

VECTOR CONTROL DISTRICT COUNTY OF SANTA CLARA

ANNUAL REPORT

FISCAL YEAR

2018-2019



CONTROLLING VECTORS
PROTECTING PUBLIC HEALTH



CONSUMER AND ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF ENVIRONMENTAL HEALTH

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COUNTY OF SANTA CLARA

BOARD OF SUPERVISORS

VECTOR CONTROL DISTRICT TRUSTEES



MIKE WASSERMAN
DISTRICT 1



CINDY CHAVEZ
DISTRICT 2



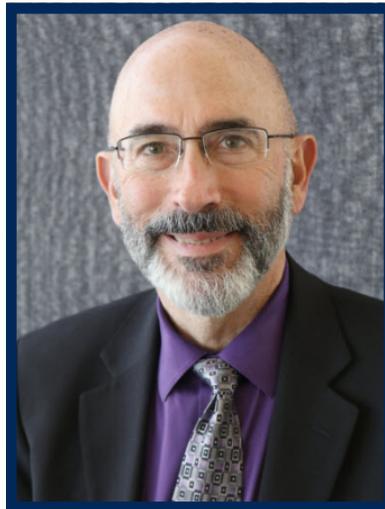
DAVE CORTESE
DISTRICT 3



SUSAN ELLENBERG
DISTRICT 4



S. JOSEPH SIMITIAN
DISTRICT 5



JEFFREY V. SMITH, M.D., J.D.
COUNTY EXECUTIVE OFFICER

DISTRICT STAFF

MANAGEMENT

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DIRECTOR, CONSUMER AND ENVIRONMENTAL PROTECTION AGENCY

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DIRECTOR, DEPARTMENT OF ENVIRONMENTAL HEALTH

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VECTOR CONTROL DISTRICT MANAGER

BABAK EBRAHIMI, Ph.D.

ASSISTANT MANAGER

NOOR TIETZE, Ph.D.

SCIENTIFIC-TECHNICAL SERVICES MANAGER

HECTOR CARDENAS

OPERATIONS SUPERVISOR

KATHY KENNEDY

OPERATIONS SUPERVISOR

VINCENT FLORES

SENIOR MANAGEMENT ANALYST

LAB AND SURVEILLANCE

RUBEN CHAVEZ

CAROLINE DRISCOLL

MENOU THAOPRASEUTH

AJ ESCOBAR

RICHARD SHATZEL

BAO PHAM

ADMINISTRATION

LINDA KEALEY

GENY CADEMAS

FACILITIES

ANTHONY ESCOBAR

OUTREACH AND EDUCATION

ROGER ROSS

HUNG PHAM

BEVERLY PEREZ

OPERATIONS

LAURIE ALAIMO

DUSTIN ALLADO

DANIEL BROOKS

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LIYA CHIU

SAMUEL DOMINGUEZ

ANDREW GARCIA

PETER GOTCHER

ARIC HEATH

WAYNE HESKETT

RANDY LOUIE

UCHE OGAMBA

DAVID ORTIZ

DEREK PINEDA

LINDSEY PINEDA

YUTAKA RODRIGUEZ

VINCENT USHIKUBO

REGINA WILLIAMS

MATHEW YALEY

ANTHONY YOUNG

JEFF YOUNG



SANTA CLARA COUNTY



MISSION

To detect and minimize vector-borne diseases, abate mosquitoes, and assist the public in resolving problems with rodents, wildlife, and insects that can cause disease, discomfort, or injury to humans.

We look forward to continue providing a safe and healthy environment.



**WE ARE A
PASSIONATE
AGENCY FILLED
WITH PASSIONATE
INDIVIDUALS**

PUBLIC SERVICE REQUESTS

The District's operations team focuses on assisting the public with rodent exclusion, wildlife inspections, yellowjacket nest removal in public areas, and mosquito breeding sources.

The operations team fulfilled 3,170 services requests (Figure 1), ranging from wildlife sightings, neglected pools, and mosquito complaints.

