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Annual Report

Protecting Public Health Since 1927



C o n t r a C o s t a

M o s q u i t o & V e c t o r

C o n t r o l D i s t r i c t

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Foreword



As predicted, West Nile virus (WNV) had its greatest impact to date in Contra Costa County this year, causing human illnesses and animal deaths. There were eleven documented human cases, many of whom experienced the more severe form of the illness. Undoubtedly, there were many more undocumented cases of the milder form of the disease.

Having studied the impacts of WNV on communities as the disease marched across the country, the District was well positioned to enhance its efforts and workforce to protect public health. Although the long term impacts of the disease are still unknown, the District is prepared to enhance its surveillance and control program for a five-year period or until the long-term effects are better understood and necessary program adjustments are made.

West Nile virus was first detected in the United States in 1999 in New York City. The experience has been that the disease is first detected in birds or mosquitoes in an area or state with few human infections. The following year, human and animal infections increase rapidly. This pattern held true for Contra Costa County as we first detected the virus in 2004 in birds with no human or animal illness, and then in 2005, elevated numbers of dead birds with WNV and our first human and equine cases appeared.

During the latter part of the year while we were busy winding down from a West Nile virus season, we were deeply saddened by the loss of Fred Walls, a vector control technician who passed away suddenly in December. Fred was an integral part of our team who shared his experience and expertise with us always with humor, followed with a hearty laugh. Fred was known for his generosity and shared not only his stories and wisdom from his beloved Hawaii, but often graced our special events with his exquisite cooking skills. We extend our deepest sympathies to Fred's family and friends.

Respectfully,

Craig Downs

General Manager

Principles

Vision

To be the lead agency in Contra Costa County for the detection and suppression of threats to public health from disease transmitting pests, and non disease transmitting pests which disrupt public activities.

Mission

To protect public health and welfare through area-wide, responsive services and programs by:

■ Community Value

Providing essential District services to detect and suppress public health pests, and to reduce the chance of disease transmission and discomfort to the people who live, work, or enjoy outdoor activities within Contra Costa County

■ Service Area

Providing field services and administrative programs throughout the county, including all incorporated cities and unincorporated communities

■ Public Confidence

Delivering accessible, accountable, efficient and cost effective services to the public in all communities within the county

■ Community Awareness

Informing community leaders and public “customers” regularly about programs and services; linking educational programs to schools, public agencies, nonprofit organizations and private industry

■ Environmental Commitment

Complying with, by meeting or exceeding, federal, state, and local environmental standards that affect service programs

■ Research

Developing and/or testing new materials, methods and technologies to ensure quality control oversight on all services and programs, while anticipating resurgent and/or new introduced vectors, or vector-borne diseases

■ Support Programs

Integrating District programs and services with other related regional, state and federal public health agencies to ensure cooperative, cohesive program delivery

District Profile

In 1926, residents rallied together to form the Contra Costa Mosquito Abatement District to control mosquitoes responsible for epidemics of encephalitis and malaria, and to relieve severe outbreaks of salt-water marsh mosquitoes. During peak mosquito season, waterfront areas and schools were closed, recreational areas were abandoned, and realtors had difficulty selling homes. Some areas in the county were declared uninhabitable.

For nearly 80 years, the District has steadfastly surveyed and treated thousands upon thousands of mosquito breeding sources throughout the county, while considering, maintaining, and even enhancing the environment.

Today, our county is not only habitable, but encompasses a rich diversity of economic, agricultural, and recreational amenities. The mosquito-borne disease West Nile virus illustrates the importance of our organization as a public health entity and reminds us that mosquito control is as important today as it has ever been.



2005 Board of Trustees

Standing: Jim Pinckney, Contra Costa County; Jim Fitzsimmons, Lafayette; Dick Vesperman, San Ramon; Jon Elam, Brentwood; Daniel Pellegrini, Martinez; Diane Wolcott, Orinda; Ronald Tervelt, Clayton
Seated: Richard Head, Oakley; Nancy Brownfield, Walnut Creek; Heather Gibson, Contra Costa County; Jeannette Mahoney, Richmond; Kaleinani Lau, Danville; Tim McDonough, Pinole; Myrto Petreas, Moraga; Richard Means, Pleasant Hill

Not pictured: Earl Mortenson, Concord; Russ Belleci, Contra Costa County; H. Richard Mank, El Cerrito; Johnny Poon, Hercules

