City of Los Alamitos

Agenda Report	July 21, 2015
Consent Calendar	Item No: 8F

To: Mayor Richard D. Murphy & Members of the City Council

From: Gerri L. Graham-Mejia, Orange County Vector Control District Representative for Los Alamitos

Prepared by: Windmera Quintanar, CMC, City Clerk

Subject: Orange County Vector Control District (OCVCD) Update

Summary: This report provides an update on the Orange County Vector Control Board.

Recommendation: Receive and file.

Background

On December 16, 2013, the City Council appointed Gerri L. Graham-Mejia to the Orange County Vector Control District Board (OCVCD) for a two-year term. Her term of service will end the first Monday of the year at 11:59 a.m., which will be January 4, 2016. OCVCD bylaws dictate a representative may be appointed for two or four year term of office which commences at noon on the first Monday in January. As a resident of the City, Gerri L. Graham-Mejia will continue to serve as the City's representative until January 4, 2016.

Discussion

May 21, 2015 – Monthly Items of Discussion

- Mosquito populations remain unseasonably high, triggering a suspension of the rodent control rebating program to focus control efforts on mosquitoes
- Orange County Mosquito and Vector Control District email alert sign up form has been created and launched on the District website for residents to receive information on our activities. Visit www.ocvcd.org to sign up
- Aedes aegypti mosquitoes were found in Anaheim on April 21, 2015. This invasive species is an aggressive day-biting mosquito. Please report any day-biting mosquitoes to the Orange County Mosquito and Vector Control District

June 18, 2015 – Monthly Items of Discussion

- There have been six human cases of Flea-borne typhus in Orange County in 2015. The cases are located in Garden Grove (3), Anaheim (1), Buena Park (1), and Santa Ana (1)

- In 2015, there have been three West Nile virus (WNV) positive mosquito samples collected in Tustin. This is the only WNV activity in Orange County so far this year
- The Orange County Mosquito and Vector Control District has an exhibit at the Discovery Cube Orange County that will be opened at the ribbon cutting for the Discovery Cube Expansion on June 11, 2015. The exhibit is entitled: "Inspector Training Course"

Ongoing Items of Discussion

- Visit www.ocvcd.org for more information on rats, mosquitoes, Red Imported Fire Ants, and other pests you could have on your property.
- Follow the Orange County Mosquito and Vector Control District on Facebook and Twitter to receive important vector control tips and information about disease outbreaks that will help protect you and your family this summer. www.facebook.com/OCVectorControl www.twitter.com/OCVector

Fiscal Impact

None.

Approved By:

Bret M. Plumlee
City Manager

Attachments: 1. May 2015 – Vector of the Month and Vector Management Update
2. June 2015 – Vector of the Month and Vector Management Update

Vector of the Month

Mosquitoes of Orange County

Orange County supports a unique assemblage of mosquitoes represented among a number of common and rare species. Several are known for their historical involvement with the classical transmission of encephalitis and malaria to humans. Progressive development of the county and destruction of some critical habitats has resulted in the "regional" extinction of a number of relatively common species. The following text presents a brief synopsis of the mosquito species currently known from the county.

Culex quinquefasciatus: The southern house mosquito is the species responsible for a majority of the District's mosquito abatement services and related control activities. Females are active nearly year-around in the more sheltered areas of the county and will frequently enter houses to seek blood. Larvae are commonly associated with all types of "urban waters" held in sources ranging from swimming pools to flower pots. This species serves as our primary vector of both West Nile (WNV) and St. Louis encephalitis (SLE) viruses.

Culex tarsalis: The western encephalitis mosquito is considered by most mosquito biologists to be the principal encephalitis vector throughout much of its range in North America. It is our primary vector of western equine encephalitis (WEE) virus and primary/ secondary vector of WNV and St. Louis encephalitis (SLE) virus. Adults are active during the spring, summer, and fall. Though more common in less developed areas, breeding occurs throughout the county in association with most types of clean, standing water sources in channels and marshes.

Culex erythrothorax: The tule mosquito is a distinctive reddish-colored species associated with coastal and inland permanent wetlands, particularly the San Joaquin Marsh. Although females do not disperse far from breeding sources to bite, their often painful bite is usually followed by a severe local reaction. The tule mosquito overwinters as mature larvae, unlike most *Culex* species that overwinter as adult females. Emergence occurs as early as late February with continuous breeding extending well into the fall during favorable years. This species has been found naturally infected with WNV, WEE, and SLE, but is considered a less competent vector of these mosquito-borne diseases.

