



Coachella Valley Mosquito & Vector Control District  
*Fighting the Bite for 90 years*  
**2018 Annual Report**



Employee  
of the Year  
2018

Abelina Torres,  
Accounting  
Technician I



Protect Coachella Valley. Fight the **Bite**. Together.





**Coachella Valley Mosquito and Vector Control District Board of Trustees 2018**

**Top row (left to right): Adam Sanchez, Desert Hot Springs; Franz De Klotz, Board Secretary, County at Large; Clive Weightman, Board Treasurer, Indian Wells; Benjamin Guitron IV, Indio; Betty Sanchez, Coachella; Shelley Kaplan, Board President, Cathedral City; Doug Hassett, Board Vice President, La Quinta; Dr. Douglas Kunz, Palm Springs; Doug Walker, Palm Desert; Bito Larson, County at Large**



**Coachella Valley Mosquito and Vector Control District Staff 2018**

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## Letter from the General Manager

Dear Stakeholders, Trustees, and Staff,

This past year marked the 90<sup>th</sup> year that the District has protected public health from vectors and vector-borne diseases in the Coachella Valley! Once again, District staff demonstrated their professionalism and dedication through strategic and responsive surveillance, control, and outreach to reduce the impact of arbovirus threats, mosquitoes, red imported fire ants, and other vectors found throughout the Coachella Valley.

West Nile and St. Louis encephalitis viruses continued to pose the greatest risk to public health in the Coachella Valley. District staff successfully pinpointed areas of transmission risk in our community, quickly informed valley residents, and responded operationally to contain the risk to small geographic regions of our rural and suburban communities. In 2018, no human cases of West Nile or St. Louis encephalitis virus were reported in the Coachella Valley.

Staff continued to survey and control additional detections of the invasive *Aedes aegypti* mosquito. Discovery of this mosquito in additional neighborhoods in 2018 underscores the important role the community will take in working with the District to thwart the spread of this new vector to our valley. Community members from Desert Hot Springs to the North Shore of the Salton Sea need to commit to taking time each week to dump, drain, and remove water-holding containers from their yards. If we all do our part we have the chance to make a lasting impact on this residential container-breeding mosquito.

The District has a committed workforce across all departments with the average years of service for District staff being 11 years. There were nine competitive open positions and promotional opportunities in 2018 and the District was able to fill all positions with current employees. These positions ranged from seasonal employees hired as full-time Vector Control Technicians to Administrative staff promoted to Clerk of the Board, Accounting Technician, and HR Specialist. Great organizations have depth in their ranks and the District is fortunate to have this depth and dedication in its staff.

The Board of Trustees and staff reaffirmed their commitment to short and long-range planning by developing and implementing another three-year Strategic Plan and a 30-year Capital Reserve Plan. The District continued to demonstrate transparency and fiduciary responsibility by adopting a balanced budget, receiving its 10<sup>th</sup> Certificate for Achievement in Excellence in Financial Reporting, earning an outstanding audit for FY 2017-18, and being recognized biannually, since 2014, for a commitment to transparency by the Special District Leadership Foundation.

It is with great pride and pleasure that I present to you this 2018 annual report, highlighting the outstanding contributions and accomplishments the District's dedicated staff achieved while fulfilling the District's mission to provide effective and environmentally-sound vector control and prevention programs throughout the Coachella Valley.

Respectfully,

**Jeremy Wittie, MS**  
General Manager



# 1928-2018: Fighting the **Bite** for 90 years



**1** employee worked at the District office in Thermal in 1928 when the District was established.



**57** full-time staff worked from our Indio office at the end of 2018.

**2** months is how long schools were shut down in 1927 because of a “pink eye” outbreak in the Coachella Valley. The District was initially established to control eye gnats which transmit bacteria that can cause the condition.

**122-mile** Coachella Canal brought a new source of water to Coachella Valley residents in 1949 along with new sources for mosquito breeding.

**1951** the District added a Mosquito Control Department to address the new mosquito threats.

**25** surveillance traps were used to protect public health in 1978.

**254** surveillance traps were deployed to track mosquito populations and virus activity in 2018.

**6 million** mosquitoes have been collected in District traps since 1982.

**352,184** mosquitoes were captured by District traps in 2018.

**15** mosquito species have been detected in the Coachella Valley, though we regularly collect 13 species in our traps every year.

**156,186** mosquito control applications were made since 2009 in urban and rural areas of the valley.

**1995** the Board of Trustees voted to expand to a full vector control agency – the Coachella Valley Mosquito and Vector Control District.

**2005** the District added the Red Imported Fire Ant Program in response to invasive ant infestations causing residents pain and suffering.

**48,831** mosquito samples from the Coachella Valley have been tested in District or state laboratories since 2002. Of those, **883** tested positive for West Nile virus, **211** tested positive for St. Louis encephalitis virus, and **18** tested positive for western equine encephalitis virus.

**34** Coachella Valley residents are known to have contracted West Nile virus since 2004.

## Integrated Vector Management

The District continued expanding surveillance in 2018, trapping more mosquitoes and testing more mosquito samples compared to the previous 5-year average. However, detections of mosquitoes infected with West Nile virus (WNV) were lower than the previous 5-year average. There were more St. Louis encephalitis virus (SLEV) positive mosquito samples last year than the previous 3-year average (the virus reemerged in the Coachella Valley in 2015). Virus activity, in conjunction with increased detections of invasive mosquitoes, made 2018 another challenging year in mosquito surveillance and control. Staff reviewed and adjusted the District's *Invasive Mosquito Species Response Plan* to address challenges observed in the field as the invasive *Aedes aegypti* mosquito species expanded in 2018 to eight of the nine Coachella Valley cities. The species was initially detected in the valley in 2016. Improving existing strategies and pioneering new approaches to reduce invasive species populations, in the event of a disease outbreak associated with *Ae. aegypti*, was a major focus of the District's Integrated Vector Management (IVM) program this past year.

The District assigned two full-time Vector Control Technicians with a team of trained seasonal employees to conduct year round door-to-door inspections and treatments for larvae and adult mosquitoes in residential areas with invasive *Aedes* detections. Residential inspections complemented truck-mounted and aerial larval control applications in Mecca and Palm Springs. District staff also carried out enhanced trapping, assessed trap effectiveness, and evaluated equipment application methods to help improve surveillance and control strategies. Additional outreach materials and interactive campaigns were developed to educate residents about how to rid their properties of standing water sources that attract mosquitoes and how to protect themselves from mosquito-borne diseases both at home and while traveling.

The expanded efforts were successful in showing that in the event of an invasive mosquito-borne virus outbreak, such as Zika or dengue, the District is prepared with an assortment of effective tools to control mosquito populations and protect public health.



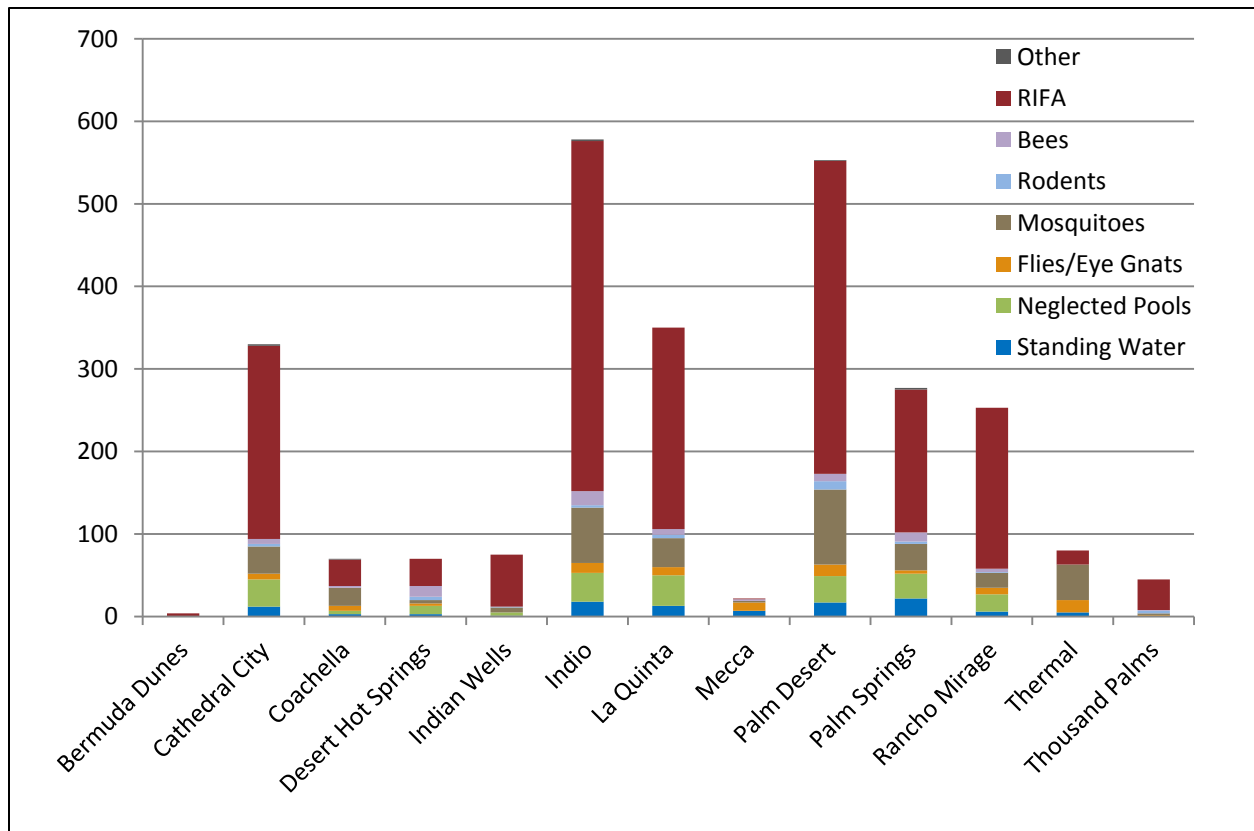
## Service Requests

The District Call Center received more than 8,300 phone calls, emails, or online submissions in 2018 from Coachella Valley residents and visitors looking for information or requesting service to treat red imported fire ants (RIFA), local and invasive mosquitoes, or other potential vector species. Approximately 2,700 of those requests resulted in inspections by the District’s state-certified Vector Control Technicians, slightly fewer than in 2017. The cities with the most requests for service include Indio (583), Palm Desert (557), La Quinta (354), and Cathedral City (334), together equaling 65% of total requests for service in the Coachella Valley.

Eighteen vector control technicians responded to service requests and provided vector control services to the cities of Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage, as well as unincorporated areas of Riverside County, including Bermuda Dunes, Mecca, Thermal, and Thousand Palms.

