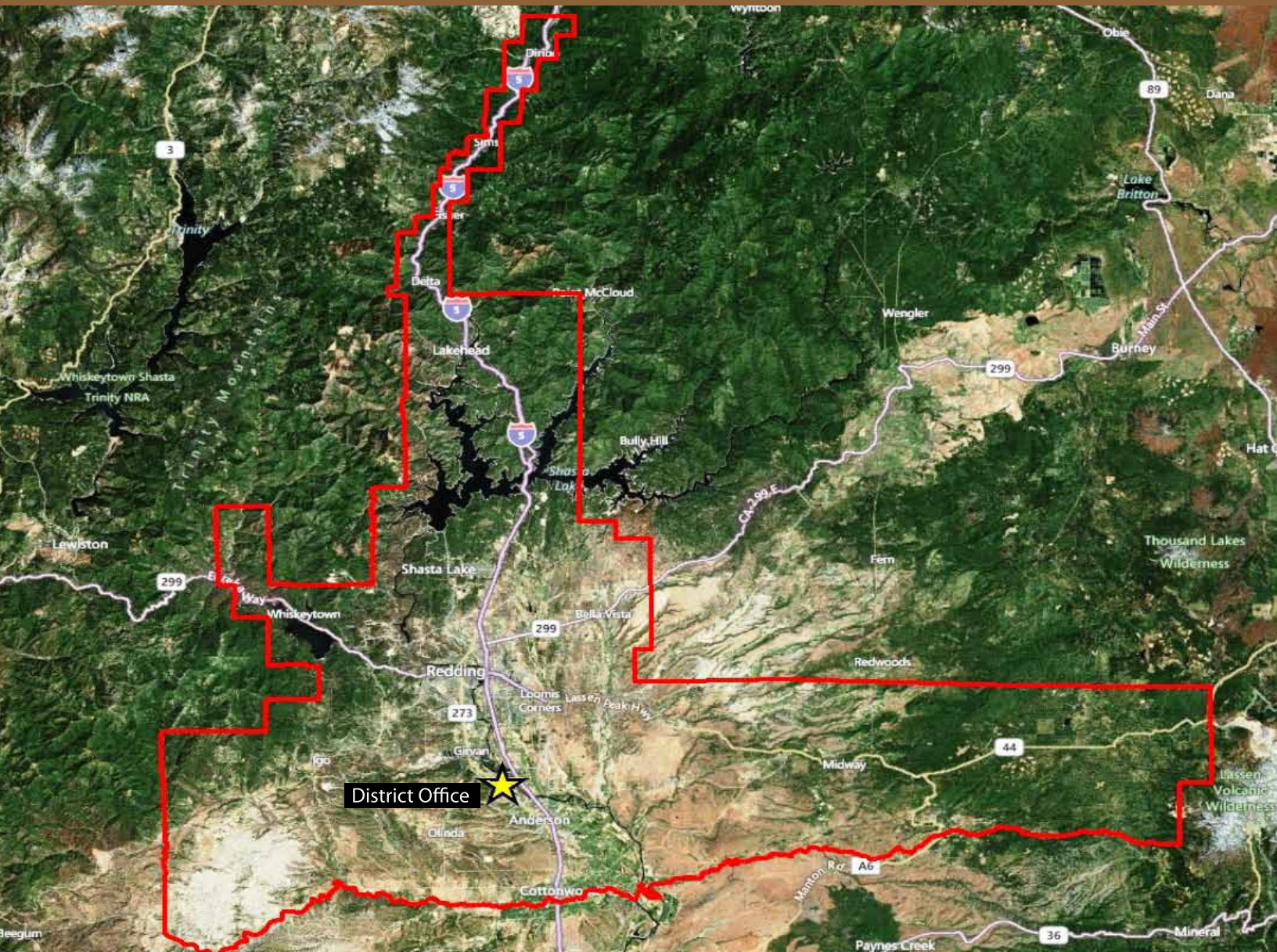
Utility Expense
1%

Depreciation
4%

EXPENDITURES



Shasta Mosquito & Vector Control District



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