Culex stigmatosoma: This close relative of *Culex tarsalis* is sometimes referred to as the foul water mosquito as a consequence of its breeding habits in association with either stagnant or polluted waters. Females are on the wing throughout the county from spring to early fall, seldom bite humans, and only rarely enter homes. This species has been demonstrated to be an efficient vector of WNV and St. Louis encephalitis (SLE) virus, and thus, represents an important link in the maintenance of these viruses in birds.

Aedes squamiger: The California salt marsh mosquito is a late winter and early spring species that breeds in coastal wetlands flooded by seasonal rainfall. Larvae usually occur in rainwater filled depressions in association with pickleweed and salt grass. It is an extremely aggressive day and dusk biter with the capacity to disperse long distances to obtain a blood meal. Bolsa Chica populations have been found naturally infected with a California group (CE) encephalitis (Morro Bay) virus. The potential impact of this virus on residents inhabiting coastal areas is unknown.

Aedes taeniorhynchus: This summer species is sometimes called the dark salt marsh mosquito because of its highly contrasting black and white coloration. Larvae develop in upland pickleweed flats that are flooded by high tides. It is an aggressive biter during the day and at dusk, and can be troublesome to coastal residents living near breeding sources.

Culiseta incidens: The cool weather mosquito is most often encountered from February through June. It is found throughout the county in association with a variety of larval habits that include rainwater pools, artificial containers, and ornamental ponds. Although this mosquito in not considered a major pest, females will occasionally enter homes or bite residents outdoors near breeding sources.

Anopheles hermsi: This spring, summer, and fall mosquito is found sporadically throughout the county in association with breeding sources containing floating mats of filamentous algae. As a competent vector of human malaria, this species has been involved with the autochthonous (indigenous) transmission of this disease in San Diego County. Malaria transmission is possible in Orange County if residents are bitten by females that have been infected as a consequence of feeding on either a resident or transient experiencing a typical relapse.

Culiseta inornata: The impressive large winter mosquito is encountered during the cooler months of the year. Larvae develop in all types of natural sources. Abundant larval populations occur in association with *Ae. squamiger* in salt marsh habitats. At times, this species can be locally troublesome to coastal residents. Elsewhere, this species has been involved with the transmission of a number of mosquito-borne encephalitides: WEE, SLE, and CE (Jamestown Canyon) viruses.

Culiseta particeps: Similar to *Culiseta inornata*, this distinctive species with scale patches on the wings usually breeds during the cooler months of the year. Larvae occur in shaded alga-laden pools along foothill streams both inland and near the coast.

Aedes nigromaculis: Once a significant pest associated with irrigated pastures supporting the bygone dairy industry, this species has gone by the way of the dairy and is considered to be regionally extinct. The last known collection records were from Hettinga Dairy in Cypress in 1972.

Aedes sierrensis: The western tree hole mosquito occurs along the coast and inland where suitable habitat supports native oak, cottonwood, willow, and sycamore. Though this species breeds in tree holes and rot cavities containing highly tannic rainwater, breeding can occur opportunistically in old tires and artificial containers. It is a highly competent vector of canine heartworm.

Aedes dorsalis: This species, like *Ae. nigromaculis*, may be either regionally extinct or highly localized along our coastal strand. Both adult and larval records have been scarce for many years. Females have been found naturally infected with WEE , SLE, and CE viruses.

Aedes washinoi (formerly Ae. increpitus): *Aedes washinoi* occurs along the coast and sporadically inland where it can be locally annoying to residents following wet winters. Larvae develop in fresh water located in the upland portions of salt marshes and in floodwater sections of coastal and inland streams.

Anopheles franciscanus: On the wing during the spring, summer, and fall, this species is found at a limited number of sites within the county. It breeds in sources supporting abundant algal-growths and floating mats of vegetation. This species seldom bites humans and does not experimentally transmit human malaria in the laboratory.

Anopheles punctipennis: This rare species is restricted to the San Clemente area of extreme south county. Adults are active during the spring, summer, and fall. Females are important vectors of human malaria in riparian areas of the Central Valley of California. Its potential involvement with the transmission of human malaria in the county is arguable.