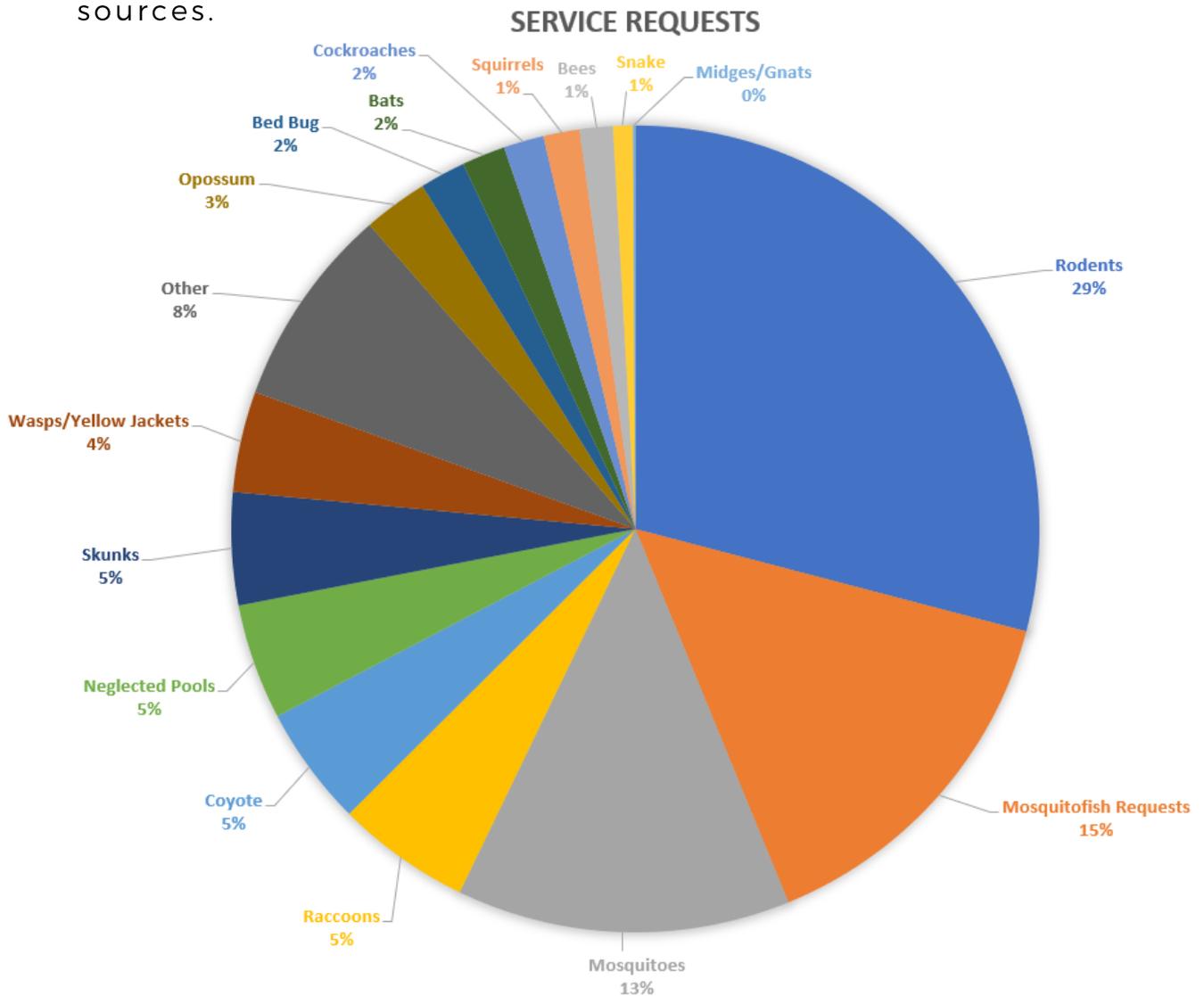


Figure 1. Fiscal year 2018-2019 public service requests.

MOSQUITO PROGRAM

Mosquitoes cause more than 700,000 deaths per year worldwide. Under ideal conditions, such as high temperatures and humidity, mosquitoes can reach adulthood in less than seven days. Mosquitoes can reproduce in as little as a bottle cap of water.

To reduce mosquito populations and decrease the possibility of West Nile virus (WNV) infection in humans, the operations team inspects and treats areas such as catch basins, curbs, marshes, and other public areas for mosquito breeding.