In addition, two technicians, assisted by five seasonal employees, carried out invasive *Aedes* mosquito control, responding to all service requests regarding the black and white day-biting mosquito. The team was also responsible for conducting pro-active control in areas with *Ae. aegypti* and in areas where there was a reported human case of an invasive *Aedes*-vectored disease, in an effort to thwart possible local transmission. Another team, led by two technicians and assisted by five seasonal employees conducted RIFA control at large properties, including parks, schools, golf and country clubs, HOA-administered residential communities, and businesses. **Figure 1** represents the number and types of service requests received by each Coachella Valley city and unincorporated area of Riverside County in 2018.

**Figure 1. Total Number of Service Requests by City or Area and by Type in 2018**



## Mosquitoes

There are 13 mosquito species routinely detected in the Coachella Valley. Two of these, *Culex tarsalis* (the western encephalitis mosquito) and *Culex quinquefasciatus* (the southern house mosquito), are important vectors of arboviruses (viruses transmitted by mosquitoes and other insects) detected regularly in the Coachella Valley. In 2018, the District detected fewer West Nile virus-positive mosquito samples but more St. Louis encephalitis virus-positive mosquito samples than in 2017. The District detected higher numbers of adult mosquitoes for both species compared to the 5-year average (Figures 2 and 3). As Table 1 summarizes, there was an increase in trapping and testing over the past four years.

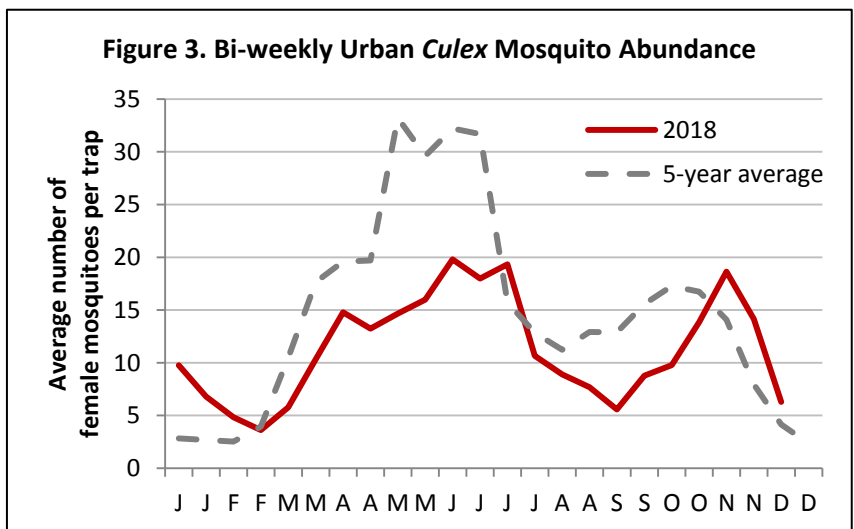
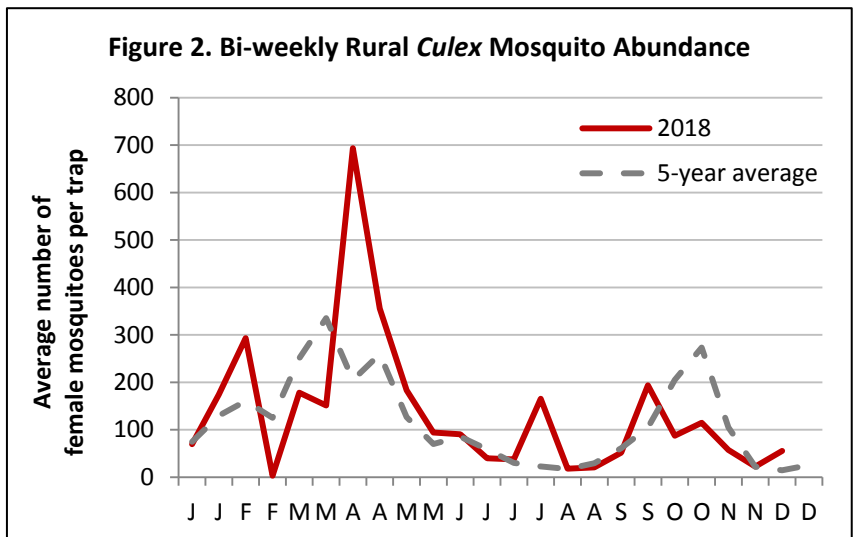
**Table 1. Summary of Arbovirus Surveillance in *Culex* Mosquitoes in the Coachella Valley 2013-2018**

		2013	2014	2015	2016	2017	2018
<b>Female Mosquito Samples (<i>Culex quinquefasciatus</i> and <i>Culex tarsalis</i>)</b>	Samples tested	2,014	2,130	3,903	2,814	5,148	4,337
	Number of mosquitoes	69,407	70,884	112,248	66,893	155,906	140,529
	<b>WNV positive</b>	<b>43</b>	<b>67</b>	<b>99</b>	<b>19</b>	<b>121</b>	<b>24</b>
	<b>SLEV positive</b>	<b>0</b>	<b>0</b>	<b>37</b>	<b>92</b>	<b>23</b>	<b>56</b>

In 2018, the District faced two main challenges. The first was the sustained presence of St. Louis encephalitis virus (SLEV) in the eastern valley. In addition, the District detected the invasive mosquito, *Ae. aegypti*, in another city in 2018. There were no reports in the Coachella Valley or anywhere in California of local transmission of viruses (such as Zika, dengue, and chikungunya) that can be transmitted by invasive *Aedes* mosquitoes.

### Mosquito Surveillance

The District uses a variety of trap types to capture mosquitoes, ranging from traps targeting female mosquitoes looking for a blood meal to traps targeting egg-bearing mosquitoes. The trapped mosquitoes are used to provide population abundance data and for arbovirus surveillance. Trap counts are then compared with the average abundance of the five preceding years to help determine virus transmission risk levels.

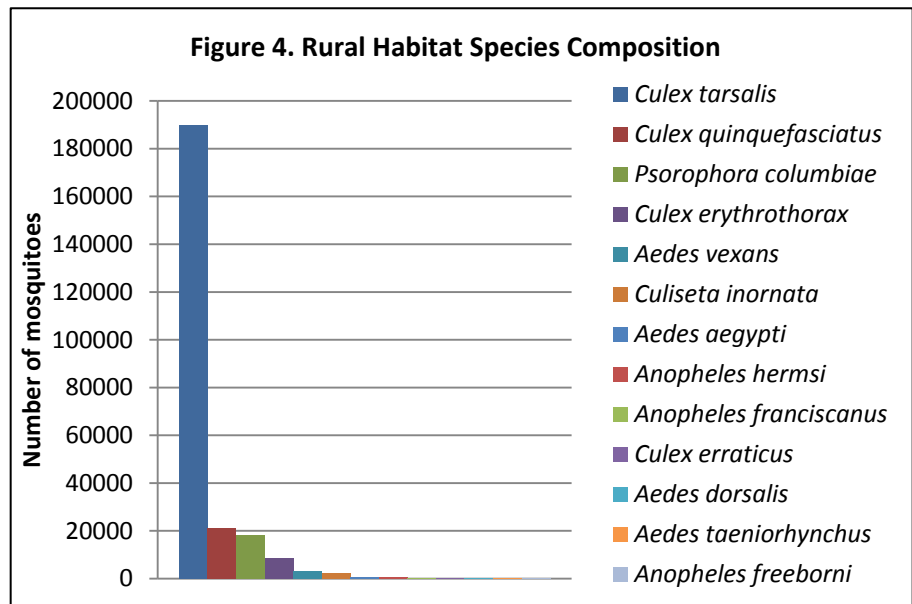




Operational efforts to control mosquitoes are in large part directed by the distribution of the mosquito population, as determined by the District’s surveillance program. In 2018, the District collected more than 350,000 adult mosquitoes as part of surveillance efforts.

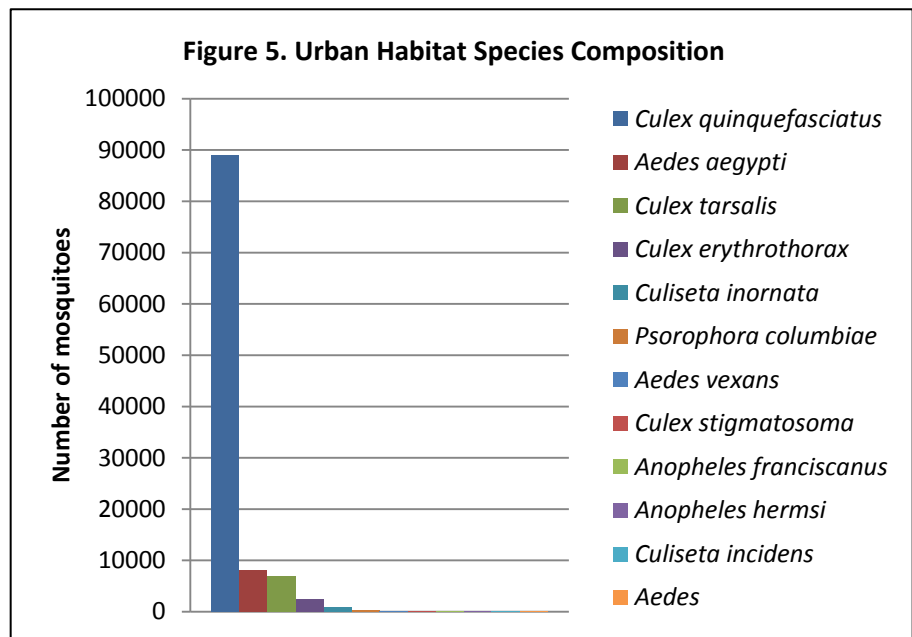
**Rural Zones**

The rural habitat of the Coachella Valley includes areas south and east of the incorporated cities encompassing a variety of land types, such as farmlands, wetlands, small residential areas, desert, and the Salton Sea shoreline. In 2018, the District set a variety of traps at more than 60 locations in rural habitats of the valley. These traps collected a total of 244,623 mosquitoes. CO<sub>2</sub> traps are the most effective at capturing *Cx. tarsalis*, the most abundant and important vector of WNV in the rural areas. **Figure 2** displays how the population of *Cx. tarsalis* and *Cx. quinquefasciatus* varied over 2018 in the rural areas compared to the previous 5-year average. **Figure 4** shows the species composition of mosquitoes collected from the rural zones.



**Urban Zones**

The urban zones include cities within the District boundary from Palm Springs and Desert Hot Springs in the north and west to La Quinta, Indio, and Coachella in the south and east. In 2015, the District greatly increased the number of traps and trap sites in the urban areas going from 29 traps at 22 locations to 96 traps at 48 locations. These urban traps collected a total of 107,561 mosquitoes. Gravid traps are used more heavily in the urban areas than rural areas as they are effective and specific to collecting *Cx. quinquefasciatus* mosquitoes, the most abundant vector of WNV in urban areas of the District. **Figure 3** displays how the population of *Cx. tarsalis* and *Cx. quinquefasciatus* varied over 2018 in the urban areas compared to the previous 5-year average. **Figure 5** is the species composition in the mosquitoes collected from the urban zones.