Culex apicalis: Another rare species apparently limited to the south county area where it breeds in the quiet backwaters of streams during the spring, summer, and early fall. Females feed on birds, reptiles, and possibly amphibians.

Culex boharti: This extremely rare species is presumably active during the spring, summer, and fall. Females seek blood from reptiles and amphibians, particularly toads and frogs. Larvae, which are unique in having the middle abdominal segment clear, usually develop in shaded pools along foothill streams in upland areas bordering the Santa Ana Mountains.

Culex restuans: Considered by most mosquito biologists to be one of California's rarer species. It is found in riparian habitats in south Orange County and the Santa Ana Watershed in eastern Orange County. Adults are active during the spring and fall with little activity during the summer and winter months. This species can vector WNV.

Culex thriambus: This spring, summer, and fall species closely resembles both *Culex tarsalis* and *Culex stigmatosoma*, but is more limited in its distribution. Usually encountered in foothill riparian habitats where breeding occurs in open and sunlit pools along streams and other water courses. It is occasionally collected from animal water troughs and streamside rock holes.

Orthopodomyia signifera: This exotic tree hole breeding mosquito is a rare find in the county. Where encountered, it shares "tree hole space" with *Ae. sierrensis* in the moist canyons of the coastal foothills and Santa Ana Mountains.

Vector Management Update

California Sets Record for West Nile Virus Activity

California Department of Public Health
April 8, 2015

SACRAMENTO – It was a record-breaking year for West Nile virus activity in 2014 California Department of Public Health (CDPH) Director and State Health Officer Dr. Karen Smith announced today.

California had the second-highest number of human cases of West Nile virus (WNV) in 2014 since the virus first invaded California in 2003. In 2014, California recorded 801 cases of the potentially fatal disease. In 2005, CDPH detected 880 cases of WNV.

The highest number of cases was in Orange County (263 cases) and the highest incidence occurred in Glenn County (35.3 cases per 100,000 population).

The level of WNV activity last year broke several records including:

- Five-hundred-sixty-one cases of West Nile neuroinvasive disease (WNND), the more serious neurological form of the disease often resulting in encephalitis or meningitis, were detected.
- The number of fatal WNV cases, 31, exceeded all previous years.
- The proportion of mosquitoes infected with WNV was the highest level ever detected in California (mosquito infection rate = 6.0; epidemic conditions equate with 5.0).
- The prevalence of WNV infection in tested dead birds, 60 percent, was the highest ever detected in California.

It is possible that the ongoing drought contributed to West Nile virus activity by creating more limited sources of water for birds and mosquitoes, according to Dr. Smith.

"As birds and mosquitoes sought water, they came into closer contact and amplified the virus, particularly in urban areas. The lack of water could have caused some sources of water to stagnate, making the water sources more attractive for mosquitoes to lay eggs," said Dr. Smith.

It is not possible to predict the level of WNV activity in 2015 because activity is influenced by many factors including climate, the number and types of birds and mosquitoes in an area, and the level of immunity in birds to WNV.

As the weather warms up, mosquitoes become more abundant. Unseasonably warm weather this year could lead to increased mosquito abundance and promote an early start to the WNV disease season. The WNV season typically begins in the summer and tapers off in the fall months, with the highest risk for disease occurring in mid-July through September.

West Nile virus is transmitted to humans and animals by the bite of an infected mosquito. For most people, the risk of serious illness is low. However, some individuals – less than one percent – can develop a serious neurologic illness, such as encephalitis or meningitis. People 50 years of age or older and people with diabetes and/or high blood pressure have the greatest risk of developing serious complications.

