



Mosquito Control Matters

**Gary Goodman
General Manager**

**Sacramento-Yolo Mosquito &
Vector Control District**

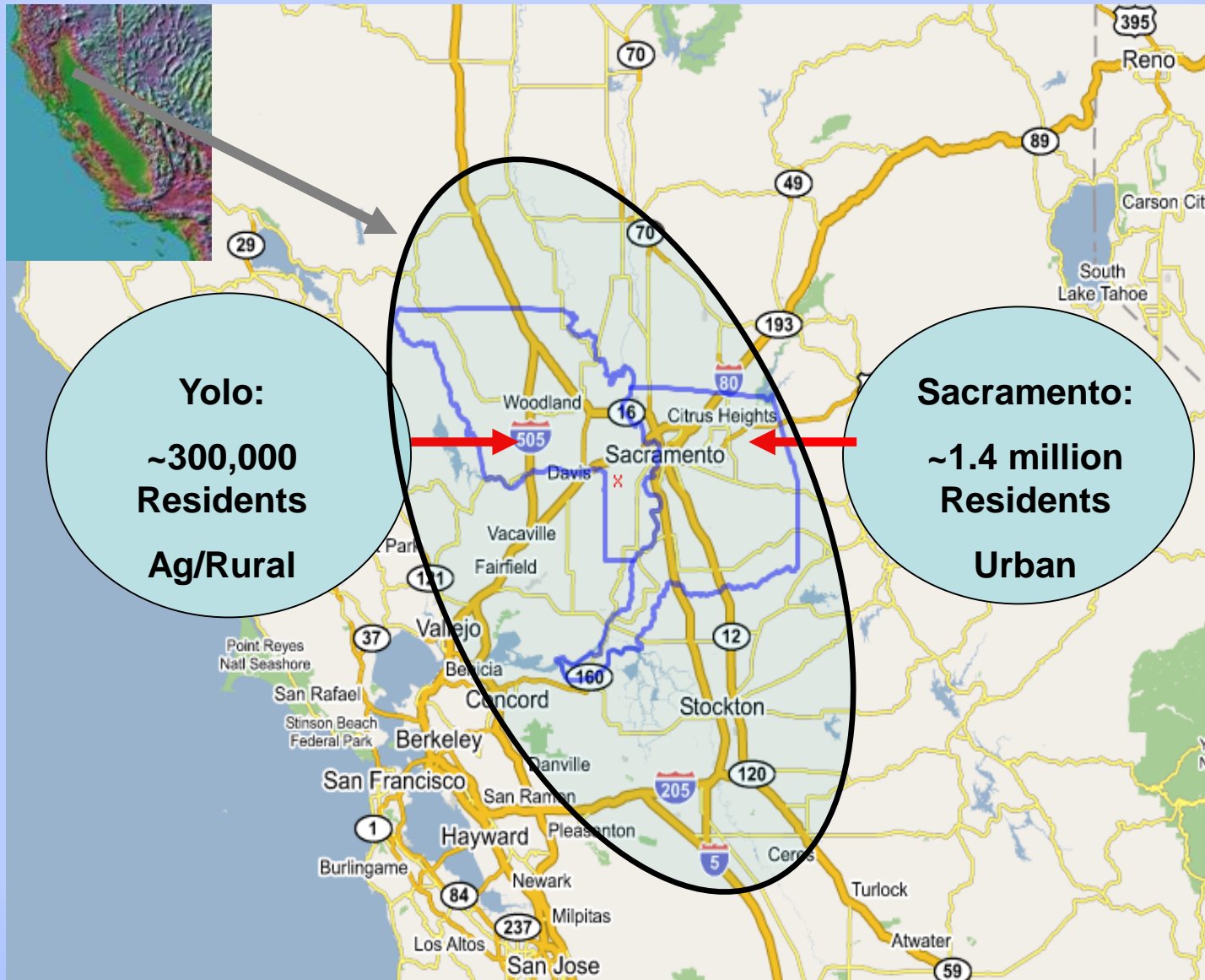
Sacramento–Yolo Mosquito & Vector Control District