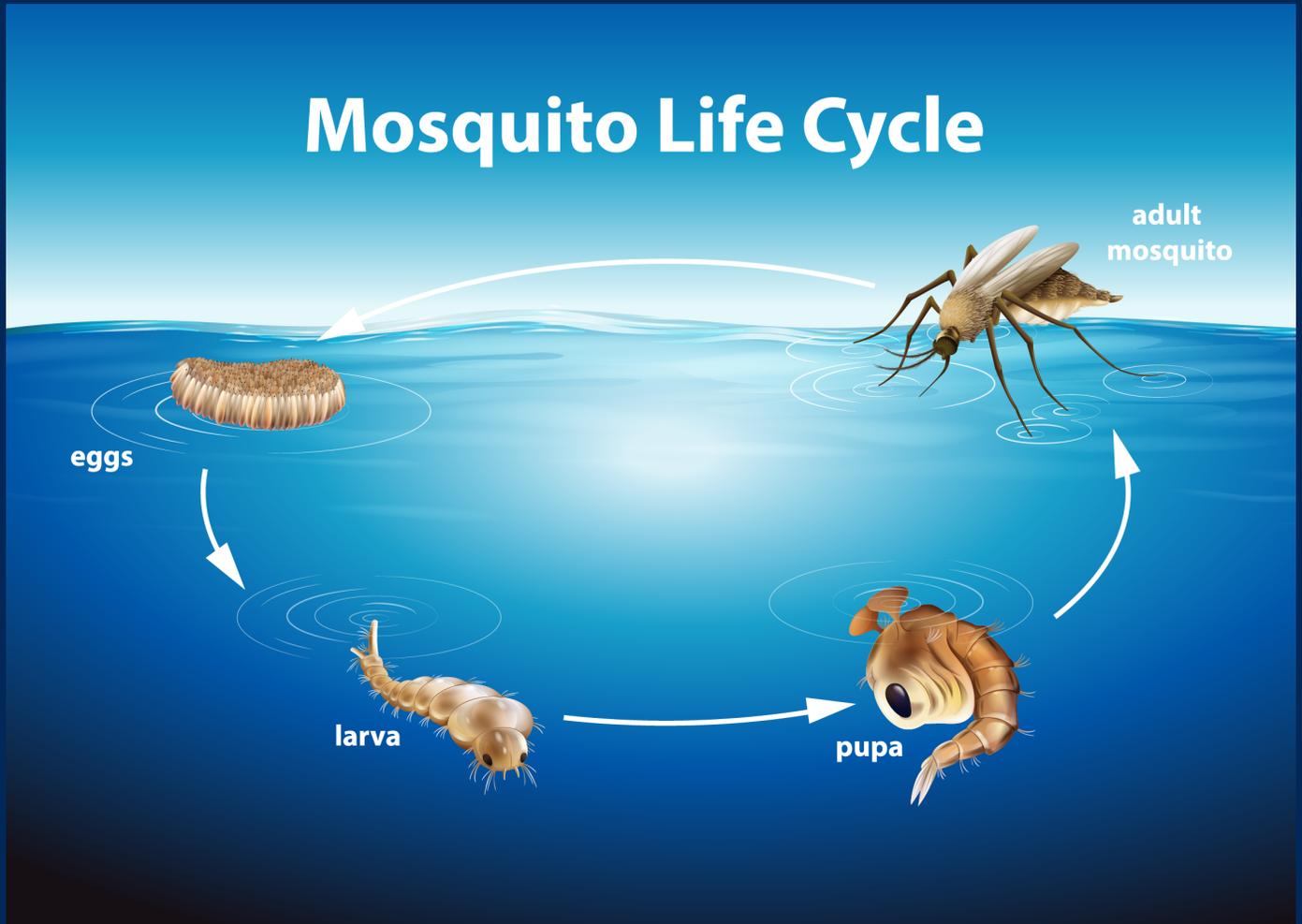


(Left) Technician Liya Chiu treating mosquito larvae



(Right) Mosquito larvae in dipper

MOSQUITO PROGRAM



Female mosquitoes require a blood meal in order to produce eggs. The perfect environment for their eggs is in standing water or damp soil. The eggs hatch into larvae that go through four stages, getting larger after each molt. At the larval stage, the larva turns into a pupa, a resting non-feeding stage. The pupa then emerges into an adult mosquito and the cycle begins again.

MOSQUITO PROGRAM

The operations team inspected 31,820 catch basins and treated 4,631 that contained mosquito larvae (Figure 2); inspected 257 curbs and treated 96 (Figure 3); and inspected 935 neglected swimming pools and treated 149 (Figure 4) to eliminate mosquito larvae and pupae.

