



Public Health
Environmental Health Services

MOSQUITO and VECTOR CONTROL PROGRAM



ANNUAL
REPORT
2018

COUNTYWIDE VISION

We envision a complete county that capitalizes on the diversity of its people, its geography, and its economy to create a broad range of choices for its residents in how they live, work, and play.

We envision a vibrant economy with a skilled workforce that attracts employers who seize the opportunities presented by the county's unique advantages and provide the jobs that create countywide prosperity.

We envision a sustainable system of high-quality education, community health, public safety, housing, retail, recreation, arts and culture, and infrastructure, in which development complements our natural resources and environment.

We envision a model community which is governed in an open and ethical manner, where great ideas are replicated and brought to scale, and all sectors work collaboratively to reach shared goals.

From our valleys, across our mountains, and into our deserts, we envision a county that is a destination for visitors and a home for anyone seeking a sense of community and the best life has to offer.



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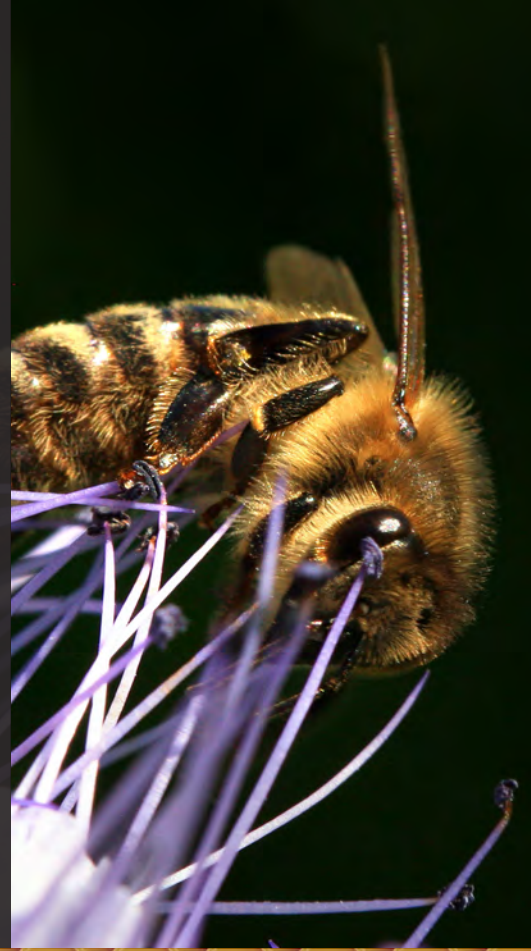
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PROTECTING Public Health every day

The Mosquito and Vector Control Program's (MVCP) mission is to protect health and enhance the quality of life for all county residents through the suppression of mosquito, rodent and other vector-transmitted diseases and the reduction of annoyance levels caused by mosquitoes and other pests of public importance.

The information in this report highlights MVCP's efforts in 2018 to innovate and improve on surveillance and abatement practices in order to fulfill our mission to the residents of San Bernardino County.

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MVCP operates in the largest county in the contiguous United States with over 20,000 square miles of land area; and the twelfth largest county by population in the United States; with mountains, valleys and expansive desert areas. MVCP is committed to ensuring public health and safety to county residents and visitors and developing new ways to improve services.

In 2018, MVCP's goals were to increase community outreach, expand services across the county, strengthen existing relationships and invest in technology to continue to be on the forefront of surveillance and abatement techniques.

Hard work by our highly trained staff and the assistance of an engaged public have helped

to make headway combating existing and emerging threats.