2005 Administrative Staff

Karl Malamud-Roam, Environmental Projects Manager; Eric Ghilarducci, Vector Ecologist; Steve Schutz, Scientific Programs Manager; Damien Clauson, Laboratory Assistant; Chris Miller, Biologist; Nancy Thurman, Administrative Secretary; Michael Yeater, Technology Technician; Tina Cox, Accounting & Benefits Specialist; Ray Waletzko, Administrative & Finance Manager; Carlos Sanabria, Operations Manager; Deborah Bass, Public Affairs Manager; Craig Downs, General Manager

Not Pictured: Tom Fische, Mechanic



Field Personnel

Carlos Sanabria, Operations Manager

In 2005, the District faced its second year of West Nile virus in Contra Costa County. The District was well prepared having doubled our field workforce in 2004. All eight mosquito zones were staffed with a technician and an aide. Fortunately, most 2004 vector control aides returned for another season. One aide was assigned to the Vertebrate Vector program and another was assigned to the Yellowjacket program to answer the majority of the yellowjacket service requests during the summer months. Cross training took on renewed importance in September when the vertebrate vector crew began assisting with swimming pool inspections and evening ultra-low-volume mosquito adulticiding activities.

Technicians were reassigned in August to assist in East county where West Nile virus was found in infected mosquitoes and birds, as well as horses and humans. Every field employee was committed to helping the District accomplish its goal: minimize West Nile virus transmission. The majority of the technicians worked four consecutive Saturdays to ensure that all sources were completely sprayed before any adult mosquitoes could emerge. Weekend work enabled technicians to access many more unmaintained pools since the majority of homeowners were home. The success of the District's program in 2005 can be attributed to the District's valuable and dedicated workforce.

2005 West Nile Virus Team



Left to right: Steve Schutz, Scientific Programs Mgr.; Dave Wexler, VCT; Eric Ghilarducci, Vector Ecologist; Valentin Quintero, Aide; Mike McCoy, Lab Assistant; Joe Cleope, VCI; Holland Johann, Aide; Bob Stultz, VCT; Steve Fisher, VCT; Felipe Carrillo, VCI; Dave Obrochta, VCI; Steve Perkins, VCI; Patrick Vicencio, VCI; John Chase, VCI; Manual Raya, Aide; Joe Hummel, Aide; Fred Walls, VCI; Kirk Thill, Program Sprvsr; Nancy Harden, VCI; Daniel Yoon, Aide; Tim Mann, Aide; Reed Black, VCI; Sheila Currier, VCI; Chris Miller, Biologist; Jason Descans, VCT; and Marcelino Molina, Aide. *Not Pictured: Damien Clausen; Danielle Peters, James Marshall*