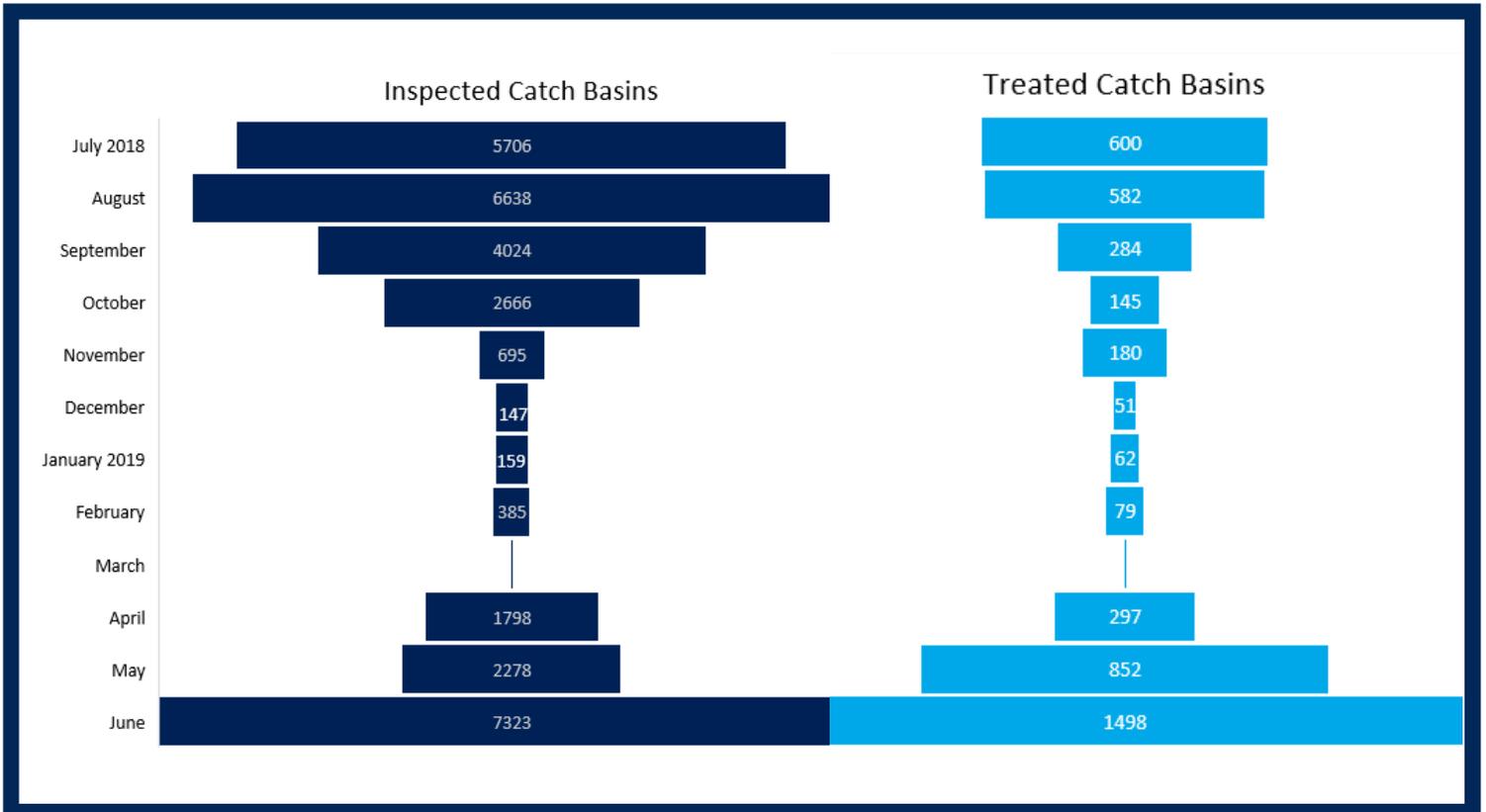


Figure 2. Catch basins inspected and treated for mosquito larvae during the 2018-2019 fiscal year.

MOSQUITO PROGRAM

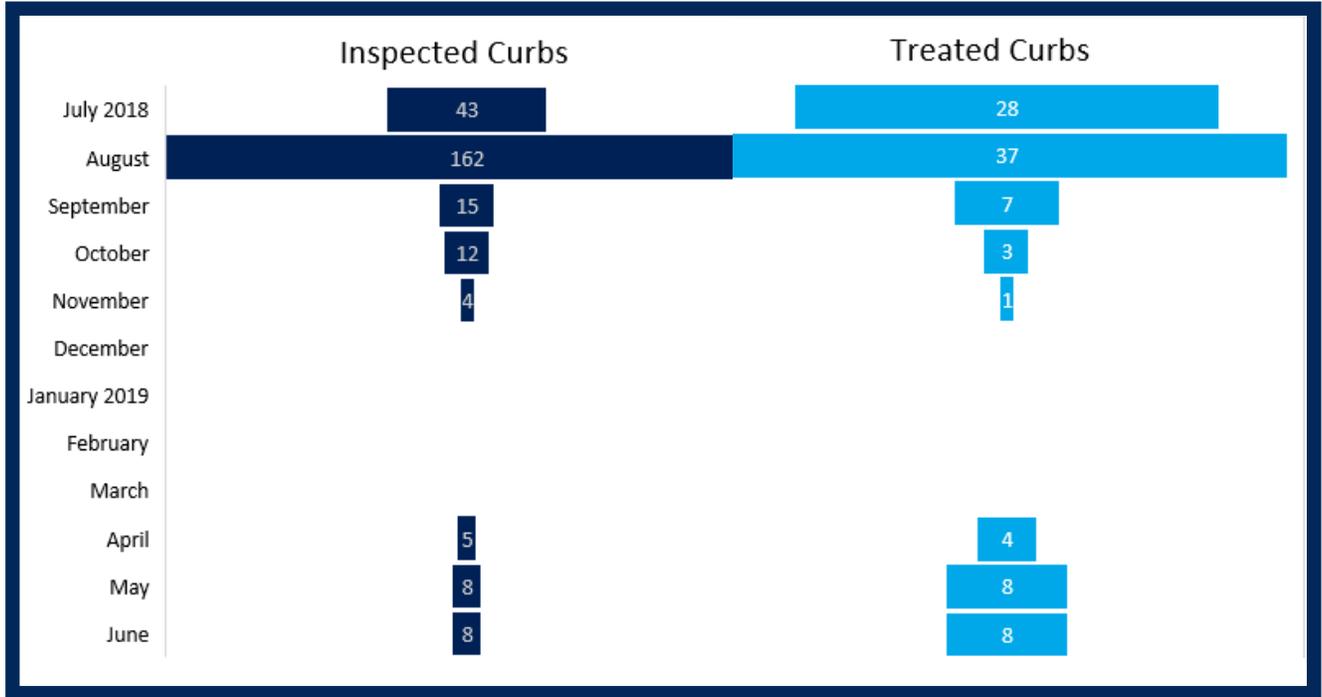


Figure 3. Curbs inspected and treated for immature mosquito stages.