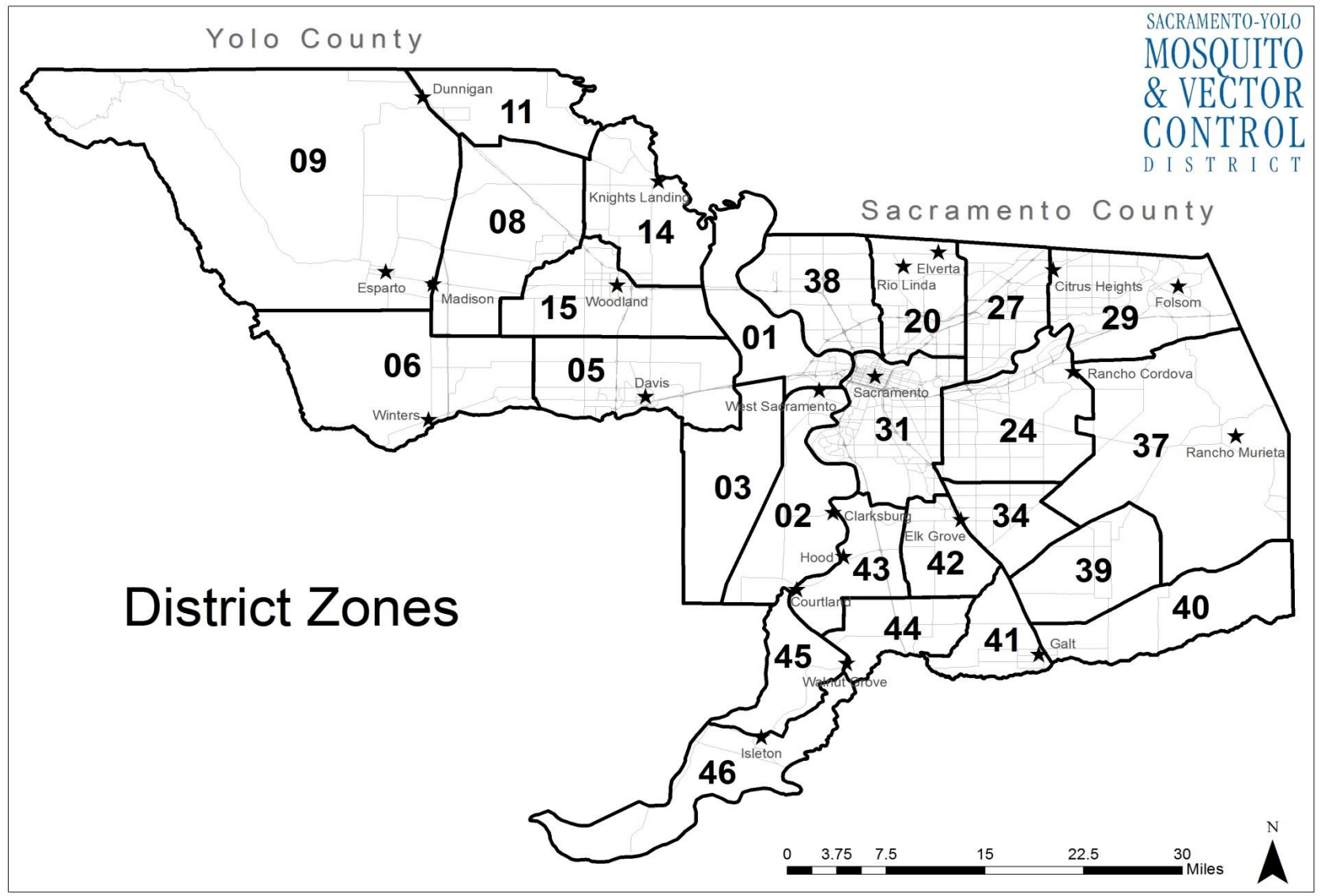
To provide safe, effective and economical mosquito and vector control. To accomplish this, we provide ongoing surveillance of mosquitoes and other vectors to determine the threat of disease transmission and lower annoyance levels.