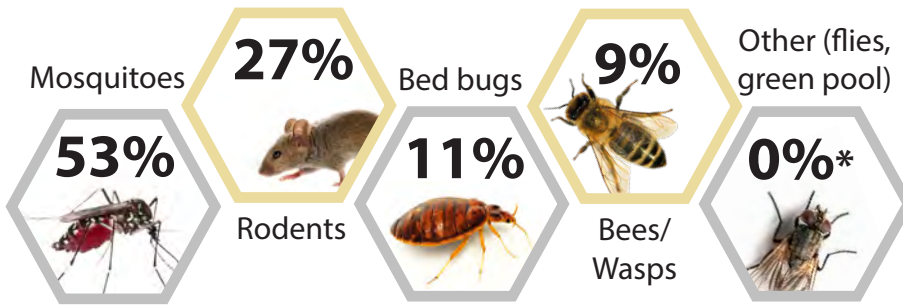
We look forward to serving you for another successful—and safe—year ahead!

Respectfully,

Jennifer Osorio



PERCENTAGE OF PRIMARY SERVICE REQUESTS SORTED BY PEST



*Requests represented less than half percent.

TOTAL SERVICE REQUESTS

1,299



SERVICE REQUESTS BY YEAR



SERVICE REQUESTS BY CITY/LOCATION

CITY/LOCATION	NUMBER OF REQUESTS
APPLE VALLEY	1
BARSTOW	14
BIG BEAR LAKE	7
COLTON	105
FONTANA	211
GRAND TERRACE	25
HIGHLAND	106
LOMA LINDA	17
NEEDLES	20
RANCHO CUCAMONGA	1
REDLANDS	53
RIALTO	93
SAN BERNARDINO	452
TWENTYNINE PALMS	4
UNINCORPORATED AREAS	138
UPLAND	2
VICTORVILLE	7
YUCAIPA	21
YUCCA VALLEY	22

SERVICE REQUESTS BY MONTH



13,012

MOSQUITOES TRAPPED
AND **156** TESTED

ZERO

TESTED
POSITIVE FOR
ZIKA VIRUS

9

DEAD BIRDS TESTED

ZERO

TESTED
POSITIVE FOR
**WEST NILE
VIRUS**

231

TICKS TRAPPED
AND **192** TESTED

ZERO

TESTED
POSITIVE FOR
LYME DISEASE

0

RODENTS
TESTED
POSITIVE FOR
PLAGUE OR
HANTAVIRUS

1

POSITIVE
MOSQUITO
POOL FOR
WEST NILE VIRUS

2,141

RESIDENTIAL
SURVEYS
COMPLETED

323

COURTESY
NOTICES
TO ABATE
ISSUED

402

NOTICE OF
VIOLATIONS
ISSUED

TOTAL NUMBER OF PEOPLE
REACHED AT MVCP COMMUNITY
EVENTS

2,860

43 MVCP COMMUNITY
EVENTS



Mosquito Awareness Events

Each year, the California Mosquito Awareness Week (April 15-21) and the National Mosquito Awareness Week (June 24-30) are observed to increase public awareness regarding the risks of mosquito-borne diseases. According to the Mosquito and Vector Control Association of America, the purpose of mosquito awareness weeks are to educate the public about mosquito population control methods and preventative measures to reduce mosquito bites and mosquito-borne illnesses.

For the 2018 California and National Mosquito Awareness Weeks, MVCP staff planned out daily events to educate the public about mosquitoes and MVCP services. The events were scheduled at high-traffic locations (Walmart, Fontana Library, Home Depot, and Lowe's), targeting different demographic audiences (children, adults and home owners) to increase event participation and reach a larger audience.



On Monday, April 16, a kickoff event occurred at three Walmart locations. Mosquito displays and other informational materials were set up in the garden center for each location. A combination of health education specialists, vector control technicians and public service employees (PSEs) passed out educational materials and answered questions related to vector control techniques and available services.

On Wednesday, April 18, MVCP staff held a mosquito awareness workshop for adults and children at the Fontana Library. Attendees were educated about mosquitoes and MVCP services through an information table and hands-on activities. The table included displays of live mosquito fish, mosquito larvae, a microscope viewing station and printed informational material. The hands-on activities included a video on mosquitoes with an interactive online trivia game and demonstration activity on how MVCP field staff sample stagnant water sources in the field. Exit surveys were given to attendees to gather event data. Responses indicated that the workshop was informative and attendees are likely to attend another MVCP workshop in the future.