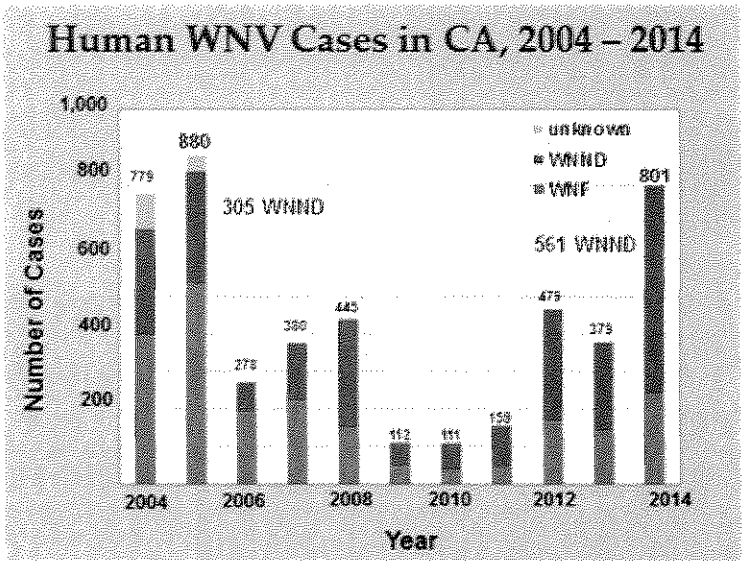
CDPH recommends that individuals prevent exposure to mosquito bites and West Nile virus by practicing the "Three Ds:"

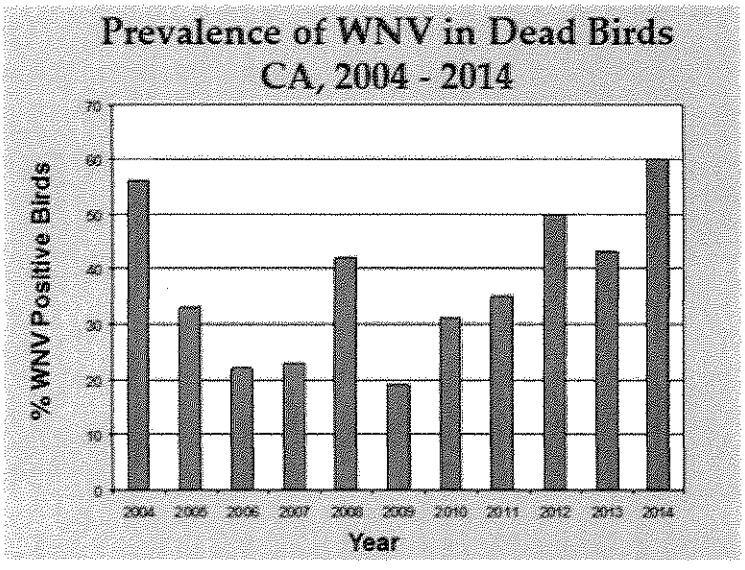
1. DEET- Apply insect repellent containing DEET, picaradin, oil of lemon eucalyptus, or IR3535 according to label instructions. Repellents keep the mosquitoes from biting you. DEET can be used safely on infants and children 2 months of age and older.

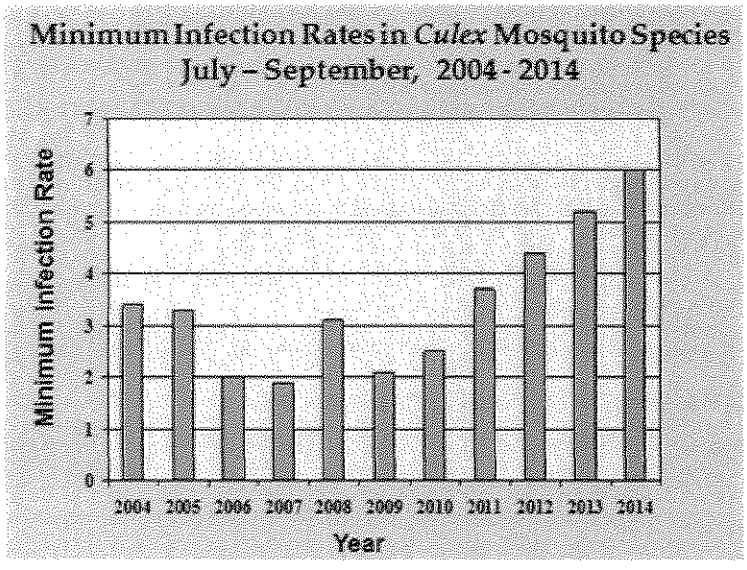
2. DAWN AND DUSK - Mosquitoes bite in the early morning and evening so it is important to wear protective clothing and repellent if you are outside during these times. Make sure that your doors and windows have tight-fitting screens to keep out mosquitoes. Repair or replace screens with tears or holes.

3. DRAIN - Mosquitoes lay their eggs on standing water. Eliminate all sources of standing water on your property, including in flower pots, old car tires and buckets. If you know of a swimming pool that is not being properly maintained, please contact your local mosquito and vector control agency.