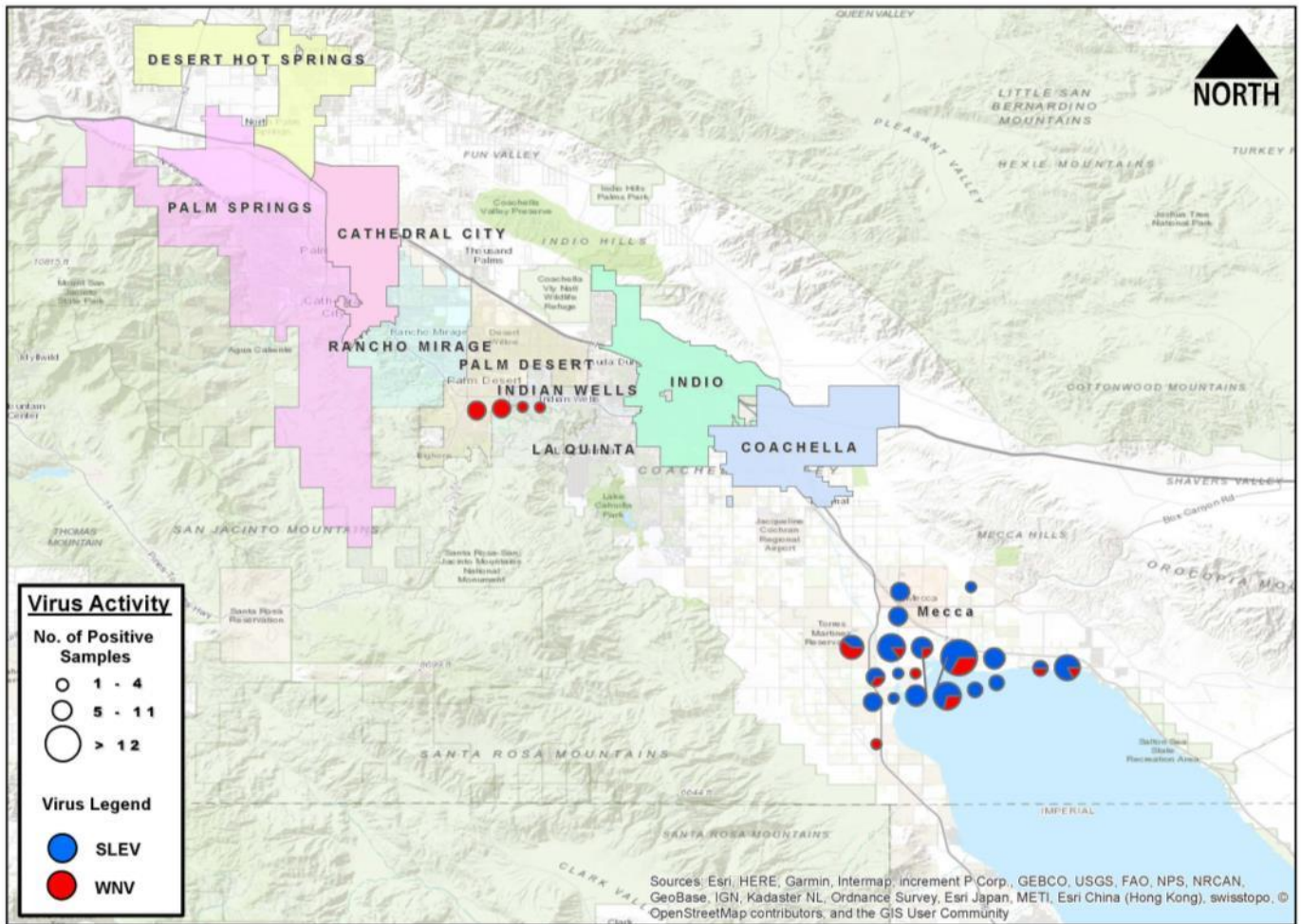


**Arbovirus Distribution**

In 2018, the majority of WNV activity was concentrated in the mostly rural eastern end of the Coachella Valley with a few WNV-positive mosquito samples found in the urban areas. In June and July, mosquito samples collected in Palm Desert and Indian Wells tested positive for WNV. In July, a single sample was found to be WNV-positive in Mecca. Samples collected in the Northshore, Mecca, and Oasis tested positive for WNV in August and September. The final WNV-positive sample of the year was detected in October in Mecca. SLEV was more abundant in 2018 than it was in 2017. Mosquito samples tested positive for SLEV at the beginning of July, nearly three weeks earlier than the previous year. SLEV-positive samples were then detected regularly in Mecca until October. SLEV-positive samples were also detected in Thermal and Northshore in September.

Riverside County Department of Public Health reported no human cases of WNV infection of residents within the Coachella Valley. Overall, there were fewer human cases in Riverside County (19) than in 2017 (33), and much lower than the numbers in 2015 (138 cases and 6 deaths). During the period of increased virus activity, the risk level for the area was at the emergency planning stage. The District responded with elevated surveillance and control efforts with the objective to prevent further amplification of the virus and potential spreading to neighboring areas. There were no human cases of SLEV infections detected in Riverside County.

**Arbovirus Surveillance in the Coachella Valley in 2018**



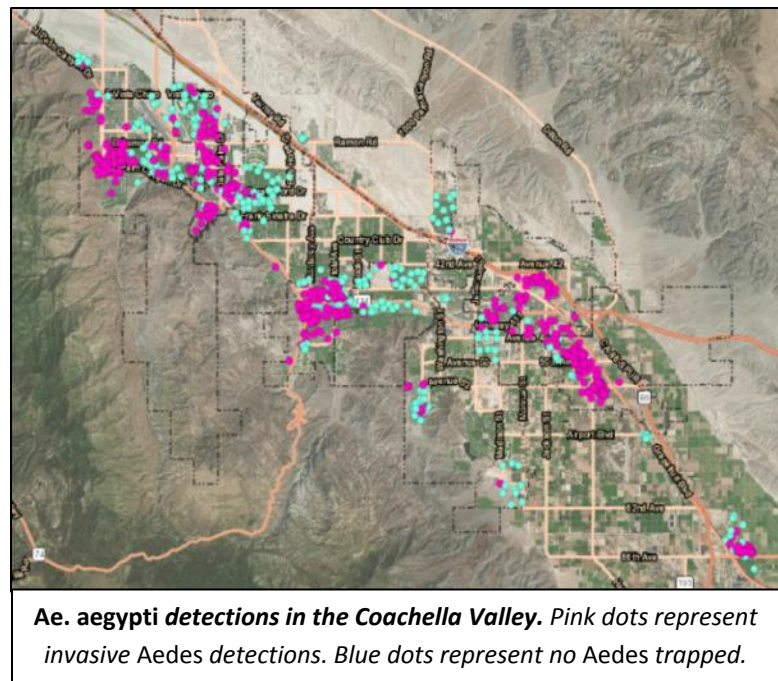
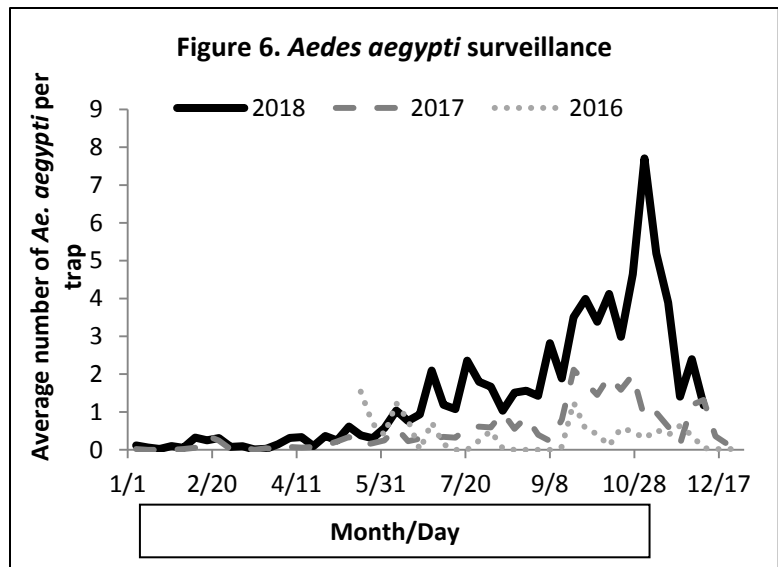
### Sequential Trap Project

The rotator or sequential trap is important for determining peak mosquito activity of host-seeking mosquitoes. We use this trap to decide the best time of day to conduct adult mosquito control applications. We set a sequential trap on a weekly basis in July 2018, collecting mosquitoes an hour before sunset until 7 a.m. In July and August, we observed mosquito activity peaking around an hour after sunset or around midnight. In the fall, peak mosquito activity tended to occur within two hours after sunset. We collected seven different species of mosquitoes. The majority of trapped mosquitoes were *Cx. tarsalis*, with activity low during the mid-summer and peaking in late September, and *Psorophora columbiae*, with activity highest in August and relatively low late summer to early fall. Sequential trapping will continue in 2019 with results helping us to better understand nighttime mosquito activity throughout the year in our rural areas.

### Invasive *Aedes* mosquito surveillance

Surveillance efforts for invasive *Aedes* mosquitoes continued in 2018. The invasive mosquito species has been detected in eight cities and one unincorporated area of Riverside County, including (and in order of the first detection), Coachella, Cathedral City, Indio, Palm Springs, Palm Desert, Mecca, La Quinta, Indian Wells, and Rancho Mirage, which was inducted as the latest *Aedes* detection area in August 2018.

*Aedes*-targeting BG traps were set in cities with invasive mosquito detections. Ovicups, which collect eggs laid by *Aedes* mosquitoes, were set throughout the valley and examined weekly. Autocidal Gravid Ovitrap (AGO), designed to monitor *Aedes*' presence in areas of prior activity, have been beneficial where *Aedes* activity was low and not detectable by BG traps. More *Ae. aegypti* were caught per trap in 2018 compared to 2017 (Figure 6). Roughly 30 BG traps were set weekly in a three-square mile area to conduct enhanced trapping for *Ae. aegypti* in previously unexplored urban locations. This led to the discovery of new *Aedes* detection areas. Expansions were identified in Palm Springs, Cathedral City, Palm Desert, La Quinta, Indio, and Coachella. Enhanced trapping also demonstrated that invasive *Aedes* has not expanded into agricultural zones.