During California Mosquito Awareness Week, staff created daily social media posts that provided mosquito facts, prevention methods, disease information and provided MVCP contact information for follow-up. Below is a summary of the social media posts for each day of the event:

- **April 16, Mosquito Facts** – Monday’s post shared that female mosquitoes need protein from blood to produce their eggs. Male mosquitoes feed on plant nectar/honeydew and do not bite humans.
- **April 17, the 3 Ds of Prevention** – Tuesday’s post discussed “Dress, Drain and Defend” prevention techniques. The public can be protected from mosquito bites by wearing light clothing with longer sleeves/pants, draining standing water inside and outside their home and applying insect repellents.
- **April 18, Indoor Mosquito Breeding** – Wednesday’s post advised that house and office plants are unexpected mosquito breeding sources. Potted plants should be checked regularly for standing water.
- **April 19, Cap Size Mosquito Breeding** – Thursday’s post provided the fact that even a plastic bottle cap size amount of stagnant water can breed mosquitoes.
- **April 20, Insect Repellent** – Friday’s post reminded the public to wear repellent on all exposed skin during outside activities to prevent mosquito bites.

During the National Mosquito Awareness Week, MVCP staff visited three Lowe’s locations and five Home Depot locations. For three-hour intervals, shoppers were greeted by MVCP staff and drawn in with informational displays and materials. Staff gave mosquito facts and talked with shoppers about ways to reduce mosquito breeding around their homes.

Participating in the California and National Mosquito Awareness Weeks is an essential part of MVCP’s outreach strategy to the community, and provides helpful messaging that informs and protects the public.



Mosquito and Vector Control Roundtable

Building on the success of other EHS roundtables, MVCP conducted its first roundtable event on January 23, 2018, with the goal to collaborate with communities in San Bernardino County and discuss services provided by MVCP. Twenty-seven community members and city officials attended the MVCP Roundtable at San Bernardino Valley College. This event provided attendees an opportunity to learn about emerging diseases such as Zika and West Nile virus, prevention of vector-borne diseases, MVCP services provided in their jurisdictions and how vector control services can benefit their communities. MVCP staff also demonstrated equipment and techniques used to identify, eradicate and suppress vectors.

MVCP made this roundtable event interactive and engaging by using a wide range of presentation methods and activities (e.g., videos, subject matter expert presentations, breakout sessions, handout materials and hands-on activities such as the live mosquito specimen microscope examination station). The MVCP Roundtable received a very positive response from attendees. MVCP staff were invited to conduct additional educational presentations and participate in community events throughout the county. MVCP also received new requests for services from cities that had not previously participated.

MVCP and all of EHS will continue to use roundtables for building new partnerships and strengthening current ones, resulting in a more informed and safer community.



Available handouts:

- Cockroaches
- Flies
- Hantavirus
- Lyme Disease
- Plague Frequently Asked Questions
- What's a Vector?





Parks Serviced by MVCP

Rodents, mosquitoes and ticks are known to be hosts to many diseases. These vectors are found in many outdoor places such as public parks and hiking trails that the public visit on a regular basis. MVCP supports the County’s Vision2BActive initiative to improve health and wellness throughout the county by encouraging outdoor physical activity. MVCP continuously monitors parks within the county to ensure the health and safety of the public. MVCP performs mosquito trapping using various types of trapping methods during the months of April through December, when mosquitoes are most active. These mosquitoes are tested for diseases including West Nile virus, and if found in abundance, MVCP staff will monitor and abate breeding sources.