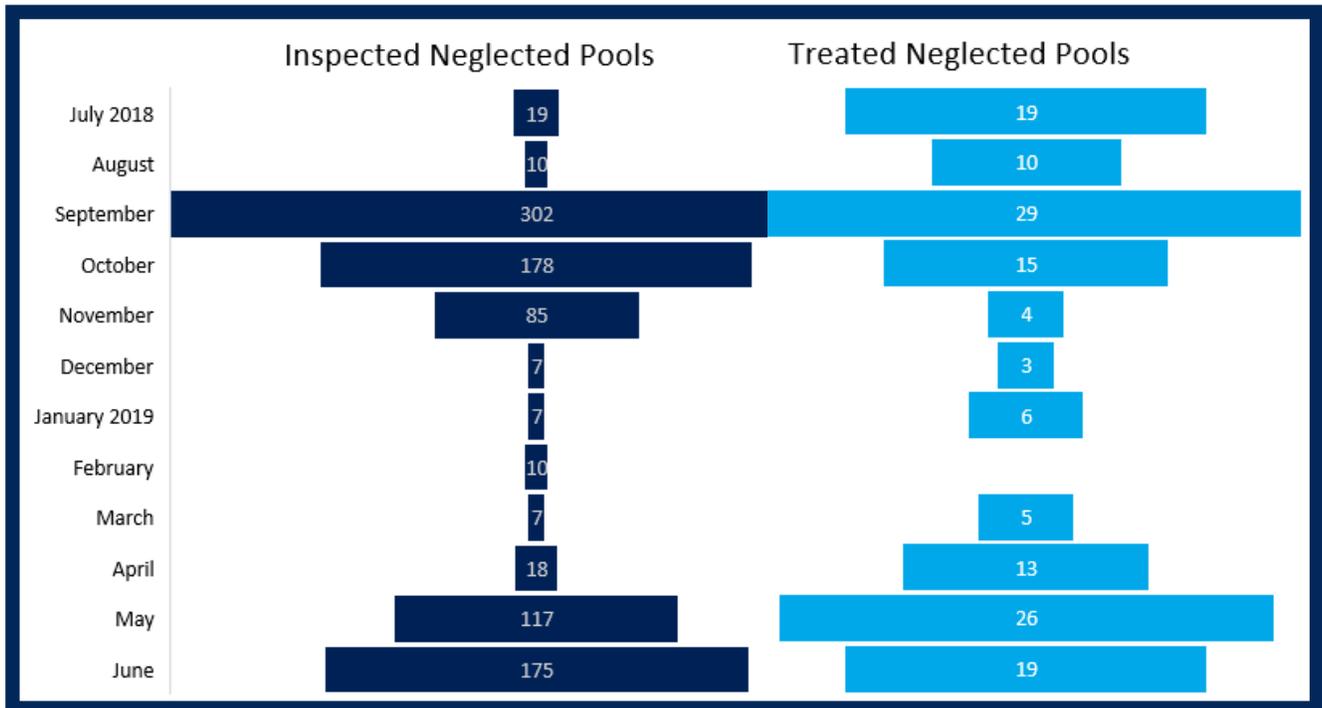


Figure 4. Neglected swimming pools inspected and treated for mosquito larvae.

MOSQUITO PROGRAM

Mosquitofish are a small fish in the guppy family that are natural predators of mosquito larvae and pupae, making them an environmentally friendly, sustainable, and biological mosquito control method. The District provides free mosquitofish to reduce mosquito breeding in artificial bodies of water, such as ponds and neglected swimming pools.



MOSQUITO PROGRAM

The District received 451 mosquitofish service requests (Figure 5). The District offers free mosquitofish to the public, which can be picked up at the District office during office hours.