Sacramento and Yolo Counties



Our District Area



Mosquito Life Cycle



Egg Raft



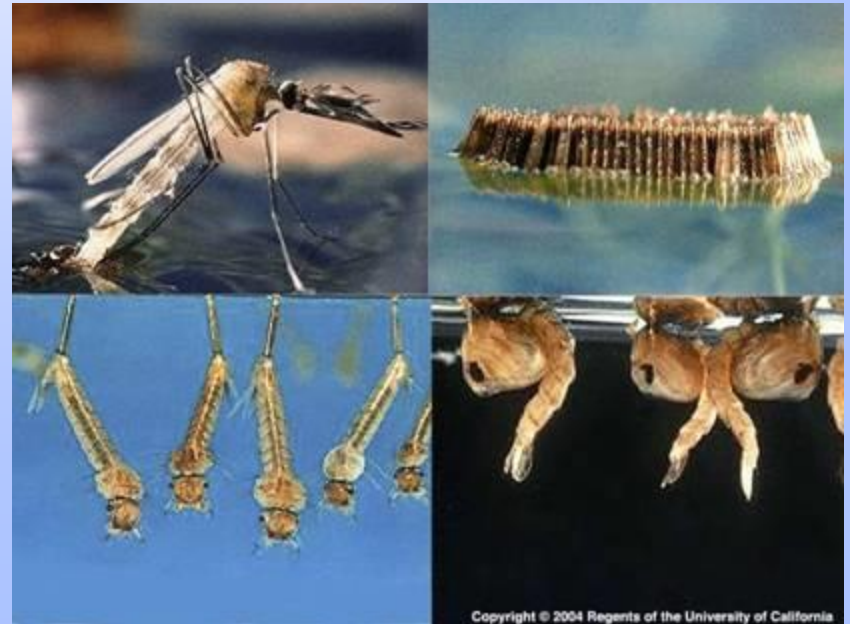
Larva



Pupa



Adult Mosquito



Mosquito Habitat – Ag Areas



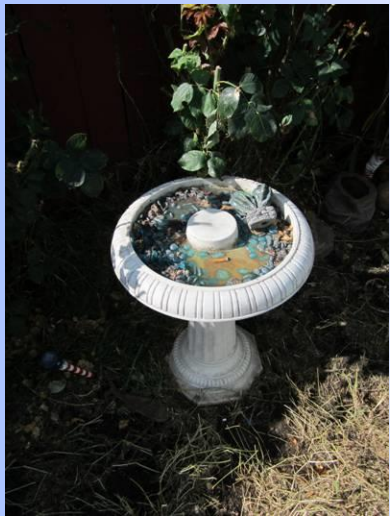
Natural Sources



Urban Sources



Backyard Sources



Urban “Wetlands”



Properly maintained pool will not produce mosquitoes but an un-maintained pool will!

Mosquitofish will prevent mosquitoes

Requires public participation

- 1) Alert us to bad pools
- 2) DO NOT put chlorine into pool unless consistently maintained!



Water Management is KEY



Managed Water = No Mosquitoes

Only irrigate lawn - NOT sidewalk/gutter

Recycle green waste - DON'T dump in the street!

Check yard once a week!

- Empty any stagnant water from buckets, containers, bird baths, pet dishes
- Recycle fountains
- Call District for free mosquitofish

What Diseases Can Mosquitoes Carry?