In addition to mosquitoes, MVCP captures and tests other vectors for diseases. From December through June, MVCP technicians completed rodent surveys to test for plague and Hantavirus; no rodents tested positive. The staff also completed tick flagging to check for Lyme disease and Relapsing Fever. Two hundred thirty-one ticks were caught and 192 were tested. All 192 ticks tested negative for Lyme disease and Relapsing Fever. Completing these services allows MVCP to issue health warnings to the public to take additional precautions when outside. This ensures the residents and visitors of San Bernardino County are able to enjoy the recreational areas as safely as possible. MVCP performs one or more of these services at the following parks:

Barstow

- Dana Park

Colton

- Rich Dauer Park

Fontana

- Hunters Ridge Park
- Martin Tudor Jurupa Hills Regional Park
- Shadow Park
- Veterans Park

Highland

- Aurantia Park
- Highland Community Park

Loma Linda

- Bryn Mawr Veterans Memorial Park
- Elmer Digneo Park
- Hulda Crooks Park
- Ted and Lila Dawson Park

Rancho Cucamonga

- Rancho Summit Park

Redlands

- Caroline Park
- Jennie Davis Park
- Redlands Community Park
- Smiley Park
- Texonia Park

Rialto

- Fergusson Park
- Frisbie Park
- Jerry Eaves Park

San Bernardino

- Anne Shirrells Park
- Encanto Park
- Glen Helen Regional Park
- La Plaza Park
- Meadowbrook Park
- Seccombe Lake Park

Victorville

- Mojave Narrows Regional Park

Yucaipa

- Bryant Glen
- El Dorado Ranch Park
- Wildwood Canyon State Park
- Yucaipa Community Park
- Yucaipa Regional Park



Collaboration with Other Agencies

MVCP collaborated with two other agencies to participate in testing mosquitoes. The first collaboration was with the California Department of Public Health (CDPH) in which MVCP provided *Aedes* mosquitoes for testing to determine pesticide resistance. MVCP sent in approximately 270 *Aedes aegypti* mosquitoes for testing. The mosquitoes were collected from Bloomington, Colton, Fontana, Grand Terrace, Highland, Mentone, Redlands, Rialto and San Bernardino.

The second collaboration was with the University of California (UC), Davis Mosquito Control Research Lab. The UC Davis lab was conducting research to determine the genetic sequencing and distribution patterns of mosquitoes across the United States. MVCP sent *Aedes aegypti* mosquitoes in for testing and will receive results in the future when analysis is complete. The UC Davis Mosquito Control Research Lab plans to continue its research and compare the genetic variations between mosquitoes and their migration.

Partnerships

- American Mosquito Control Association
- California Department of Public Health Vector-Borne Disease Section
- CalTrans
- County Department of Public Works Flood Control District
- DPH Communicable Disease Section
- DPH Preparedness and Response Program
- Mohave County Environmental Health Services, Arizona
- Mosquito and Vector Control Association of California
- Ontario International Airport
- Southern California Edison
- West Valley Mosquito and Vector Control District



New Technology - Thermal Cameras

In July 2018, MVCP began piloting the use of thermal cameras to help aid in completing inspections. MVCP is exploring the use of these cameras to aid in the detection of bed bugs, cockroaches and rodents during an inspection. A thermal imaging camera is attached to a smartphone and creates a digital representation of thermal radiation created by an object. Thermal imaging cameras are able to measure temperature ranges from -4°F to 248°F and are able to detect rodent nests and other pests hiding behind walls. Using this technology, an inspector could quickly find these hidden nests for abatement. Thermal cameras provide another useful tool for MVCP staff in conducting inspections and protecting public health.

Residential Block Survey Numbers

During the course of the year, MVCP receives and handles a variety of service requests from the community. When numerous requests are received from an area for a specific issue such as mosquitoes, MVCP staff will conduct residential block surveys to determine the source and work toward abatement to alleviate the issue.