Mosquito Control continued

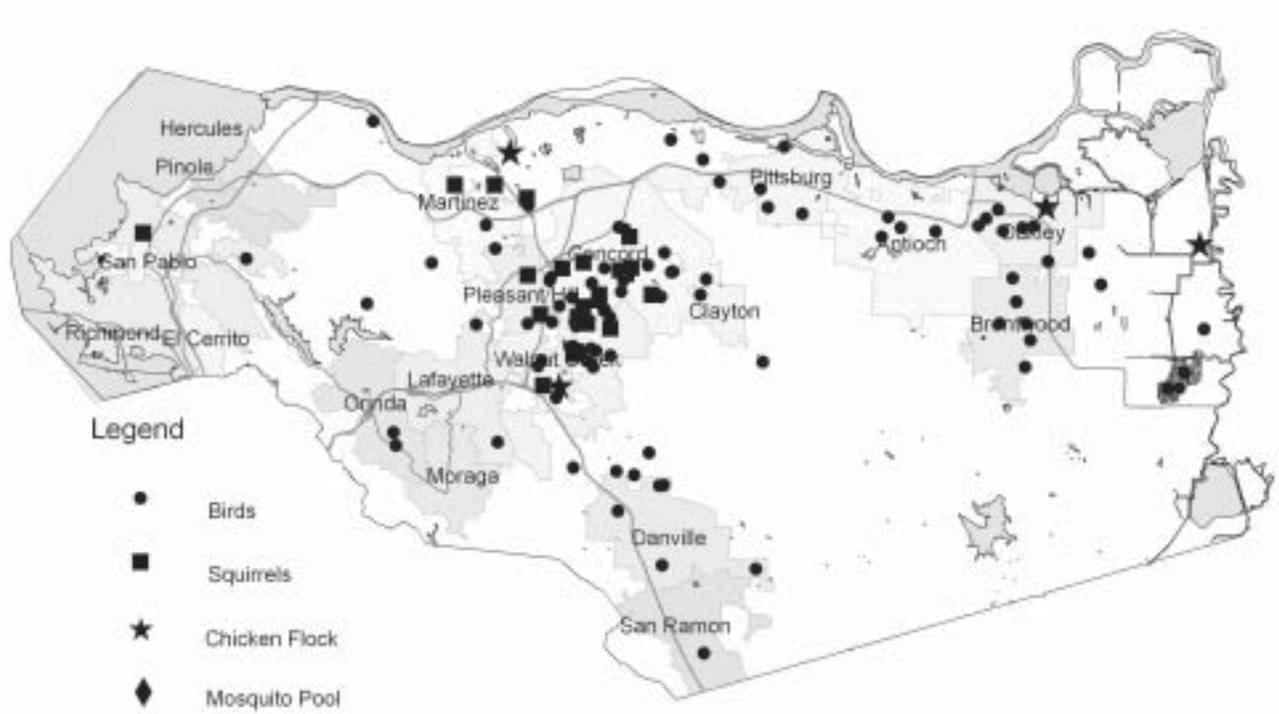


Fig. 2. Positive West Nile virus locations in 2005 (human and horse cases not depicted to ensure resident's privacy)

Due to our enhanced control efforts, light trap counts of the northern house mosquito *Culex pipiens* were well below average throughout most of the year (Fig.3). Due to the addition of new trap locations in the waterfront area where mosquito counts tend to be highest, our average trap counts of *Culex tarsalis* appeared to increase during 2005, although at the previously established trap sites our counts were mostly average or below.

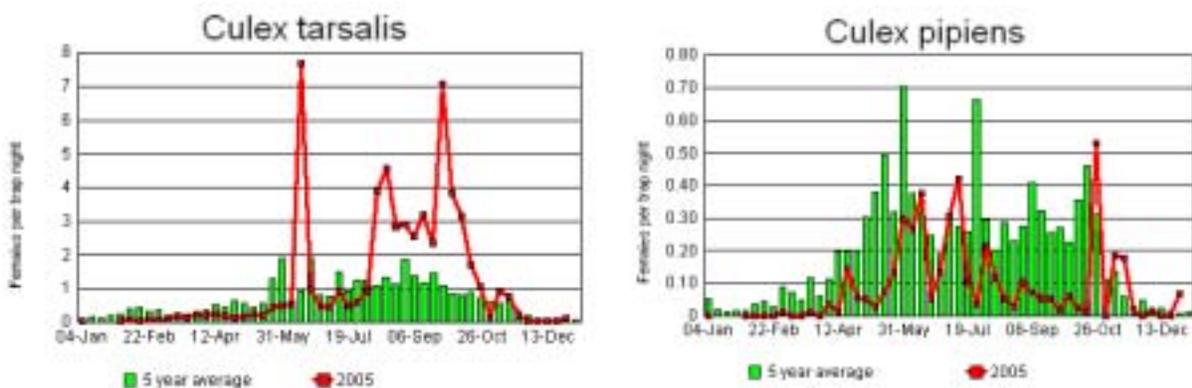


Fig. 3. 2005 County-wide New Jersey Light trap counts for vector mosquito species (solid lines) vs. 5 year average (dashed lines)

Mosquito Control continued

Special Projects

During 2005 we conducted a pilot project on the use of a rapid test in our laboratory for detection of West Nile virus in dead tree squirrels. Preliminary results were promising and we plan on continuing this project in 2006. We also analyzed the distribution of West Nile virus human and equine cases in Contra Costa County during 2005, with respect to the distribution of dead bird reports, average high temperatures and human population density. We concluded that the distribution of dead bird reports and virus cases was temperature-related, with more virus transmission occurring in warmer parts of the County. We also concluded that human population density was an important factor in interpreting the distribution of dead bird reports. Neither temperature nor human population density are included in current WNV risk models; we suggest that future refinements of these models should incorporate these factors. Results of both of these projects were presented at the 2005

Mosquito and Vector Control Association of California's Annual Conference.

We also conducted surveillance for hantavirus in our county, in collaboration with the California Department of Health Services. Hantavirus (or more specifically, Sin Nombre virus) is mainly carried by deer mice and can cause a serious respiratory illness in people exposed to dust from their droppings. Approximately 12 percent of the deer mice we trapped were positive for Sin Nombre virus. Similar infection rates have been found throughout most of California, including other parts of the Bay Area. Fortunately, human cases are very rare and mostly occur in isolated mountain locations. Our Public Affairs department has literature available on how to prevent rodent problems and protect oneself against rodent-borne disease.