West Nile Virus

** The most prevalent disease in the United States and permanently established in our area**

Dengue Fever

Malaria

Chikungunya

Zika virus

Dog Heartworm

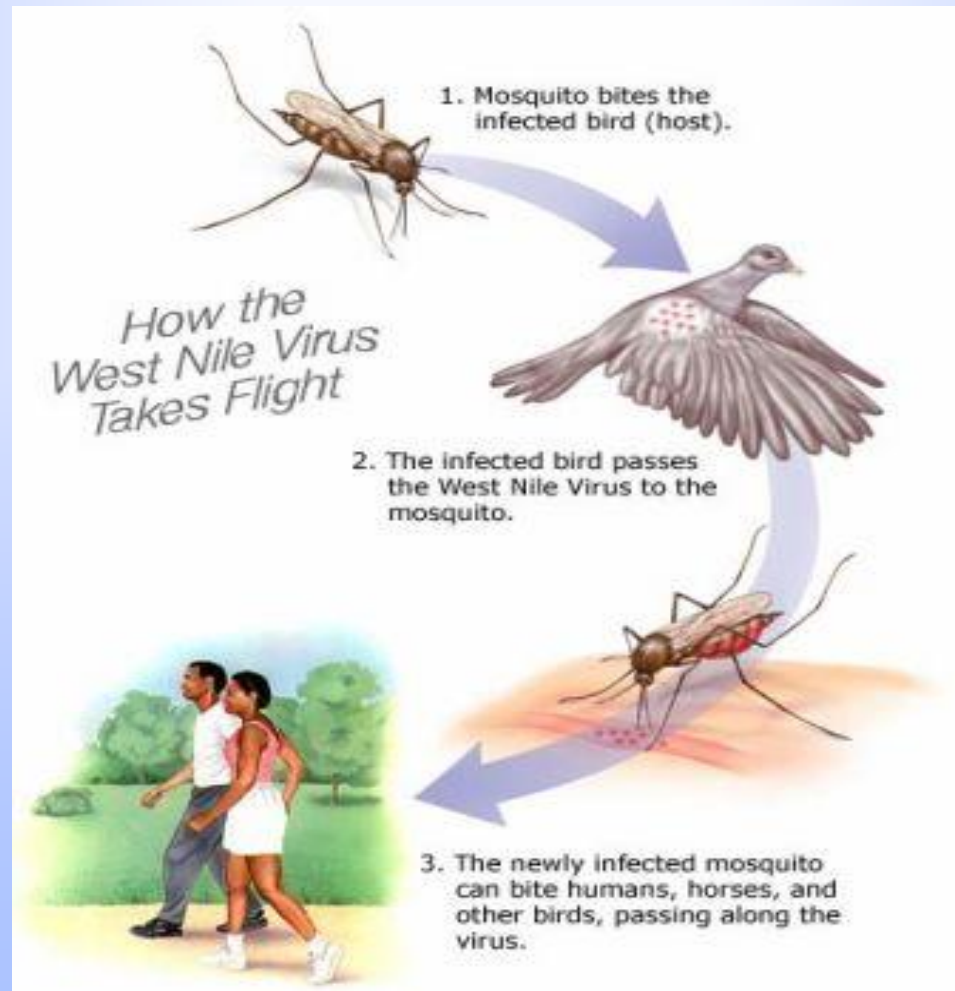
What is West Nile Virus?



West Nile Virus (WNV) is a virus transmitted by mosquitoes that can cause disease in humans, birds, horses, domestic and wild animals.



How Do Mosquitoes Get West Nile Virus?



What are the Symptoms?



20% of people develop West Nile Fever. Approximately 2 to 14 days after being bitten you can have these symptoms:

- Fever between 101°-106° degrees
- Headaches, body aches
- Fatigue
- Rash on your skin
- Possible pain around the eyes
- Possible swelling of the lymph nodes

How long do Symptoms Last?