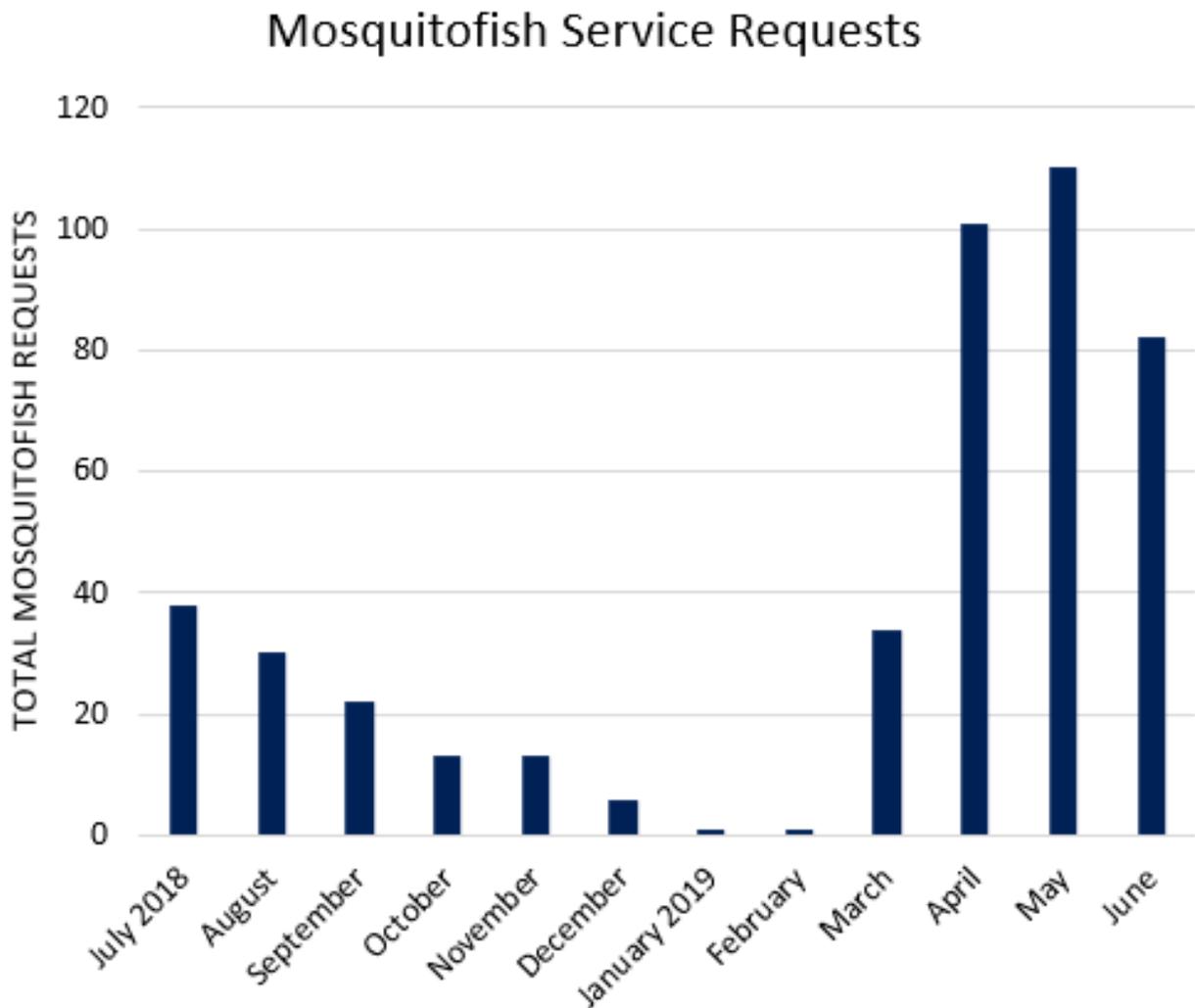


Figure 5. Mosquitofish service requests received during the 2018-2019 year.

MOSQUITO SURVEILLANCE

Mosquito surveillance is essential to the District's success. Detecting abundance of local mosquitoes, and establishment of invasive mosquitoes help modify and improve the District's operations.

New Jersey Light Traps (NJLT) are one of the many traps that are used to trap mosquitoes to help identify the type of mosquito species found in the surrounding area. NJLT are placed year-round, and checked on a weekly basis,

A total of 1,621 mosquitoes were collected through NJLT, including the cool weather mosquito (*Culiseta incidens*), western encephalitis mosquito (*Culex tarsalis*), common house mosquito (*Culex pipiens*), winter marsh mosquito (*Culiseta inornata*), and summer salt marsh mosquito (*Aedes dorsalis*).

The most abundant mosquitoes were the common house mosquito and the winter marsh mosquito.



WEST NILE VIRUS SURVEILLANCE

Detecting early signs of West Nile virus (WNV), and other diseases is a high District priority. Proactive disease surveillance can significantly reduce the severity of issues that could occur, such as human cases.

Carbon dioxide traps, dead bird testing, and sentinel chicken flocks are all part of a detailed West Nile virus surveillance program. The District manages chicken flocks in Palo Alto, Milpitas, Campbell, San Jose, San Martin, and Gilroy with seven chickens at each location.

Sentinel chickens are tested every two weeks throughout summer months for WNV, Saint Louis encephalitis (SLE), and Western Equine encephalitis (WEE). Blood samples are processed and tested by the California Department of Public Health.

Test results are used to determine if control measures and inspections need to be increased in areas where viral activity is found. Chickens are retired at the end of each season and donated to farms.

There were 38 WNV positive dead birds during 2018-2019, which prompted three localized treatments to lessen the risk of WNV human cases.