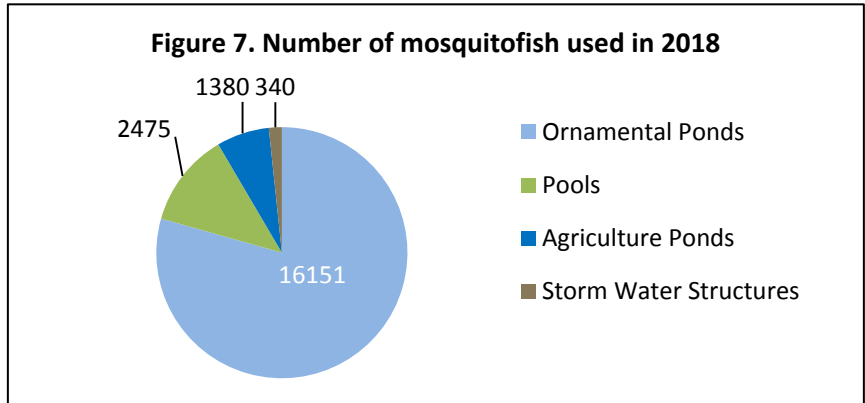
**Mosquito Control**

**Physical Control**

A critical component to IVM programs is reducing mosquito breeding habitats of standing water. Reduction strategies include identifying wasteful irrigation practices. Waste water significantly contributes to standing water where mosquitoes lay eggs. District staff routinely work with residents and local businesses to fix irrigation problems and report irrigation runoff to water agencies. Staff dump standing water in containers during inspections and work with property owners to fix inoperable artesian wells, as part of an ongoing program with the Coachella Valley Water District to fund some costs related to repairing inoperable wells.

**Biological Control**

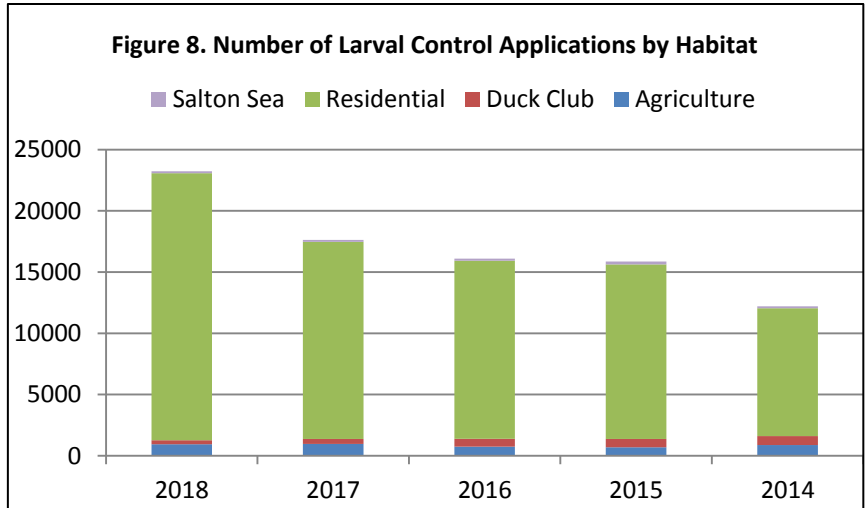
The District uses mosquitofish (*Gambusia affinis*) in permanent bodies of water to control mosquitoes. The District moved all of its fish production to outdoor ponds in 2018, producing 31,900 mosquitofish. More than 20,000 fish were stocked in 146 unique sites as show in **Figure 7**.



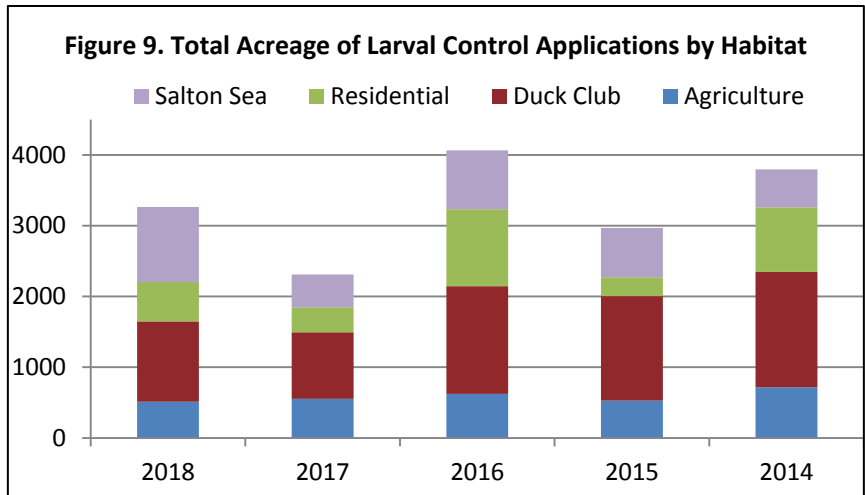
**Microbial and Chemical Control**

Microbial and chemical control is the use of insect growth regulators and insecticides to eliminate immature and adult mosquitoes.

*Larval Mosquito Control* – Larval control is the most effective method, targeting immature mosquitoes while they are in the water. The majority of mosquito control applications in 2018 were carried out in residential neighborhoods with small standing water sources requiring attention from field technicians (**Figure 8**). The expansion of the Salton Sea shoreline and an increase in applications to duck clubs accounted for an augmentation of almost 1,000 acres over the previous year (**Figure 9**).



*Adult Mosquito Control* – The District conducts chemical control targeting adult mosquitoes typically when the District’s mosquito Risk Assessment Plan indicates an elevated public



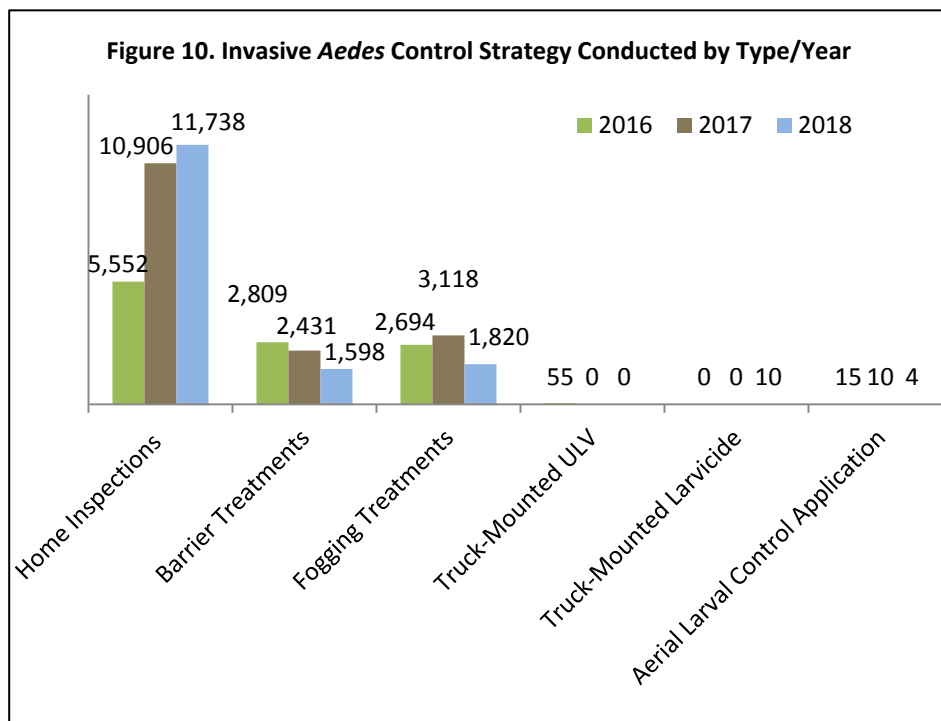
health threat from arboviruses. Adult mosquito control is routinely performed by applications of control products through ultra-low volume (ULV) or barrier sprays using vector control products registered with the U.S. Environmental Protection Agency (EPA). ULV applications involve delivering a fine mist of the chemical product at specific times onto the targeted flying adult mosquitoes using special spray equipment mounted on trucks or helicopters. Barrier applications involve the misting of vegetation in areas with high counts of mosquitoes or elevated virus activity to control resting mosquitoes with barrier equipment attached to all-terrain vehicles or by backpacks carried by field technicians.

**Targeted Mosquito Control for Local *Culex***

In 2018, adult mosquito control applications were made in both urban and rural areas of the District in response to WNV- and SLEV-positive mosquitoes collected throughout the Coachella Valley. These applications included 12 aerial ULV applications, covering 22,200 acres; 24 truck-mounted ULV applications, covering 6,075 acres; and four barrier spray applications covering about five acres. The number of positive mosquitoes were significantly reduced or eliminated following the District’s enhanced larval and adult mosquito control efforts.

**Targeted Mosquito Control for Invasive *Aedes***

In 2018, the District continued to battle the *Ae. aegypti* mosquito which is an invasive mosquito species to the valley. District efforts involved public education, assessing the extent of infestations through trapping and door-to-door property inspections, and area-wide mosquito control operations by truck and helicopter. Two vector control technicians, assisted by five seasonal employees, led the door-to-door effort with zone technicians serving as the first point of contact in many service requests. Teams conducted more than 11,700 inspections in



2018, compared to 10,900 in 2017. During the inspections, technicians provided residents experiencing mosquito bites education on how to identify and eliminate standing water sources that could attract mosquitoes. Technicians applied control applications using backpack and hand-held spray equipment on properties where invasive *Aedes* were detected or could potentially breed.

In 2018, five truck-mounted low volume larval control missions were conducted targeting invasive *Aedes*; one

in Indio and four in Palm Springs. Two trucks were used for a total of 10 applications (Figure 10). The Indio application covered 317 acres and the Palm Springs applications covered about 1,000 acres each night. Four aerial larval control applications covering 308 acres were conducted in Mecca targeting *Ae. aegypti* detected there in 2018.

**Product Quality Control and Efficacy**

**Culex Mosquitoes**

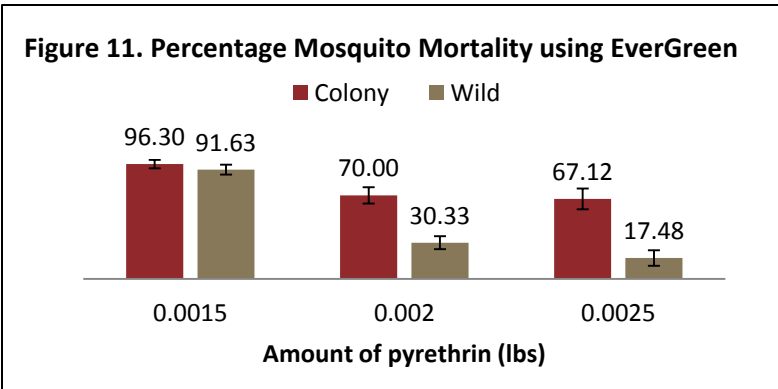
*Resistance assays and semi-field applications* – Pyrethroid-based insecticides are commonly used to control mosquitoes. Mosquito resistance to these products is an increasing concern. Bottle bioassays are conducted annually to monitor adult mosquito populations for potential resistance to pyrethroid products the District uses.