In 2018, MVCP contacted 2,141 households in the cities/locations of Colton, Fontana, Grand Terrace, Highland, Mentone and San Bernardino in response to mosquito complaints. Residents were informed on how mosquitoes breed and how to eliminate breeding sources on their property. MVCP conducted 1,789 property inspections during these surveys. This free service educated residents about potential breeding sites on their property and the proper way to eliminate them. These residents are now empowered to help protect public health in their own backyard.

CITY/LOCATION	NUMBER OF INSPECTIONS
COLTON	75
FONTANA	711
GRAND TERRACE	211
HIGHLAND	302
MENTONE	270
SAN BERNARDINO	220

What's Next

Pilot Outreach Efforts

Coming in 2019, MVCP will be piloting new outreach efforts to increase public interest and participation in MVCP services. Outreach will include live streaming to social media accounts, notifying the public that vector complaints can be received through social media direct messages (DMs) and introducing a free prize wheel at events and presentations.



During outreach events, MVCP staff will live stream videos to EHS' Facebook and Instagram pages inviting the public to come visit the events and spin the free prize wheel to win MVCP and Public Health swag.



City of Barstow

Through outreach events and networking, MVCP continually strives to expand collaborations between local city partners by conducting outreach regarding the benefits of MVCP services.

In December 2018, MVCP welcomed the City of Barstow as its newest partner. Beginning in 2019, MVCP will begin providing complete vector control services, including community education.





EMPLOYEE OF THE YEAR SPOTLIGHT

Beginning in 2018, MVCP began selecting an employee of the year. Honorees are selected from previous 2018 employee of the quarter recipients.

MVCP's selected recipient is an employee who has made outstanding efforts to support the program's mission of protecting the public from vector-borne disease. MVCP is proud to introduce the 2018 Employee of the Year, Tristan Abbott.

Tristan is a Vector Control Technician I and began his career with the County 14 years ago as a PSE. His duties include responding to residence service requests involving vectors or pests (mosquitoes, midge flies, cockroaches, bedbugs, rodents, bees, etc.). He inspects and treats known water sources that are mosquito breeding sites in flood control areas, curbs, gutters and residential retention ponds. He also conducts surveillance throughout the county to identify vectors that harbor Hantavirus, Plague and Lyme disease.

Tristan was selected for this award due to his excellent work ethic and attitude in serving the public. Tristan is well respected amongst the other MVCP staff. He demonstrates a positive, can-do attitude and is always willing to volunteer and assist other technicians. He demonstrates the understanding and dedication of the MVCP's vision in the way he performs his duties. He is the most senior technician in the group, shares his knowledge with co-workers and provides hands-on training to new staff. In 2018, Tristan responded to 238 complaints and completed 1,547 routine inspections.

"The most enjoyable part of the job is being outside doing something different every day; tromping around in hard-to-reach places getting dirty. The most rewarding part of the job is when someone calls with a major issue and we are able to rectify their situation and improve their quality of life." - Tristan Abbott

Outside of work, Tristan loves spending his spare time with his beautiful wife and twin boys. They go off-roading in the winter, boating in the summer and fishing all year long.

Congratulations Tristan on your hard work and achievements!



2018 MVCP Management Team

Joshua Dugas

Chief
Environmental Health Services

Jason Phillippe

Program Manager
Environmental Health Services

Morena Garcia

Program Coordinator
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**PROTECTING PUBLIC
HEALTH EVERY DAY**