In 2005, our lab staff:

- Counted and identified adult mosquitoes from 20 New Jersey light traps weekly
- Counted and identified adult mosquitoes from 40 to 70 carbon dioxide traps weekly
- Identified 4,884 larval mosquito samples
- Identified and submitted 20,950 adult mosquitoes for virus testing
- Tested an additional 7,450 mosquitos for West Nile virus in our laboratory
- Submitted 650 chicken blood samples from 5 sentinel flocks for antibody testing
- Picked up and processed over 500 dead birds and 49 dead squirrels for West Nile virus testing
- Tested 160 dead birds and 15 squirrels for West Nile virus in our laboratory
- Provided weekly West Nile virus risk assessments based on the California West Nile virus Response Plan
- Handled 146 pest identification inquiries by the public.

Mosquito Control Continued: In the Field

Carlos Sanabria, Operations Manager

Vector control technicians responded to 797 mosquito service requests in 2005, compared to 703 requests in 2004. This increase in service requests was expected with the appearance of West Nile Virus in Contra Costa County. Enhanced public awareness and media attention to mosquito control activities, coupled with the Department of Health Services' call to the public to report dead birds, all contributed to the increase in requests for service.

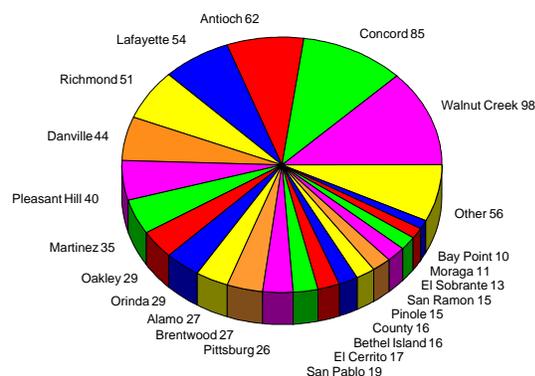
The District's New Jersey light traps indicated that mosquito populations were below average for the majority of the year. This finding was corroborated by encephalitis vector surveillance carbon dioxide baited traps which also indicated mosquito populations at or below average. With the continuation of additional seasonal personnel, zone leaders were able to delegate routine treatments and inspections to seasonal vector control aides and concentrate on answering service requests and searching for new mosquito breeding sources. District personnel performed springtime mosquito control assaults on Bethel Island, Jersey Island, Bradford Island, Webb Tract, Holland Tract, Bay Point waterfront, Concord Naval Weapons Station, Martinez waterfront and Chevron Refinery properties in Richmond. The assaults were composed of multiple personnel, all-terrain vehicles, as well as helicopter application of mosquito larvicides. A tree hole mosquito assault was conducted in the various wooded areas of central and West Contra Costa County. Vector control technicians treated all known problem catch basin areas monthly, as well as surveyed adjacent storm drain systems. They also received help from many cities' public works departments in fixing blockages and other related problems. An emphasis on backyard mosquito sources led us to utilize aerial photography to spot unkept swimming pools, especially in the municipalities where West Nile virus cases existed. Portions of Antioch, Brentwood and Oakley were surveyed, questionable pools were identified and

those properties were visited by vector control technicians. In an effort to maximize owner contacts, all non-responsive properties were again visited on a Saturday morning. This strategy allowed us to inspect virtually every questionable swimming pool in our survey area.

The cities of Antioch, Brentwood, Danville, Moraga and Pleasant Hill have passed ordinances giving the District administrative citation authority for public nuisances involving vector species – most notably, mosquitoes and the water sources that produce them. The District is called upon by those code enforcement staff who are doing their own enforcement to utilize our expertise to address many of the mosquito sources discovered. The benefit of public agency awareness has resulted in increased interagency cooperation with our District. Even though the District has the ability to write an administrative citation, we have been able to work with homeowners to eliminate the offending mosquito source by simply demonstrating our authority to issue a citation.

The District received excellent cooperation from Contra Costa County duck hunting clubs in delaying and controlling flooding of their ponds, thus minimizing mosquito populations.

2005 Mosquito Service Requests



municipalities not listed are <10 requests

Ticks and Lyme Disease

Eric Ghilarducci, Vector Ecologist

During the 2004-2005 season, adult Western black-legged ticks (*Ixodes pacificus*) were collected and the population was monitored from three locations in Contra Costa County. Due to a temporary reduction in laboratory staff during the 2003-2004 season and a minor difficulty experienced in acquiring sufficient materials for testing, only ticks collected from the Bollinger Canyon Site 1A were dissected and tested for the presence of the Lyme disease, *Borrelia burgdorferi*.