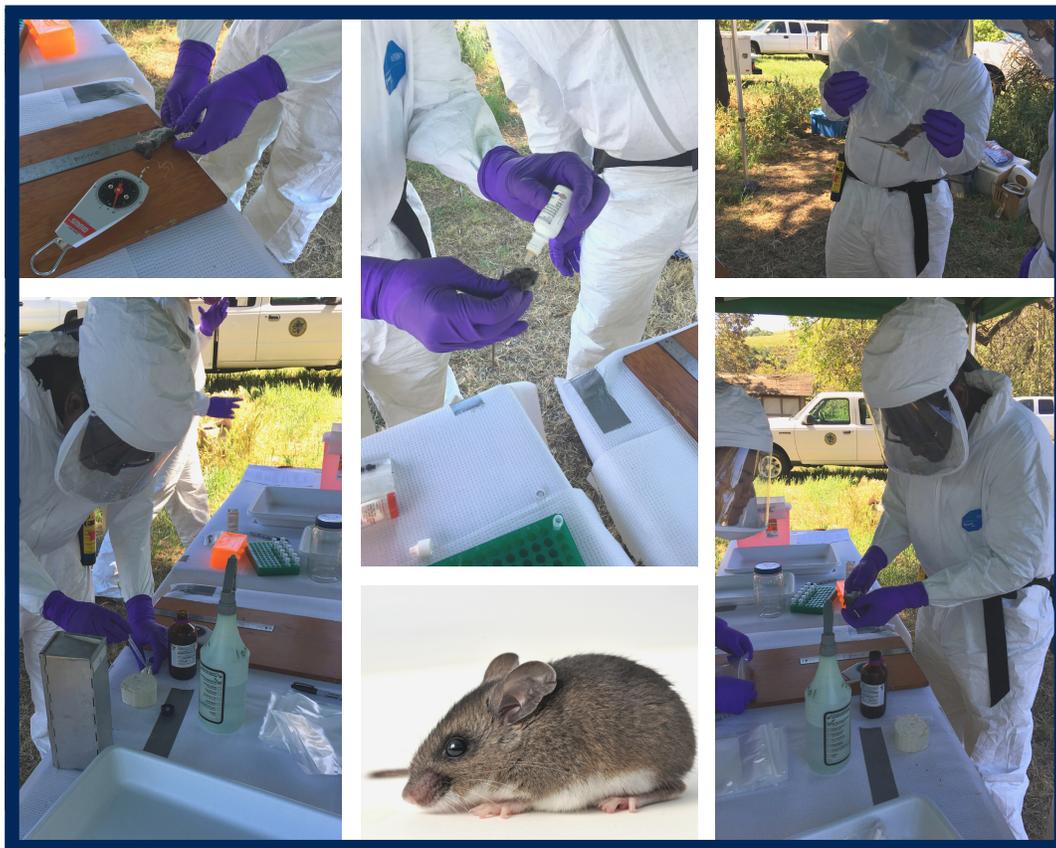
TICK SURVEILLANCE



Each winter, the District's laboratory staff conducts tick collections at local parks and open space preserves. More than 2,500 ticks were collected from parks throughout the County.

These ticks were tested for the pathogens of *Borrelia burgdorferi*, which causes Lyme disease, and *Borrelia miyamotoi*, which causes relapsing fever illness. Less than 1.5% of ticks tested positive for *Borrelia* pathogens.

HANTAVIRUS SURVEILLANCE



Hantavirus is a rare, yet potentially, life-threatening disease (hantavirus pulmonary syndrome) that is carried by deer mice and spread through their urine and droppings. Routine rodent surveys target wild mice and help the District detect the presence of hantavirus across the County.

The District conducted a rodent survey at Bernal-Gulnac-Joice Ranch County Park in south San Jose. On April 23, 2019 about 100 live capture traps were placed in three areas of the park. The traps were retrieved the following morning and eleven pinyon mice (*Peromyscus truei*) were captured and sampled with the assistance of the California Department of Public Health (CDPH).

Blood samples were tested at the CDPH lab in Richmond, and all mice samples tested negative for hantavirus.

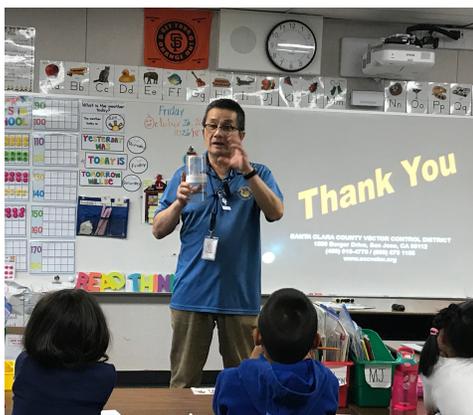
PUBLIC EDUCATION

Public education is the key to decreasing mosquito populations and vector-borne diseases. The County of Santa Clara Vector Control District collaborated with the San Jose Earthquakes organization to educate fans to "kick it where it counts" by dumping and draining standing water to reduce mosquito populations, and to "cover up at dawn and dusk" to avoid mosquito bites.

This campaign alone delivered more than 3,318,148 impressions, reached both English and Spanish speaking individuals, and earned the District a 2019 Excellence in Public Information & Communication Award of Distinction for multicultural outreach campaign. Additionally, more than 9,000,000 campaign views were received through other outreach efforts.