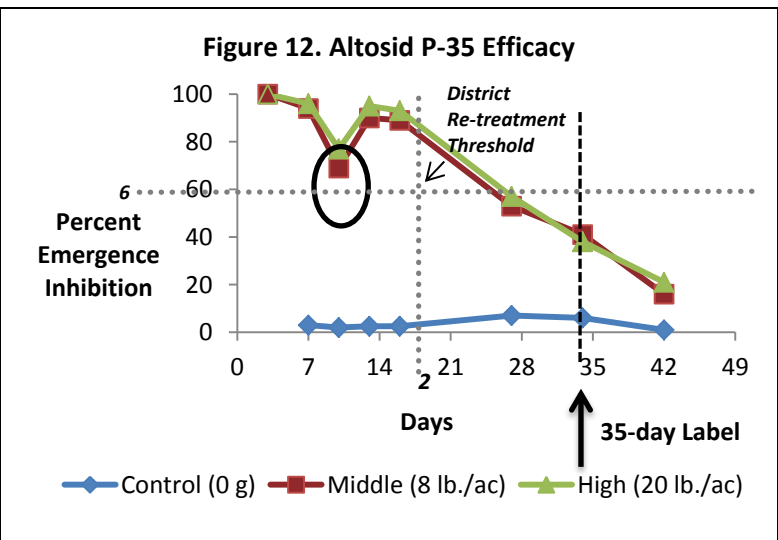
Resistance assay bottle.

*Cx. quinquefasciatus* and *Cx. tarsalis* mosquitoes were used in the monitoring of adult mosquito control products **Aqua-Reslin**, **DeltaGard**, and **Scourge 18+54**. *Culex tarsalis* showed resistance towards Scourge 18+54 but not Aqua-Reslin or DeltaGard. *Culex quinquefasciatus* showed strong signs of resistance to Aqua-Reslin and Scourge, as was detected last year. Some mosquito populations tested showed signs of resistance to DeltaGard. A study evaluating *Cx. quinquefasciatus* resistance to Demand CS demonstrated resistance in mosquito populations to this barrier spray product. To ensure that pyrethroid products used by the District are still effective under field conditions, the products were evaluated at regular label rate applications using truck-mounted ULV sprays. The results of the trials indicated that local mosquito populations are exhibiting signs of resistance to select formulations.

**OneGuard** is a multi-mode-of-action concentrate containing four active ingredients which target the larval and adult mosquito stages. The benefit of using this product is the ease of mixing and the potential for quick activity after a short exposure. Currently, vegetative barrier applications are used in urban zones to control invasive *Aedes* mosquitoes and throughout the valley to interrupt the virus transmission cycle. We documented 80% mosquito mortality in vial assays for up to 12 weeks after application to vegetation under field conditions.



District staff evaluated **EverGreen ULV 5-25** (active ingredients: pyrethrin and piperonyl butoxide) at three different rates for use in adult mosquito control applications. Wild-caught mosquitoes experienced a high percentage of mortality when exposed to the product at the lowest application rate (**Figure 11**). This product is approved for use in organic fields.



**Altosid P-35** is a granule formulation that according to its label will continue to control mosquitoes for 35 days in continuously wet conditions. The insect growth regulator (S)-methoprene is immediately activated when



wet and released to start reducing adult mosquito emergence. We tested the efficacy of two rates in two rural flood sites (8 and 20 lbs. per acre). The application showed that the product at both rates was effective for 21 days. The dip within the black circle may indicate new water seeped into the sites between day seven and 10, diluting the active ingredient enough to cause a decline in effectiveness (**Figure 12**). In previous trials, MetaLarv S-PT, with the same active ingredient but a different formulation, demonstrated consistent control for 42 days.

**Aedes mosquitoes**

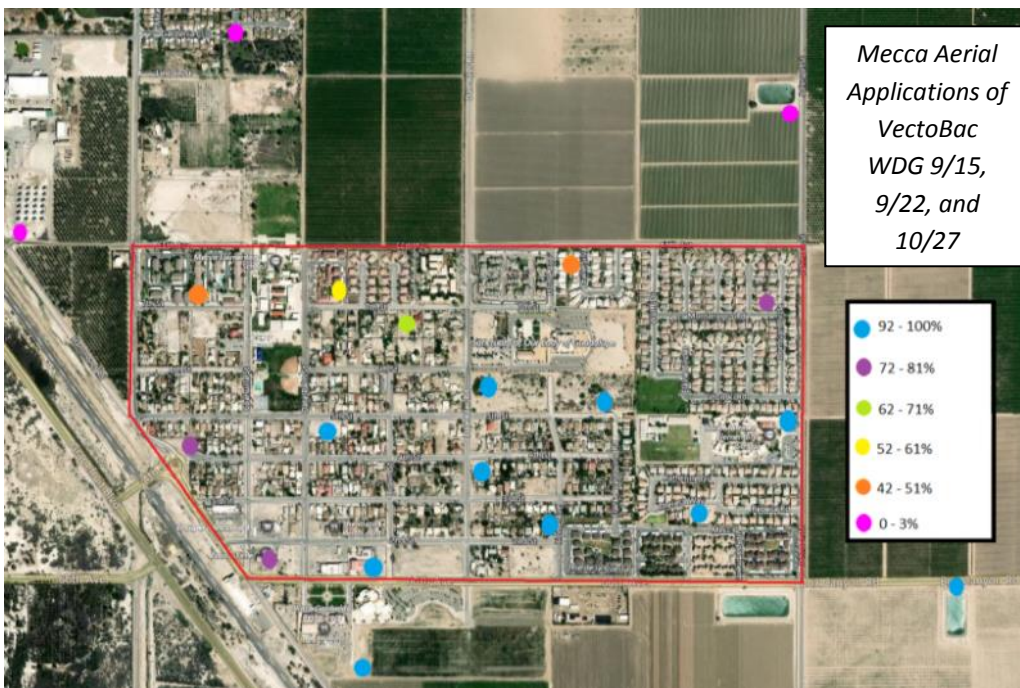
*Testing Aedes for potential resistance* – In 2018, the District submitted a total of 920 adult *Ae. aegypti* samples to the California Department of Public Health – Vector Borne Disease Section for pesticide resistance testing. Results were received for 170 samples and indicate a high frequency of resistant mutations in local *Ae. Aegypti* populations. This means that *Ae. aegypti* mosquitoes in the Coachella Valley have genetic traits that cause them to be resistant to pyrethrins and pyrethroids. Additional research is needed to determine the best response in the case of virus transmission.



Plastic container used in aerial larval control assessment in Mecca.

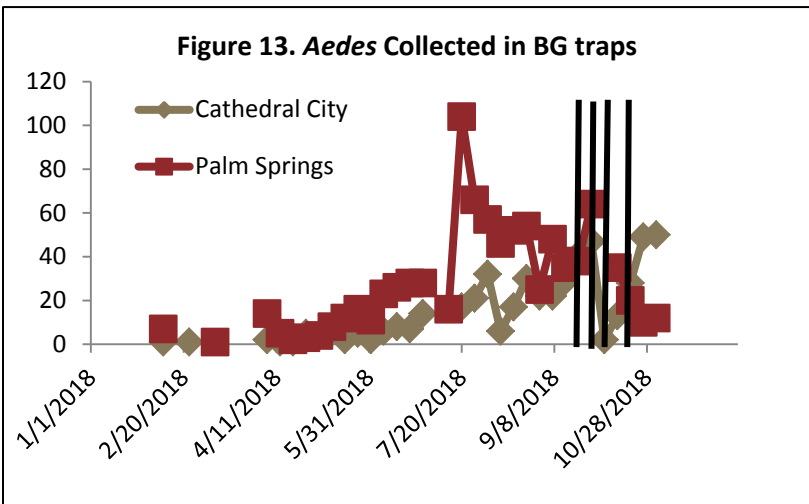
*Aerial larval control applications* – District staff conducted a series of aerial applications to control *Ae. aegypti* in Mecca in 2018. In September and October, four applications of VectoBac WDG (active ingredient: Bti) were conducted over 430 acres. To confirm the range of our applications, plastic containers were placed in 15 locations within the application zone and five locations outside of the zone. Bioassays, using the plastic containers with added larvae, confirmed efficacy of the applications and demonstrated the impact of product drift in the application area due to wind. Applications were adjusted accordingly and subsequent trapping showed significant reductions in mosquito populations.

*Truck-mounted larval control applications* – Larval control applications using VectoBac WDG were assessed when conducted by truck in Indio and Palm Springs. Equipment comparisons were done on the Super Duty A1



Mist Sprayer and Guardian 190 G4 Sprayer. Staff placed containers at 13 homes in various spots to confirm that the control product was reaching front and back yards and obstructed and unobstructed areas. Larval bioassays showed larvae in the treated containers died within 96 hours and larvae in the untreated containers survived.

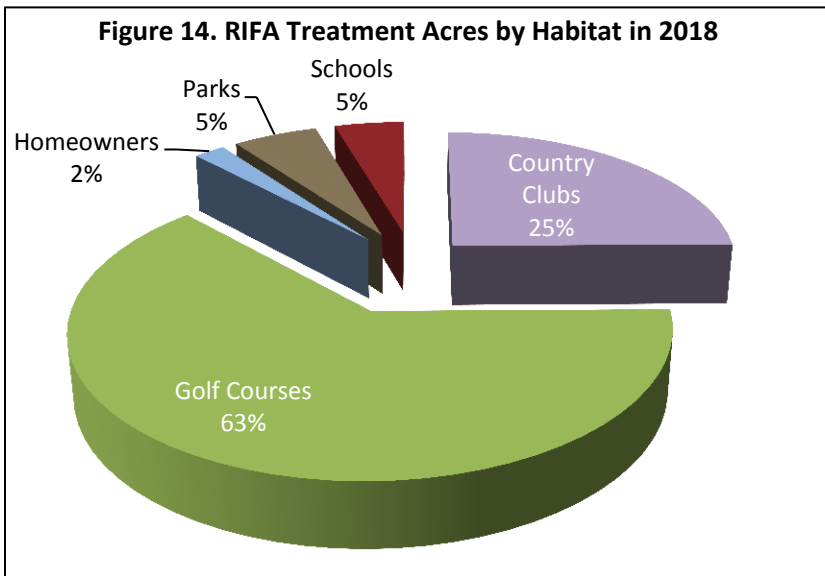
In Palm Springs, applications were made to neighborhoods covering approximately 1,060 acres. Two routes were used to compare the Curtis Dyna-Fog LV-8 Sprayer and the Super Duty A1 Mist Sprayer. To confirm product deposition, containers were placed at 28 residences within the application area. Container larval bioassay results showed that product deposited in most of the containers. Slightly better control was seen when cups were placed downwind of the application compared to those on the upwind side. BG-Sentinel mosquito traps placed in the surrounding areas caught fewer *Aedes* mosquitoes following the applications in Palm Springs compared to the nearby area of Cathedral City, where the black lines indicate the application dates (Figure 13). Both equipment types demonstrated effectiveness in reaching all areas where the containers were placed.