These symptoms can last 2-3 weeks or longer. If symptoms persist, you can develop the more severe neuroinvasive form of the disease such as:

- Meningitis: inflammation of the membranes that cover the brain
- Encephalitis: swelling of the brain

WNV Activity in California



<u>Year</u>	<u>Human Cases</u>
2015	737
2014	801
2013	372
2012	479
2011	158
2010	111
2009	112
2008	445
2007	380
2006	278
2005	880
2004	779

2016

WNV is extremely under reported. The Centers for Disease Control estimates that for every neuroinvasive case confirmed, there are approximately 30-70 cases that are not reported.

New Threats?



Dengue Fever transmitted by
the
Asian Tiger Mosquito
(*Aedes albopictus*)

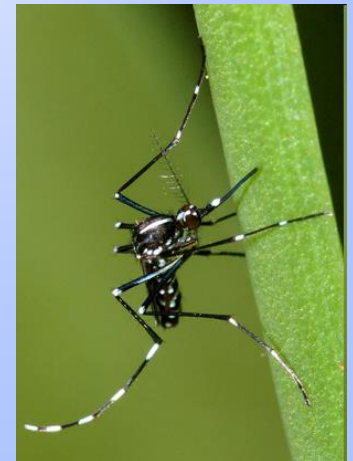


Aggressive bay biter

Was first imported in a tire shipment, later was also brought in Lucky Bamboo plants

2011 was found in Southern California and is now well established

Symptoms of dengue: high fever, headaches, intense pain in muscles, joints and bones



New Threats?



Dengue Fever and Chikungunya transmitted by Yellow Fever Mosquito

(Aedes aegypti)

Bites during the day

2013 was found in Madera, Fresno
and San Mateo County and the
concern is it will continue to spread
Eggs can stay dormant for months



What is Chikungunya?



A viral infection transmitted to humans by the bite of an infected mosquito, mainly *Aedes aegypti* and *Aedes albopictus*



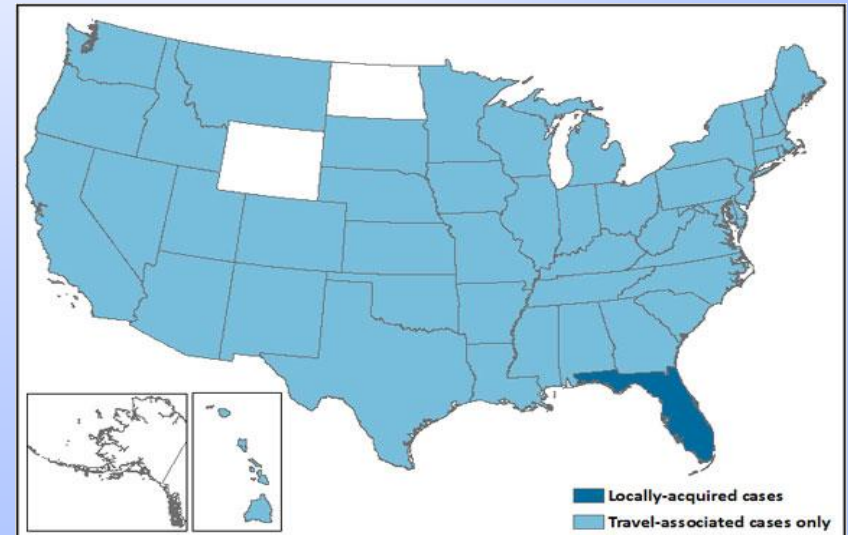
Aedes aegypti



Aedes albopictus

Originated in Tanzania and the word means to be bent out of shape in reference to how it can cause people to contort in pain

Since 2013, more than 1 million cases have been reported in the Caribbean, Central America and South America



2014-2492 cases
2015-679 cases

Zika Virus



- Detected in the Zika forest of Uganda in 1947. Prior to 2007, only sporadic cases were detected in Africa and Asia
- Transmitted through the bite of an infected *Aedes* mosquito. Mosquitoes become infected when they feed on a person already infected with the virus. Infected mosquitoes can then spread the disease to others through bites
- Can be passed from mother to child either at delivery or during pregnancy and may also be transmitted through sexual contact or a blood transfusion