SCHOOL OUTREACH



The District has a dedicated education and outreach program for schools. Presentations are offered to K-12 students, with materials tailored to each grade. Presentations are offered in individual classroom settings or can also be combined for a school assembly. During the 2018-2019 fiscal year, close to 2,000 students learned the importance of mosquito breeding prevention, wildlife management, rodent control, and other topics. Interested teachers can submit a presentation request online at SCCVector.org, email vectoroutreach@cep.sccgov.org, or call 408-918-4794.



COMMUNITY OUTREACH

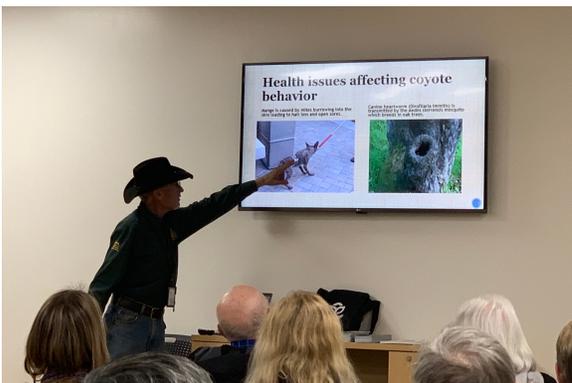


The District also has a special community outreach and education program, offering community presentations and educational booths for groups such as homeowner associations, libraries, and senior centers. Presentation topics available include mosquitoes and mosquito-borne diseases, rodent management, living with wildlife, and cockroach management.



Community outreach that took place in 2018-2019, include participation at the Don Edwards Wheels and Wildlife Event and Viva CalleSJ Fair. Educational presentations were provided to El Dorado Mobile Home Park, Saratoga Senior Center, Mid-Peninsula Widows and Widowers Association, and the Santa Clara Valley Urban Runoff Pollution Prevention Program.

Interested parties can submit a presentation or booth request online at SCCVector.org, email vectoroutreach@cep.sccgov.org, or call 408-918-4794.



CAREER DEVELOPMENT

The Vector Control District prides itself in continuing education for its staff members through conferences, workshops, trainings, webinars, and collaboration with other agencies.

The District attended conferences and seminars hosted by the Mosquito and Vector Control Association of California, the American Mosquito Control Association, and the Pacific Southwest Center of Excellence in Vector-Borne Diseases. The Vector management team presented a display of their work at the Society for Vector Ecology (SOVE) on the distribution and infection rates of ticks in Santa Clara County parks (Figure 6 and Figure 7).

A case study poster on the presence of the Turkestan Cockroach (*Blatta lateralis*) in Santa Clara County was displayed at the Mosquito and Vector Control Association of California annual conference (Figure 8).

The District also collaborated with San Mateo County Mosquito and Vector Control District, Stanford University, Sacramento-Yolo mosquito and Vector Control District, Alameda County Vector Control District, and Butte County Mosquito and Vector Control District.

Diseases and organisms are constantly evolving, making it important to collaborate with neighboring vector control districts and other agencies to stay abreast of new policies, species, equipment, and diseases.

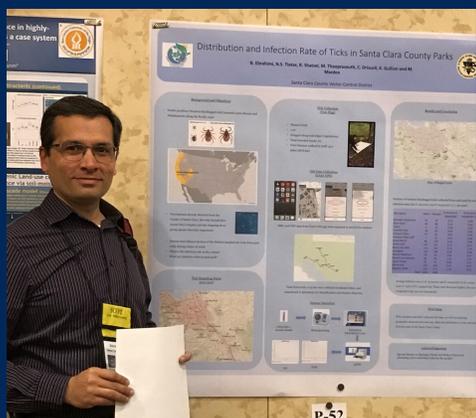


Figure 6. Co-author Dr. Babak Ebrahimi at SOVE Conference



Figure 7. Co-author Dr. Noor Tietze at SOVE Conference

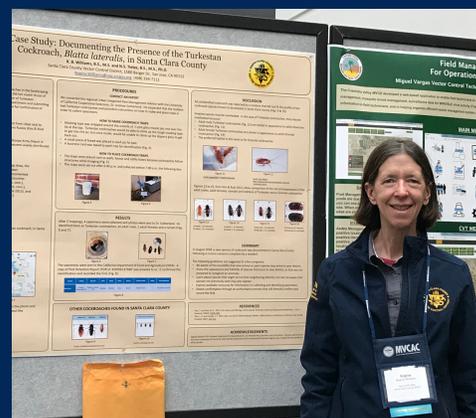


Figure 8. Regina Williams at MVCAC Conference



OUR SERVICES

- Advice and/or control measures for mosquitoes
- Free mosquitofish for mosquito control
- Home inspections and advice for rodent infestations and wildlife activity
- Insect identification and confirmation letter
- Dead bird pick up for West Nile virus testing
- Yellowjacket and wasp control/nest removal in public areas
- Consultations for bed bug abatement
- K-12 educational presentations and hands-on activities tailored for individual classroom settings or school assemblies
- Educational presentations/booths for homeowner associations, organizations, businesses, civic groups and other interested parties



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