Adult Tick Population

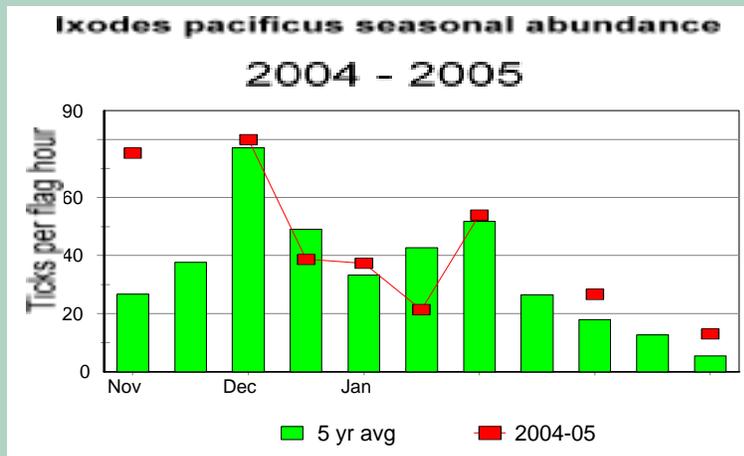
The adult Western black-legged tick population was at or near average for most of the season except during the month of November, where counts far exceeded the average. The graph below shows the average number of ticks that were collected at the

three locations that have been monitored for the past twelve seasons. These include Bollinger Canyon Rd., San Ramon; Springhill Rd., Lafayette; and the Bear Creek area of Briones Regional Park.

Tick Testing

A total of 670 adult Western black-legged ticks were collected from the Bollinger Canyon Road site 1A this season. Seventy four ticks were tested (45 females, 29 males) for the presence of Lyme disease, using an Indirect Fluorescent Antibody test (IFA). Two of the seventy-four ticks tested were found to be positive for the Lyme disease, yielding a 2.7 percent infection rate. This is the twelfth season for which ticks have been tested from this site. The average infection rate

continued on page 12



- 1 A total of 670 adult Western Black Legged ticks (356 male, 338 female) were collected from the Bollinger Canyon Rd., San Ramon, site 1A, this season.
- 2 A total of 244 adult Western Black Legged ticks (136 male, 108 female) were collected from the Springhill Rd., Lafayette, site 4, this season.
- 3 A total of 118 adult Western Black Legged ticks (44 male, 74 female) were collected from the Bear Creek Creek area of Briones Regional Park, site 5, this season.

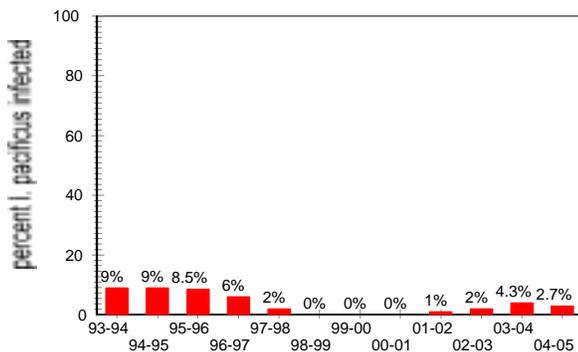
Ticks and Lyme Disease continued

over the twelve year period is 3.71 percent, which is slightly higher than the Californian State average of 2.0 percent. The chart below shows the Lyme disease (*B. burgdorferi*) infection rate at the Bollinger Canyon Site between the 1993-94 to 2004-05 seasons.

In addition to our regular Lyme disease IFA testing, a total of 374 adult Western black-legged ticks were collected from five sites near Springhill Road, Lafayette, and were tested using real-time PCR by Dr. Alan Barbour of University of California, Irvine, for the presence of two species of Lyme disease causing bacterium, *Borellia burgdorferi* and *Borellia miyamotoi*. *Borellia miyamotoi* is closely related to *B. burgdorferi*, but at this time has not been shown to cause disease in humans.

This location was chosen as it was an area previously known to have had high Lyme disease infection rates in Western black-legged ticks that were collected by both Contra Costa Mosquito & Vector Control staff and those submitted by the public to our office for testing. The infection rates have varied yearly from 0-14 percent. Collection sites were named 4A, 4B,

Borellia burgdorferi infection rate
Bollinger Canyon Rd., San Ramon 2004-2005



4C, 4D, and 4F. The specific results are listed in the table below.