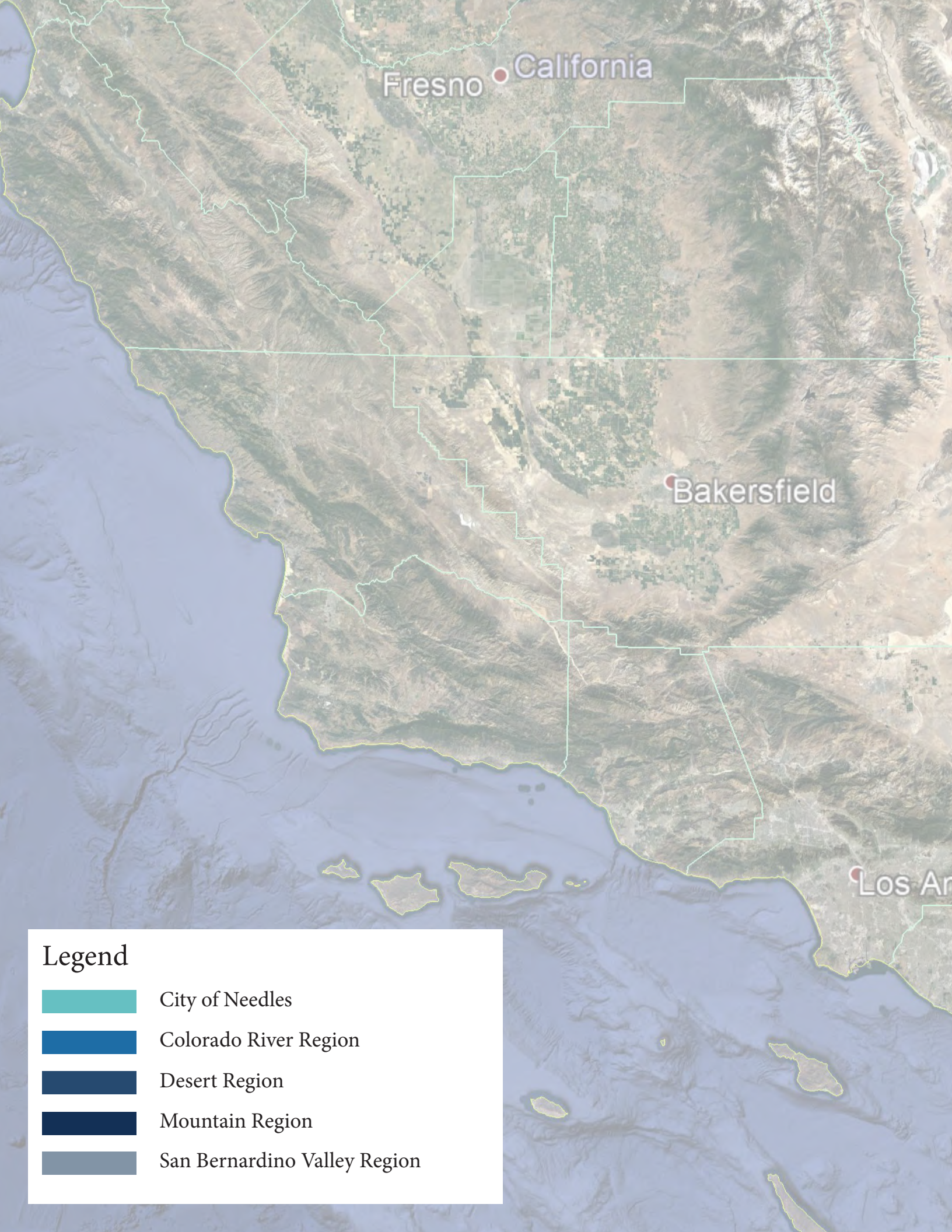


MVCP Staff 2018



MVCP provides services to richly diverse geographic and demographic areas, all with unique needs. Threats to public health such as West Nile virus and Zika continue to evolve and MVCP has found new and innovative ways to address these needs and continue to safeguard public health and quality of life. The MVCP team is committed to protecting the residents and visitors throughout San Bernardino County and look forward to serving you another year.





Fresno California

Bakersfield

Los Angeles

Legend

-  City of Needles
-  Colorado River Region
-  Desert Region
-  Mountain Region
-  San Bernardino Valley Region

MVCP REGION SERVICE AREAS



Las Vegas

SAN BERNARDINO COUNTY

Desert Region

Colorado River Region

Mountain Region

San Bernardino
Valley Region

Riverside



For information about the San Bernardino County Mosquito and Vector Control Program, please contact us at:

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