### Red Imported Fire Ants

#### Surveillance and Control

In 2018, the District assigned two Vector Control Technicians, assisted by five seasonal employees, to inspect properties for the presence of RIFA and determine the level of infestation by baiting. Once confirmed, a treatment is applied using bait granules, which contains a toxin, an insect growth regulator (IGR), or a combination of both active ingredients. The chemical bait granules once applied to an area with RIFA are taken back to the colony by foraging ants and fed to larval



and adult ants, ultimately killing the colony. The District’s field staff carried out more than 2,600 RIFA treatments at private homes, schools, parks, golf courses, and country clubs covering more than 17,800 acres of properties in 2018. Although a similar number of treatments were conducted in 2018 (2,630 treatments) compared to 2017 (2,662 treatments), less acreage was treated in 2018. Golf courses make up the most acreage of properties treated, with residential properties representing the most treatments (Figure 14).

### Nuisance Species

The District conducts a limited program on surveillance and control of nuisance species that may have potential to transmit disease or directly cause injury or discomfort to people. The primary focus of these programs includes surveillance, physical control, and public education. Many of the problems associated with nuisance species can be reduced or eliminated through proper sanitation and management.

## **Flies and Eye Gnats**

Filth fly and eye gnat surveillance and control are conducted based on community reports and prior chronic problems in an area. Once a service request is received, the District provides the resident with bottle traps, food lure concentrate, and instructions on how to maintain the trap. Plastic bottles are part of a “trap out” strategy to control flies and eye gnats in areas experiencing infestations. In 2018, the District received 90 requests for service for flies and eye gnats in the Coachella Valley, about 50 fewer requests compared to the previous two years. District staff distributed educational materials to residents with fly and eye gnat issues and provided best management practices training for agricultural operators, country clubs, golf courses, and HOAs. Fly activity was monitored in two La Quinta neighborhoods to address fly complaints in the area. Trapping showed that different fly species were collected inside neighborhoods and in nearby agricultural areas, suggesting fly development sources within residential neighborhoods are different than sources outside the neighborhoods.

## **Rodents**

District staff conduct block surveys and inspections of building exteriors and surrounding grounds to determine the level of rodent activity, access points to enter buildings, food, and harborage areas, and landscape management strategies to limit rodent activity. In 2018, Vector Control Technicians responded to 32 service requests for rodents, which was similar to the number of requests in 2017.

## **Honey Bees**

The District may carry out honey bee removal in cases where hives or swarms are located in a non-structural and accessible location, such as trees and bushes, in a public place where the bees pose an imminent threat to the public. Technicians do not remove beehives from private property but can offer advice on how to seal and maintain properties to limit likelihood of bees establishing colonies. In 2018, the District received a total of 72 service requests concerning honey bees, compared to 87 in 2017.

## **Scorpions**

The bark scorpion, *Centruroides sculpturatus*, is a non-native scorpion that has been documented in Indio since 2014. The bark scorpion’s venom is more potent than native Californian scorpions’ venom, posing a concern for the residents. They likely came from their native habitats in Arizona. Surveys conducted in November 2017 found the bark scorpion to be established within an Indio community and confined to that community. In April 2018, the District organized a “Scorpion Hunt” for community residents, educating them about best practices for scorpion removal. More than 60 residents participated and were given a scorpion hunting kit to continue removing scorpions on a regular basis.

## **Research**

The District has a strong commitment to ensure that its Integrated Vector Management (IVM) program is effective, efficient, and environmentally sound. This is achieved through applied research projects focused on various aspects of the District’s IVM program. Projects are typically conducted through collaborative research by District staff, university and government scientists who specialize in vector ecology, and private organizations.

### **Mosquito Surveillance and Control Applied Research**

**USDA Center for Medical and Veterinary Entomology (CMVAE)** – The District worked in collaboration with the USDA-CMAVE during two weeks in the summer. Lab staff and USDA employees worked at a test plot in Mecca to examine the effectiveness of spatial repellent for mosquitoes and flies in military camps in hot arid climates.



The data from this study can provide actionable guidance for troops in the field, as well as the public. This was the 12<sup>th</sup> consecutive year of collaboration between the agencies.

**UC Davis** – Previous research developed a simple sugar feeding bait station to detect West Nile virus from virus transferred by infected mosquitoes during sugar feeding. In 2018, researchers used sticky traps with several baits to better understand the numbers and species of mosquitoes that would be attracted to sugar bait stations. For comparison, the traps were located near District traps. Sticky traps with baits collected fewer mosquitoes than traditional District traps, but the variety of mosquitoes collected were similar. The researchers found that synthetic floral scents were more attractive than unscented traps in rural settings but not in suburban settings.



*Sticky trap used in study. The mesh cage protects the sticky trap.*

**UC Riverside** – Researchers are examining the use of commercially available biopesticides with fungi as the active ingredient to control adult mosquitoes in underground storm water systems. The researchers improved a device that exposes mosquitoes to control products in different ways as they feed on sugar bait. They found that a product not purported to control adult mosquitoes did in fact have mortality impacts. Previous assays in the laboratory showed mosquito mortality, but deploying the device in the field demonstrated large variability based on location and the need for improvements. Additional work to improve the efficacy is planned for 2019.



*Closed and open cages with treatments in the underground storm water with David Popko, UC Riverside Technician.*

### RIFA Control Applied Research

**USDA-CMAVE** – Researchers in this study examined the ability of water-resistant fire ant bait to control fire ants, which would allow the District to perform effective treatments in areas where irrigation or moisture are an issue. In 2018, researchers examined hydramethylnon, which targets adult worker ants while foraging. Researchers saw significant mortality in the ants and will continue the research to see if products control the rest of the colony.

**Additional Collaborative Research** – In 2018, the District provided mosquitoes to Northern Arizona University to examine St. Louis encephalitis virus in the southwestern U.S.; mosquitoes to UC Davis to examine the invasion of *Aedes* into California;



*Ant bait pile under a micro-sprinkler as part of the study.*

mosquitoes to BioHub to examine additional viruses and microbes that may become the next outbreak; collection information to Columbia University to test a predictive model of West Nile virus; collection information to Michigan State University for a comparison of landscape factors in West Nile virus transmission; and coordinated locations to examine spatial repellent efficacy.

## Environmental Compliance

### Federal and State National Pollutant Discharge Elimination System (NPDES)

The District complies with the Clean Water Act by ensuring that applications of control products made to or near waters of the U.S. sites are made under a National Pollutant Discharge Elimination System (NPDES) Permit. On March 1, 2018, the District filed its 2017 annual report for the California NPDES permit. In 2017, technicians made 721 larval control applications in and 19 adult control applications near waters of the U.S. No adverse conditions due to applications of vector control products were seen or reported.

Mosquito habitats located on lands owned by Native American tribes are not subject to California state law. In 2015, the District obtained a federal NPDES permit to make applications at these sites and to comply with the federal regulation. On February 14, 2018, the District provided the U.S. EPA with reports of treatments made in 2017 to



*District staff inspect a flooded area following a larval control application.*

sites that could be considered waters of the U.S. on property owned by the Agua Caliente Band of Cahuilla Indians, the Cabazon Band of Mission Indians, and the Torres Martinez Desert Cahuilla Indians.

### California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires public agencies to conduct an environmental review to determine the cumulative impact of their activities on the environment. In 2011, the District concluded that its IVM Program could have negative impacts on the environment if its activities were not mitigated, and therefore adopted a Mitigated Negative Declaration. The District filed its Annual Compliance Report regarding the monitoring performed on February 1, 2018. The District complied with the 18 mitigation measures and concluded that the operation of its IVM Program did not have a significant impact on the environment.

### Pesticide Environmental Stewardship Program (PESP)

The District is a Bronze-level member of the Environmental Protection Agency's Pesticide Environmental Stewardship Program (PESP). The program encourages members to reduce the risk of pesticide use by educating their staff and public about proper use of pesticides and by examining alternative methods of controlling pests. The District submitted its five-year monitoring strategy in 2013 and filed its fifth annual report on February 6, 2018. As part of the strategy, staff track source reduction; visits where no pesticide is used; visits where reduced-risk pesticides were used; surveillance activities performed; trainings held for staff; and outreach activities conducted on the topic of integrated vector management. The District updated its five-year monitoring strategy in 2018 to reflect changes to the District's IVM Program.

## Public Outreach

Education and engagement with the public is a cornerstone of the IVM program. The only long-term solution to mosquito control in the Coachella Valley is the routine removal of standing water sources by community members. In 2018, the Public Outreach Department increased grassroots programs with residents and businesses to make mosquito prevention a weekly routine, particularly in *Aedes*-infested communities and areas with West Nile and St. Louis encephalitis virus activity.

### Community Events and Talks

The District took part in 72 outreach events over 2018, including information booths at 10 community fairs, such as the Riverside County Date Festival, the CSUSB Sustainability and Environmental Expo, and other fairs in Desert Hot Springs, Indio, Mecca, and Palm Springs. The District took part in 16 school and camp events including judging science fairs, on campus information booths, career days, student tours and job shadows at the District, and presentations to both students and staff. District staff gave 15 community talks and distributed information to residents and community organizations around the valley. During Mosquito Awareness Week, we hosted the *Fight the Bite 5K and Community Resource Fair* in Rancho Mirage, where we celebrated the District's 90<sup>th</sup> anniversary and educated event participants on the importance of making mosquito prevention a weekly routine. We also hosted a *Community Clean up and Fight the Bite Block Party* in Mecca, and a *Scorpion Hunt* in Indio. In all, we directly reached about 7,500 community members.

### Partnering with State, City, and Community Stakeholders

District management and staff presented to seven City and Community Councils in 2018, including Indio, La Quinta, Mecca-North Shore, Palm Springs, Rancho Mirage, and Thermal-Oasis, sharing updates of West Nile virus transmission and efforts to prevent mosquito-borne disease transmission. We also gave tours to local and state officials and staff.

### Publications and Electronic Outreach

In 2018, nearly 29,000 educational materials and disease notification postcards were distributed to residents at events, city offices, community centers, through the mail, or directly at their door. We also received a grant to create an interactive display where residents can follow and interact with digital content on a screen learning about mosquito threats and prevention while actually seeing real standing water sources with a showcase box visible behind the digital content. This will be featured at fairs and school events.

### Media and Advertising

The District launched a new campaign in 2018, "Dump it. Drain it. Scrub it clean. Your weekly mosquito prevention routine." We developed the concept and script in house and hired a local musician to compose the music and voice the script. The television and cinema advertisement was then filmed and edited by a local television station as part of our advertising contract. The District advertising campaign included 1,429 TV, radio, and newspaper spots with a total reach of nearly 800,000 impressions. The online digital campaign resulted in 85,000 digital impressions and the movie theater campaign using the same content ran on 60 cinema screens with 300,000 projected impressions. The District published 12 news releases in 2018, resulting in 50 TV, radio, newspaper and electronic news stories. A new method to track website visitors logged 15,000 visitor sessions on the District website.