Aedes aegypti



Aedes albopictus

****These invasive mosquito species have not been detected in Sacramento or Yolo counties****



Countries with active Zika virus transmission

Infection



- **About 1 in 5 people infected with Zika develop symptoms which include fever, rash, joint pain and red eyes. May include muscle pain and headache.**
- **Illness is generally mild with symptoms lasting for several days to a week.**
- **Currently no vaccine for Zika, treatment is supportive and includes medicine to reduce pain/fever, rest and fluids**



Microcephaly



Microcephaly in association with Zika:

- Microcephaly is a birth defect where a baby's head is much smaller than expected when compared to babies of the same sex and age
- Babies with microcephaly often have smaller brains that might not have developed properly, resulting in severe disability or even death
- Sharp increase in cases in Brazil where Zika outbreaks have occurred
- **Connection between Zika and microcephaly has not been absolutely confirmed, but evidence is mounting**



Integrated Mosquito Management Measures



Public Information
Surveillance
Biological Control
Physical Control
Control-Larvicide
Control-Adulticide



Public Information



Mosquito and West Nile Awareness Week
April 19-April 25
PREVENT MOSQUITOES AND WEST NILE VIRUS:
DRAIN standing water
DRESS protectively
DEFEND yourself with insect repellent

FIGHT THE BITE!
For event information call
1 (800) 429-1022
or visit www.FIGHTtheBITE.net



SACRAMENTO-YOLO MOSQUITO & VECTOR CONTROL DISTRICT

NEGLICTED SWIMMING POOLS
produce mosquitoes putting you
and your kids at risk.
One pool can produce thousands
of mosquitoes and affect an
entire neighborhood!

Fight the Bite

Report Neglected Pools or other Mosquito Problems
1.800.429.1022 www.FIGHTtheBITE.net

SACRAMENTO-YOLO MOSQUITO & VECTOR CONTROL DISTRICT

FOR A FULL LIST OF BUSINESSES FOR THE
DATE: 07.02.09
FILE NAME: 07.02.09
ADDRESS: SACRAMENTO-YOLO MOSQUITO & VECTOR CONTROL DISTRICT
CITY: SACRAMENTO, CA 95811
PHONE: (916) 429-1022
FAX: (916) 429-1022
E-MAIL: info@fightthebite.net
WEB: www.fightthebite.net

Surveillance



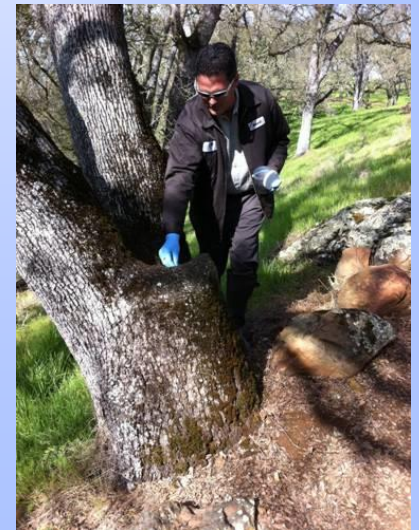
Fisheries Program



Physical Control



Larval and Adult Mosquito Control



Protect yourself !



Repellents (CDC Website)

– DEET

- 23.8% DEET = ~5 hours of protection
- 20% DEET = ~4 hours of protection
- 6.65% DEET = ~2 hours of protection
- 4.75% DEET = ~1.5 hour of protection.

– Picaridin

– Oil of Lemon Eucalyptus

– IR 3535

Prevention: What Can You Do?



Follow the District D's

DRAIN Standing Water

DAWN and **DUSK** Are Times To Avoid Being Outdoors

DRESS In Long Sleeves & Pants When Outside

DEFEND Yourself With An Effective Repellent

DOORS and Screens Should Be In Good Working Condition

DISTRICT Personnel Are Available To Help



Sacramento-Yolo Mosquito and Vector Control District

1-800-429-1022

www.FIGHTtheBITE.net