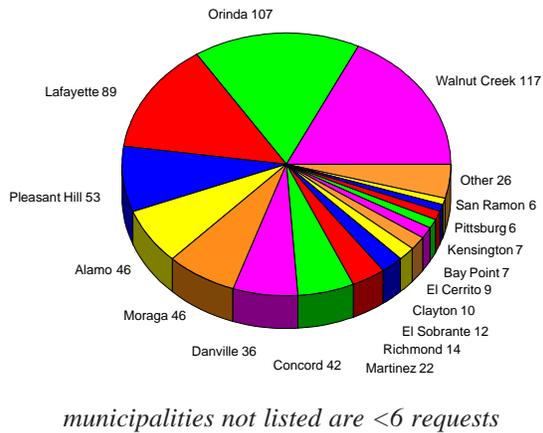
Real Time PCR Results	Bb	Bm
Site 4A		
Positive Counts	3 (3)	0
Negative Counts	98	101
Total tested	101	101
Site 4B		
Positive Counts	3 (3)	6 (5)
Negative Counts	101	98
Total tested	104	104
Site 4C		
Positive Counts	4 (3)	1 (1)
Negative Counts	105	108
Total tested	109	109
Site 4D		
Positive Counts	1 (0)	0
Negative Counts	59	60
Total tested	60	60
Site 4F		
Positive Counts	0	0
Negative Counts	0	0
Total tested	0	0
Summary		
Total positives	11 (9)	7 (6)
Total negatives	354	366
Total tested	374	374
% Infected	2.94%	1.87%

() = verified by 16S-23S intergenic spacer PCR
Bb, *B. burgdorferi*, Bm, *B. miyamotoi*

Yellowjackets

Vector Control personnel responded to 655 yellowjacket service requests in 2005 compared to 967 in 2004. The decrease in requests to average levels might be attributed to a winter of greater severity that diminished the number of overwintering yellowjacket queens. The District continued to utilize a trained vector control aide to respond to these calls during the summer months and allow mosquito vector control technicians to concentrate on management of mosquito problems in their zones.

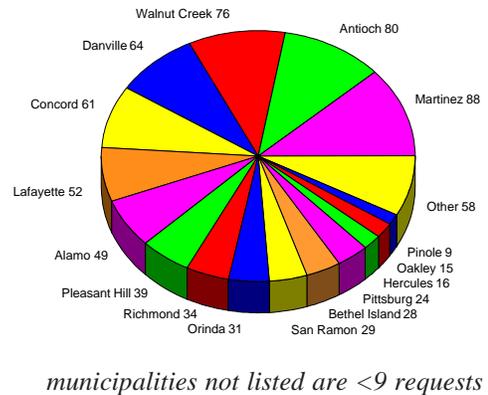
2005 Yellowjacket Service Requests



Skunks

In 2005, vector control personnel responded to 776 service requests compared to 605 in 2004. The increase appeared to hold true for most municipalities. Yearly skunk problems in residential areas have decreased significantly due to the District's demand that exclusion work be performed prior to obtaining a District trap. A detailed report is created following an inspection of the affected property that guides the homeowner to make improvements to their properties to discourage future skunk activity. The District has benefitted from using the new type of skunk trap that greatly reduces the capture of non-target animals.

2005 Skunk Service Requests



Africanized Honey Bees

In 2005, Vector Control Technicians responded to 44 honey bee service requests compared to 50 service requests in 2004. This average level of requests might indicate stability in the wild European honey bee colonies. None of the treated swarms or hives were determined to be Africanized through laboratory analysis. Africanized honey bees have not been reported much further north than Madera County in California. The District is the lead agency in Contra Costa County for responding to and removing potential Africanized honey bees in non-structural situations.

Fisheries Program

Chris Miller, Biologist

The District stocked approximately 80,000 mosquitofish in Contra Costa County and dispersed to over 41,000 members of the public in 2005. The District also continued research on Sacramento perch (*Archoplites interruptus*) as an alternative biological control agent of mosquito larvae.

This year we conducted a field stocking study to evaluate survival of Sacramento perch using three life history stages. This large scale stocking program was designed to provide information on parameters (time of stocking, species present, size of fish stocked, etc.) that may influence establishing a population of Sacramento perch. During this study, 18 adult, 2,330 juveniles, and 240,200 larval Sacramento perch were stocked in 15 sites. Seven of these sites and two other sites (that were stocked the previous year) were used in the post-stocking surveys. Other sites were not surveyed due to location, condition of the site, or failure of larvae to survive. Stocking dates ranged from March 8th thru August 25th. Surveys began June 21st and

ended November 29th, and each site was sampled twice (three times for adult sites). Three methods were used in surveying; larval light traps (adult sites only), clover leaf type fish traps, and a trap net. All Sacramento perch stocked were spawned and reared in our hatchery, ranging in age from

three years (adults), 44-60 days (juveniles) and 0-2 days post swim-up larvae. The genetic background of each group of fish stocked was documented.