# Dump it. Drain it. Scrub it Clean. Your Weekly Mosquito Prevention Routine!





## Legislative Relations

State and federal legislation and regulations can impact IVM Programs in California. The District has made a priority of building and maintaining professional and collaborative relationships with local, state, and federal legislators who serve the constituents of the Coachella Valley. The District thanks our local legislators for their support, which has made our job easier in protecting public health in the Coachella Valley.

### 2018 Mosquito and Vector Control Association of California Legislative Day

The Mosquito and Vector Control Association of California (MVCAC) held its annual legislative day in Sacramento on March 7, 2018. Prior to MVCAC members visiting with legislators, District Public Information Manager Jill Oviatt led a workshop for Legislative Day participants on how to manage short, focused, goal-oriented meetings with their legislators on Legislative Day. District Trustees Doug Hassett and Michael Monroe, along with General Manager Jeremy Wittie, and Public Information Manager Jill Oviatt, met with State Assemblymen Eduardo Garcia and Chad Mayes, and State Senator Jeff Stone. During these meetings, legislators were updated and educated on District activities, mosquito-borne viruses in the Coachella Valley, the impact of Invasive *Aedes* on public health in California and the Coachella Valley, and a budgetary request to fund statewide mosquito control research.

### Legislative Tours at the District

District staff invited and hosted local and state legislators to tour the District facilities. It was the District's pleasure to have County Board Supervisor Manuel Perez and Field Representative Vicky Starke from State Assemblyman Chad Mayes legislative staff on site to get a closer look at what the District is doing to protect Coachella Valley residents and visitors.



Assemblymember Eduardo Garcia is with Michael Monroe. March 7, 2018 · Coachella · 🌐

It was great to meet with Coachella Valley Mosquito & Vector Control District. Since my time in local government, we've worked hand in hand to help maintain and improve public health within our region. If you look closely you'll see the plaque we were humorously reminiscing over. Offices don't often proudly display little crawling critters but we made an exception for this leadership award they presented me. This unique item is a delightful reminder of our strides to #FightTheBite, prevent the spread of viruses and improve our #AD56Community's quality of life by mitigating health threats. Keep up the good work! #GarciaOnTheGo

PSA- Don't forget to dump and drain that standing water in your yard. For more safety info/tips please visit <http://www.cvmvcd.org/>



**Top:** State Assemblyman Chad Mayes (third from left) gives District General Manager and Board members a tour of the Assembly floor in Sacramento. **Middle:** Facebook post by State Assemblyman Eduardo Garcia following a meeting with District officials. **Bottom:** District staff show County Board Supervisor Manuel Perez how our mosquito traps work.

## Information Technology

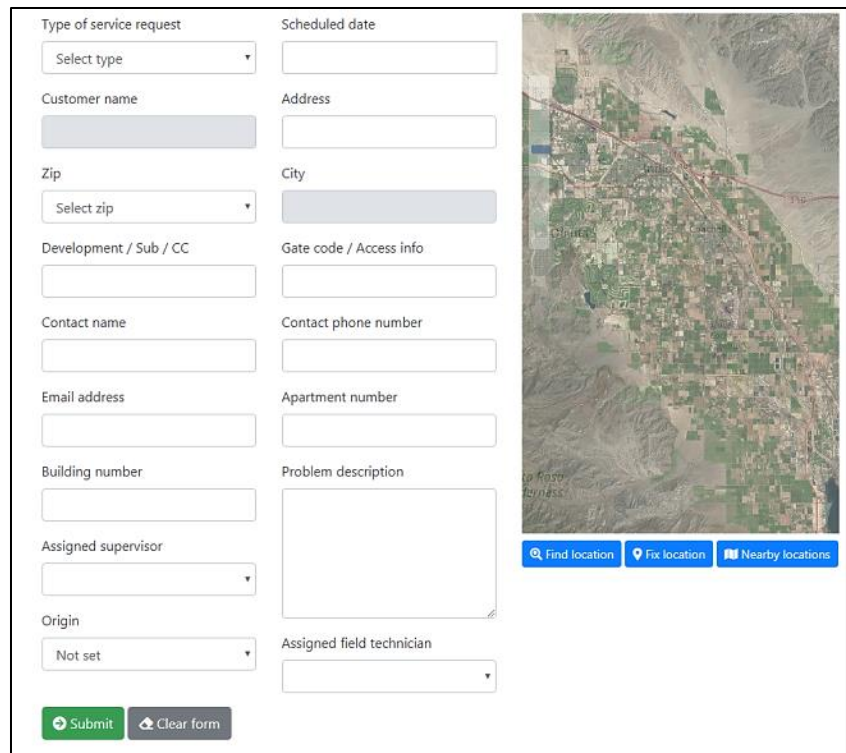
The Information Technology (IT) Department manages, maintains and administers all communication technology at the District including phone system, mobile phones, computers, servers, and cloud services.

### Updating Technician Database Fields

The IT Department worked with other District departments to assess and adjust systems to address the challenges posed by the continued presence of the *Ae. aegypti* mosquito in the Coachella Valley. The District's Mobile Inspection Application underwent revisions in 2018 to enhance and streamline the mosquito inspection form used by Vector Control Technicians. The number of breeding options from which a technician has to select has been reduced and refocused to capture the number of potential mosquito breeding water sources and the number of active breeding water sources. The District's vision is to determine the impact of source reduction at properties after an inspection. The data will also assist the Operations Department to focus on properties with high levels of breeding in standing water sources.

### Authorization Form Accessibility

The District's website is an important tool used to highlight and provide access to District services offered to Coachella Valley residents. One of the most common services, treatment for RIFA, requires a signed authorization form by residents. In the past, people were required to print out, sign, and fax back authorization forms to allow RIFA applications on their property. In 2018, the IT team developed an online tool that permits residents and property managers to complete and submit a treatment authorization form using an "e-signature." The e-signature expedites the process for Vector Control Technicians to perform a RIFA inspection and treatment when deemed necessary. With a few clicks, property owners and managers can now provide the required authorization documentation over the internet in just a few minutes.



The screenshot shows a web-based service request form. It features two columns of input fields. The left column includes: 'Type of service request' (dropdown), 'Customer name' (text), 'Zip' (dropdown), 'Development / Sub / CC' (text), 'Contact name' (text), 'Email address' (text), 'Building number' (text), 'Assigned supervisor' (dropdown), and 'Origin' (dropdown). The right column includes: 'Scheduled date' (text), 'Address' (text), 'City' (text), 'Gate code / Access info' (text), 'Contact phone number' (text), 'Apartment number' (text), 'Problem description' (text area), and 'Assigned field technician' (dropdown). At the bottom left are 'Submit' and 'Clear form' buttons. On the right is a satellite map with 'Find location', 'Fix location', and 'Nearby locations' buttons.

*Streamlined service request application that auto populates standard information, generates email links to residents for required forms, automatically logs call categories, and offers a simplified user interface.*

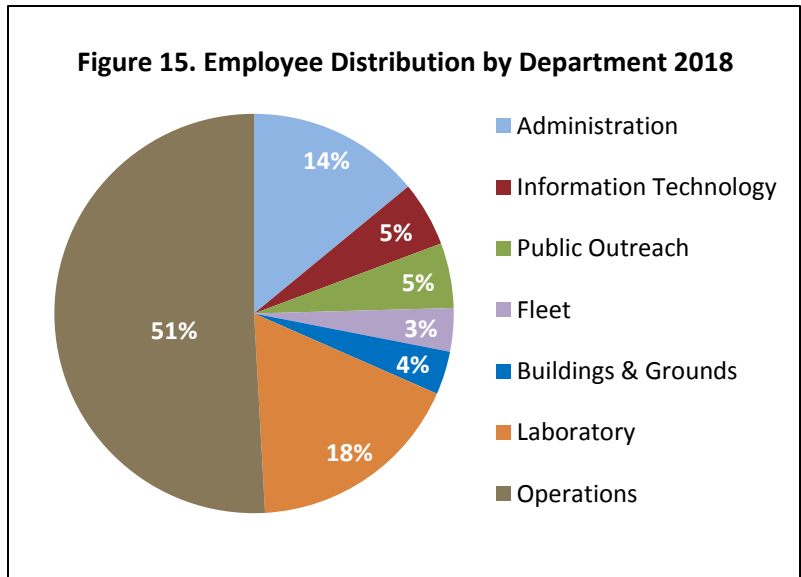
### Operations Application Updates

Updates were also made in 2018 to streamline the systems used by District staff to locate resident addresses, submit service requests to Vector Control Technicians, log the types of calls received, and send authorization forms to residents. The new interface is user friendly and has made the Call Center workflow faster and more efficient.



## Human Resources

The Human Resources (HR) Department is dedicated to attracting, developing, motivating, and supporting a qualified, high performing workforce committed to fulfilling the mission of the District. Staff support starts at the hiring process and continues through the entire period of active employment. It provides various services which are available to all employees as well as advice and guidance on a multitude of staff employment situations. The District's staff consists of 57 regular full-time employees and as many as 22 seasonal employees (**Figure 15**).



### Recruitment

In 2018, the HR Department received and processed 134 applications and filled 31 positions. Nine regular full-time positions were filled by internal promotions. The remaining 22 positions were temporary seasonal positions filled by new and returning seasonal employees.

### Years of Service

The District's 57 regular full-time employees represent:

- 631 total years of service
- an average age of 43.75 with an average of 11 years of service
- 31 employees with 10-19 years of service and seven employees with 20+ years of service

### Retirements

Looking to the future, training and succession planning is even more important as the baby boomers, which make up 23% of the District's workforce, continue to retire. Currently, 21 employees (37%) are eligible for service retirement through the California Public Employees' Retirement System (CalPERS).

### Professional Development

The HR Department offered learning opportunities to employees at all levels, emphasizing leadership, teamwork, high performance, customer service, and communication. As part of this professional development, the District completed the second year of the Beyond the Bite Academy program. The Academy is designed to support District employees with learning opportunities to build valuable work skills and enhance performance. Six employees graduated in December.



## Fleet and Facilities

### Fleet Services

Fleet Services repairs, maintains, and operates 58 field vehicles, nine workhorse utility vehicles, two four-wheel all-terrain vehicles, one eight-wheel ARGO, 11 trailers, two ultra-low volume sprayers, and two forklifts. Shop mechanics design and fabricate specialized equipment, and assist with facility maintenance and equipment, such as electrical troubleshooting and calibration.

### Unmanned Aerial Vehicles

Added to the Fleet Services list of responsibilities in 2018 are two high-performance unmanned aerial vehicles (UAV), also known as drones. Unmanned aerial vehicles are operated without a human pilot onboard and initially will be used for mosquito larval surveillance. The District acquired a DJI Phantom 4 Pro and a DJI Matrice 600 in 2018. The UAVs are designed for aerial photography and industrial applications. Utilizing “Maps Made Easy,” the Phantom 4 Pro is being used to capture computer-rectified aerial photography along the Salton Sea Shoreline. The aerial photography can be imported into ESRI ArcGIS Desktop, geographic software, designed to deliver location intelligence to provide aerial applicators with accurate target locations, acreage, and control product estimations. The District envisions the use of UAVs to conduct aerial pesticide applications when regulations are finalized by the California Department of Pesticide Regulation.



*The Matrice 600 UAV.*

### FAA-Certified Drone Pilots

Five District employees successfully passed the Federal Aviation Administration’s Small Unmanned Aircraft System (UAS) Rule (Part 107) Test, which demonstrates the understanding of regulations, operating requirements and procedures to safely fly UAVs.

### Building and Grounds

The District’s Buildings and Grounds Maintenance Department maintains, repairs, and upgrades the District’s facilities, property, and special equipment. One of the main projects for 2018 was the internal remodeling of the former operations laboratory space into a Public Outreach Department office space. The work was carried out by District staff which involved the removal of lab counters and an island with sinks, replacing it with public outreach workspace cubicles, desks, a collaboration room, private office, storage room and upgraded lighting. The project included moving of doors, building walls, and a new window. The space now houses the Call Center and Public Outreach staff.



*New Public Outreach Department.*



*Collaboration Room in new Public Outreach Department.*

## Finance

The Finance Department manages the budgeting, accounting, record keeping, and control of fixed assets and investments. The department's financial management objective is to be ethical, fiscally responsible, and law abiding in the stewardship of public funds to achieve the District's mission. The Finance Department provides financial administrative support to the District's Board of Trustees and staff in their efforts to reduce the risk of disease transmission by mosquitoes and other vectors to residents and visitors of the Coachella Valley.

### Statement of Financial Position: FY 2017-18 (June 30, 2018)

#### Assets

Cash & investments	\$ 13,026,038
Current Assets	\$ 1,913,305
Net fixed assets	\$ 10,725,824
<b>Total Assets</b>	<b>\$ 25,665,167</b>

#### Liabilities and Equity

Total Liabilities	\$ 5,960,887
Equity	\$ 19,704,280
<b>Total liabilities and equity</b>	<b>\$ 25,665,167</b>

### Statement of Activities

The Statement of Activities is a summary of FY 2017/18 (June 30, 2018), showing revenue and expenditure/expenses.

#### Revenue FY 2017-18

Charges for Services - Benefit Assessments	\$ 1,628,823
Property Taxes	\$ 3,883,367
RDA Property Tax Increment	\$ 4,164,357
Interest & Miscellaneous	\$ 360,067
<b>Total Revenue</b>	<b>\$10,036,614</b>

#### Expenditures/Expenses FY 2017-18

Salaries & Wages	\$ 4,644,134
Employee Benefits	\$ 2,276,032
Field Operations	\$ 1,208,839
Materials, Services & Supplies	\$ 804,646
Insurance	\$ 151,806
Contract Agreements	\$ 120,000
Depreciation	\$ 698,980
<b>Total Expenditures/Expenses</b>	<b>\$ 9,904,437</b>

Figure 16. Revenue FY 2017-18

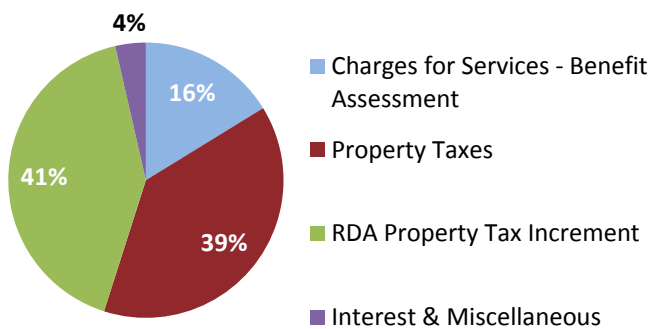
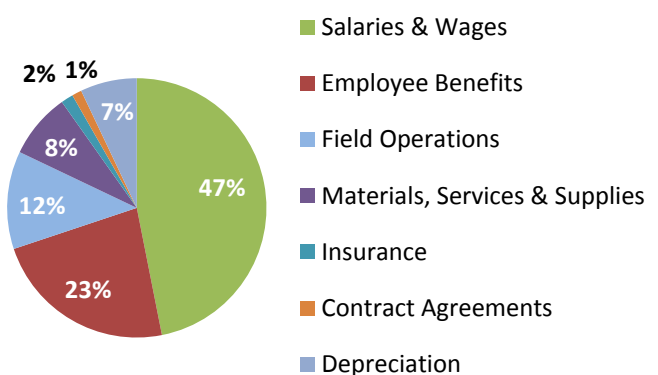


Figure 17. Expenditures/Expenses FY 2017-18



For more information on the District's financial position, please see the Comprehensive Annual Financial Report FY 2017/2018 online at <http://www.cvmvcd.org/press/documents/ComAnnualFinancialRpt/2018/2018cvmvcdCAFRc.pdf>.



## Awards and Committees

### Employee of the Year

Congratulations to the 2018 **Employee of the Year**, Abelina Torres, Accounting Technician I. Abby is a positive, attentive employee who is well liked and respected by her co-workers. A co-worker commented that her customer service skills are “stellar.” She has the ability to clearly communicate information while at the same time increasing overall knowledge on the subject. Residents and homeowner association employees have complimented Abby on how she is well-spoken, makes them feel comfortable, and schedules their appointments with ease. Abby is a team player who is always willing to assist other employees and always “goes the extra mile.” She is well organized and has a strong work ethic.

Abby has been an employee for 12 years and is an asset to the District.

### William C. Reeves New Investigator Award

Kim Hung, PhD, Vector Ecologist, was selected to receive **The William C. Reeves New Investigator Award** given annually by the MVCAC in honor of the long and productive scientific career of Dr. William C. Reeves. The award was presented to Kim based on the quality of her scientific study, manuscript, and presentation at the MVCAC 2018 Annual Conference.

### MVCAC Honorary Member Award

Branka B. Lothrop, PhD, retired General Manager, received the **MVCAC Honorary Member Award**. Honorary membership is conferred on a person who has rendered exceptional, distinguished service in the interest of mosquito or vector control in the state of California. To receive special recognition through honorary membership in MVCAC, the nominee must receive a two-thirds vote of the Corporate Membership. The presentation was made at the MVCAC 2018 Annual Conference.

### Certificate of Achievement for Excellence in Financial Reporting

For the tenth year in a row, for the fiscal year that ended June 30, 2018, the District received the **Certificate of Achievement**

**for Excellence in Financial Reporting** presented by the Government Finance Officers Association of the United States and Canada (GFOA) for its Comprehensive Annual Financial Report (CAFR).



*Employee of the Year (left) Abelina Torres, Accounting Technician I, with General Manager Jeremy Wittie (right).*



*Kim Hung, PhD, Vector Ecologist*



*Branka B. Lothrop, PhD, former General Manager*

## Committees

### Board of Trustees

The following Trustees assumed additional responsibility as members of the Board and as part of their volunteer time with the District in 2018.

#### Executive Committee

Shelley Kaplan – President  
Doug Hassett – Vice President  
Franz De Klotz – Secretary  
Clive Weightman – Treasurer

#### Finance Committee

Clive Weightman – Treasurer  
Bito Larson –Member  
Betty Sanchez –Member

#### Research Committee

Franz De Klotz – Member  
Dr. Douglas Kunz – Member  
Doug Walker – Member

### Mosquito and Vector Control Association of California – (MVCAC)

Doug Hassett – Southern Regional Trustee Representative

### District Staff

Throughout 2018, District employees worked on local, state, and national committees and councils to raise awareness about vectors and vector-borne disease, build partnerships that contribute to protecting the public from vectors, and exchange knowledge with industry leaders to improve overall practices.

#### Roberta Dieckmann

- MVCAC Integrated Vector Management Committee – Member
- National eXTension Fire Ants Community of Practice – State Leader and Expert Panelist

#### Jennifer Henke

- MVCAC Regulatory Affairs Committee – Chair
- MVCAC Research Committee – Member
- MVCAC Southern Region IVM Group – Coordinator
- AMCA Science and Technology Committee – Member
- Pacific Branch of the Entomological Society of America – President
- NPDES Desert Task Force Advisory Committee – CVMVCD Representative

#### David l'Anson

- MVCAC Executive Committee – Treasurer

#### Anita Jones

- CSDA Human Resources & Personnel Expert Feedback Team – Member
- College of the Desert HR Advisory Roundtable

#### Jill Oviatt

- MVCAC Public Relations Committee – Chair
- AMCA Public Relations Committee – Member

#### Edward Prendez

- MVCAC Information Technology Committee – Member
- Municipal Information Systems Association of California – Member

#### Kim Hung

- MVCAC Vector and Vector-borne Disease Committee – Member
- MVCAC Laboratory Technologies Committee – Member

#### Wakoli Wekesa

- MVCAC Vector Control Research Committee – Chair
- MVCAC Integrated Vector Management Committee – Member
- MVCAC Vector and Vector-borne Disease Committee – Member

#### Jeremy Wittie

- MVCAC Executive Committee – Vice President
- MVCAC Legislative Committee – Member
- MVCAC Research Committee – Board Liaison
- MVCAC Southern Region Managers – Member

## Looking Forward

Thank you for letting us share a portion of the exceptional work that District staff performed while protecting public health in 2018 in the Coachella Valley. We are also grateful to our community members and collaborators who worked with us and supported our efforts. As mentioned in the opening letter, it will take the dedication of the entire community to make the greatest and longest lasting impact on our local mosquito and vector populations.

Some of the important projects that staff will be focused on in 2019 include:

- Continue to advance the District's surveillance and control of invasive *Aedes* mosquitoes and partner with residents in affected neighborhoods to educate and provide them with strategies to eliminate or reduce mosquito breeding sources.
- Collaborate with researchers to develop new surveillance and control approaches focused on Coachella Valley mosquito and RIFA issues.
- Partner with valley cities to ensure implementation of mosquito control best management practices on city-owned land.
- Launch a new District website.
- Assess and incorporate the use of unmanned aerial systems for surveillance of mosquito habitats surrounding the Salton Sea.
- Evaluate and determine a long term financial plan for District healthcare and retirement benefits.
- Develop and implement a professional development plan for staff communication and collaboration.

On behalf of the entire Coachella Valley Mosquito and Vector Control District team, Trustees and Staff, we look forward to another year of serving our residents to protect them from mosquito and other vector-borne illnesses.





**In Memoriam: John B. Stevens, CVMVCD Trustee 2017-2018**

The Coachella Valley Mosquito and Vector Control District Board of Trustees and Staff honor the memory of John B. Stevens, Trustee to the Board from the City of Indio, who passed away in April 2018. We are forever grateful for his dedication and service to the District and the residents of the Coachella Valley.



For information about the Coachella Valley Mosquito and Vector Control District, please contact us at  
43420 Trader Place, Indio, CA 92201 | (760) 342-8287  
[cvmosquito@cvmvcd.org](mailto:cvmosquito@cvmvcd.org).  
Visit us at our website at [www.cvmvcd.org](http://www.cvmvcd.org).