Surveys of the three sites stocked with adult Sacramento perch did not demonstrate production of either adult fish nor offspring. In two of the three sites stocked with juveniles, perch were sampled and had grown. Only one of three sites stocked with larvae were perch sampled in our surveys. A total of three out of nine sites stocked were successful in maintaining Sacramento perch through the study period. It is not clear whether the apparent success of the juveniles was due to their age or was a consequence of the sites they were stocked into.

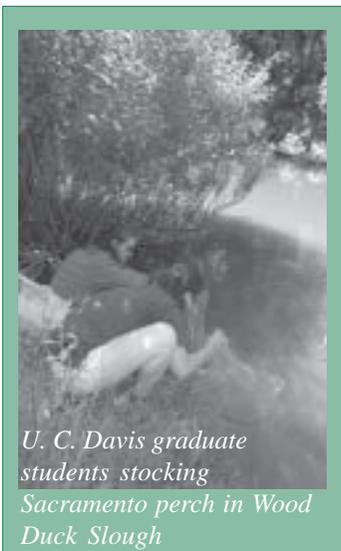
This study caught the interest of U.C. Davis Ichthyology Professor Dr. Peter B. Moyle and the California Department of Fish & Game Biologists James Navicky and Michael P. Healey. With permission from the California Department of Fish & Game we stocked two sites outside our county. Lake Solano in Solano County and Wood Duck Slough (in the Cosumnes River

Preserve) in Sacramento County. These two sites will be monitored by Dr. Moyle's staff over the next few years. It is hoped that they will establish a self-sustaining population. A copy of this study can be found on our web page in the mosquitofish section.

The costs of this study were offset by a \$4,390 grant the District received from the Contra Costa County Fish and Wildlife Committee.



Sacramento Perch trapped in Twin Lake



U. C. Davis graduate students stocking Sacramento perch in Wood Duck Slough



Twin Lake in Old Borges Ranch

Wetlands and Environmental Program

*Karl Malamud-Roam, Ph.D.,
Environmental Projects Manager*

Wetlands and environmental programs at the District focus on four primary tasks: 1) working with landowners to improve land and water management practices and thus ensure long-term control of mosquitoes and other vectors; 2) ensuring the District's compliance with environmental laws and regulations; 3) working with legislators and regulators to improve the efficiency of these rules; and 4) conducting and reviewing scientific research related to the potential environmental consequences of mosquito and other vector control activities. During 2005, the District's Environmental Projects Manager, Karl Malamud-Roam, served as Chairman for Legislative and Regulatory Affairs for the American Mosquito Control Association, and the program was thus heavily involved in improving federal environmental regulations governing District activities.

The major mosquito "source reduction" projects for 2005 focused on improving water flow in marshlands at the Mirant powerplant in Pittsburg and at the old Swanton's Marina in the Concord Naval Weapons Station where a small culvert was replaced by a new channel and bridge (see Before and After figures). Channel maintenance projects also improved water circulation and habitat while reducing mosquitoes in Point Pinole Regional Park, where the District worked with East Bay Regional Park District to remove and recycle creosote-coated logs that had blocked channels in tidal marshlands. These areas can produce copious mosquitoes when the water stays

still, but are relatively free of mosquitoes while the water moves.

Ensuring that new wetlands do not produce vectors is also a priority of the District. New wetlands are created or restored for many reasons, but unfortunately, many of these otherwise desirable projects produce unacceptable numbers of mosquitoes and rats. Thus, the District's Wetlands program works with wetlands proponents, designers, and managers to ensure that their plans do not pose a threat to public health and comfort. In 2005 this involved collaborations throughout the county, including with refinery staff in Richmond, housing developers in the San Ramon Valley, Caltrans engineers along the Route 4 bypass, sewer plants in Martinez, and railroad workers throughout the county.

Interactions between District staff, legislators, and regulators this year focused largely on concerns about water pollution, pesticide safety, and endangered species. The District ensures compliance with existing environmental rules through staff training, permit management, and an annual environmental audit. At the same time, District staff is heavily involved in negotiating improvements in these rules and in supporting the scientific research needed to justify change. Specifically, Dr. Malamud-Roam represented the American Mosquito Control Association in extensive meetings with Congressional Representatives and with USEPA, culminating in preparing and presenting testimony to a Congressional committee on proposed amendments to the Clean Water Act.

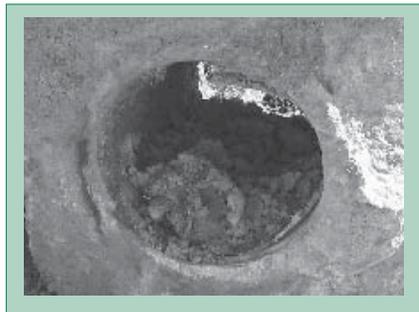


Fig. 1: Pt. Edith Marsh Culvert-BEFORE

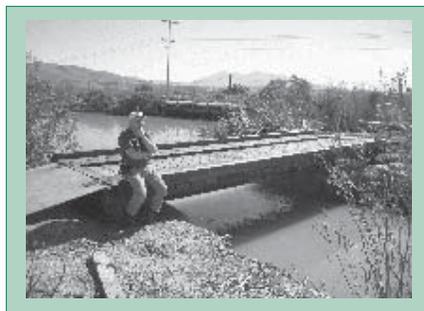


Fig. 2: Pt. Edith Marsh Channel -AFTER

Public Affairs & Community Education

*Deborah Bass
Public Affairs Manager*

West Nile virus (WNV) is documented to be the worst mosquito-borne virus in United States history. It's no wonder it has dominated the headlines in Northern California. The District worked closely with the media to keep Contra Costa County residents well informed about the virus, conducting nearly 100 interviews and updates throughout the season.



Local Boy Scout troops 298 and 93 help Fight the Bite at Union Cemetery in Brentwood

In order to allow the public affairs manager to focus on the media and still meet the demand for WNV presentations and increased information, the District hired two community affairs representatives March through October. Overall, the public affairs department provided and participated in over 100 presentations, fairs, and events to educate Contra Costa County residents about the virus. Besides the Contra Costa County fair where we had the potential to reach 55,000 residents, farmers markets were the most successful venue for personally greeting residents. We reached 10,000 residents at these outdoor events. Since backyard sources are the number one source of mosquito breeding in our county, every effort was extended to reach and teach residents about their role in this important health issue.

In our efforts to reach and educate every resident in Contra Costa County about West Nile virus, we distributed information to every household, 405,701 total, either by mail or as an insert

in the Contra Costa Times. The tabloid-style inserts were also placed at most city and county agencies, as well as some cemeteries, all libraries, senior centers, mobile home parks and more. Approximately 12,000 inserts were hand-distributed this year.

Senior groups were our number one focus since persons over 50 years of age are most likely to suffer the most severe symptoms of the disease. District staff conducted presentations and hosted information-gathering tables at every senior group we could locate in Contra Costa County. We also printed important WNV information and resources on the Meals on Wheels' menus as well as dozens of community and senior newsletters.

Mosquitoes need water to live, reproduce, and become biting adult insects so collaborating with the local water districts to disseminate West Nile virus information to over 82,000 residents on their water bill



A local boy scout adds absorbant to a tombstone flower vase at Union Cemetery in Brentwood

was a natural choice. We also coordinated a Fight the Bite Day at Union Cemetery in Brentwood. Local boy scout troops #93 and #298 participated in a four-hour event to put water-absorbent crystals in the thousands of flower vases at the cemetery. Flower vases are prime breeding grounds

for several mosquito species that can transmit West Nile virus.

Financial Statement

Revenues		
Account	2003/2004	2004/2005
Property Taxes	\$2,685,896	\$3,027,105
Contracts	54,504	76,485
Interest Income	37,427	44,639
Benefit Assessment	1,565,664	1,674,818
Miscellaneous	141,018	42,749
Total Revenues	4,481,509	4,865,796
Expenditures		
Salaries and Wages	\$2,704,202	\$2,867,996
Operations	995,351	1,166,966
Capital	523,995	536,997
Total Expenditures	4,223,548	4,571,958

THE DISTRICT IS "SPECIAL"

The Contra Costa Mosquito and Vector Control District is a "special district".

How Independent Special Districts Work

They are:

- | | |
|---|---|
| <ul style="list-style-type: none"> * Formed by local residents to provide local services * Sanctioned by the State of California Government Codes * Entities often formed as the most economical means of providing public service | <ul style="list-style-type: none"> * Independent, self-governed agencies governed by a board of directors * Operated as non-profit organizations * Responsible directly to the people: <ul style="list-style-type: none"> ✓ Accountable ✓ Accessible ✓ Efficient |
|---|---|