California's West Nile virus website includes the latest information on West Nile virus activity in the state. Californians are encouraged to report all dead birds through the website. Starting April 15, dead birds can be reported by calling toll-free 1-877-WNV-BIRD (968-2473).


Human WNV Cases in CA, 2004 – 2014
1,000
800
600
400
200
Number of Cases
779
880
278
360
445
112
111
159
475
379
801
305 WNND
561 WNND
unknown
WNND
WNF
2004
2006
2008
2010
2012
2014
Year


Prevalence of WNV in Dead Birds
CA, 2004 - 2014
% WNV Positive Birds
70
60
50
40
30
20
10
0
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Year


Minimum Infection Rates in Culex Mosquito Species
July – September, 2004 - 2014
Minimum Infection Rate
7
6
5
4
3
2
1
0
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Year

Vector of the Month

This Bug Is Deadlier Than Humans – and a Costly Killer, Too

By Millie Dent, *The Fiscal Times*
June 2, 2015

They can ruin your day at the beach, that perfect hike on a gorgeous summer afternoon or a long-planned camping trip, but mosquitoes also have a much larger impact — they're actually the deadliest animal in the world, far more lethal than humans, snakes or sharks, as Bill Gates pointed out on his blog earlier this year. And the little insects have a big economic impact.

Mosquito-borne diseases kill about 725,000 people around the world every year, with most of those deaths — more than 600,000 — due to malaria. That disease causes billions of dollars in lost productivity every year, Gates noted, providing the chart below.

Malaria is no longer a threat in the United States, but this country is currently seeing a seasonal resurgence of West Nile virus, another mosquito-borne illness. While most people infected by the virus do not develop any symptoms, roughly 20 percent will come down with fever and aches or, in more severe cases, even serious neurologic illnesses such as encephalitis and meningitis.

Mosquitoes also carry other viruses that can cause other forms of encephalitis as well as illnesses such as dengue, Rift Valley fever and yellow fever that are rarer in the U.S. The first case of Chikungunya (pronounced chicken-gun-yay) virus in the U.S. was reported last year and New York State just reported its first case.

Related: Chikungunya, and Other Diseases You Now Have to Worry About

West Nile virus is the most dangerous in the U.S., though. First detected in 1999 in the New York area, the virus has since spread to virtually every region of the country. From 1999 through 2013, more than 17,000 cases of the neuroinvasive form of West Nile have been reported, and those cases resulted in more than 1,500 deaths, according to the CDC. Another 22,000 cases of non-neuroinvasive disease have caused more than 100 other deaths. A vaccine against West Nile does not exist, though scientists are working on developing one.

A 2002 outbreak of West Nile virus caused 4,156 cases nationwide, including 329 in Louisiana alone. The Center for Disease Control and Prevention (CDC) totaled the costs attributable to the epidemic in the state, including medical and nonmedical costs, to $20.14 million. A 2005 outbreak of West Nile in California had an economic impact that totaled $2.98 million, according to the CDC. That price tag includes medical costs, lost productivity, anti-mosquito spraying and other costs.

The first reported human case of West Nile virus this year was in Texas and since, human cases have been reported in New Mexico and Ohio. In 2014, 2,085 cases of the virus were reported in 42 states and the District of Columbia, with 84 deaths.

Texas and California may be particularly prone to virus cases this year, according to The Wall Street Journal. The recent catastrophic floods in Texas are attracting mosquitoes earlier and in greater numbers than usual. Not all mosquitos carry the West Nile Virus, but a higher mosquito population increases the likelihood of infected mosquitos.

Counterintuitively, the prolonged drought in California is also creating a hospitable environment for the mosquitoes, causing the insect population to rise rapidly. The bugs are attracted to the stagnant water that sits in storm drains, empty pools and almost anywhere somebody is trying to conserve water. "The lack of water could have caused some sources of water to stagnate, making the water sources more attractive for mosquitoes to lay eggs," Dr. Karen Smith, director of the California Department of Public Health, said earlier this year. In addition to the drought, hotter summers and milder winters are exacerbating the issue.

California had 801 human cases of West Nile virus last year, the second highest total since the virus first reached California in 2003, according to the California Department of Public Health, and 31 people died from the disease, more than in any previous year.

Related: GSK Seeks Approval for World's First Malaria Vaccine

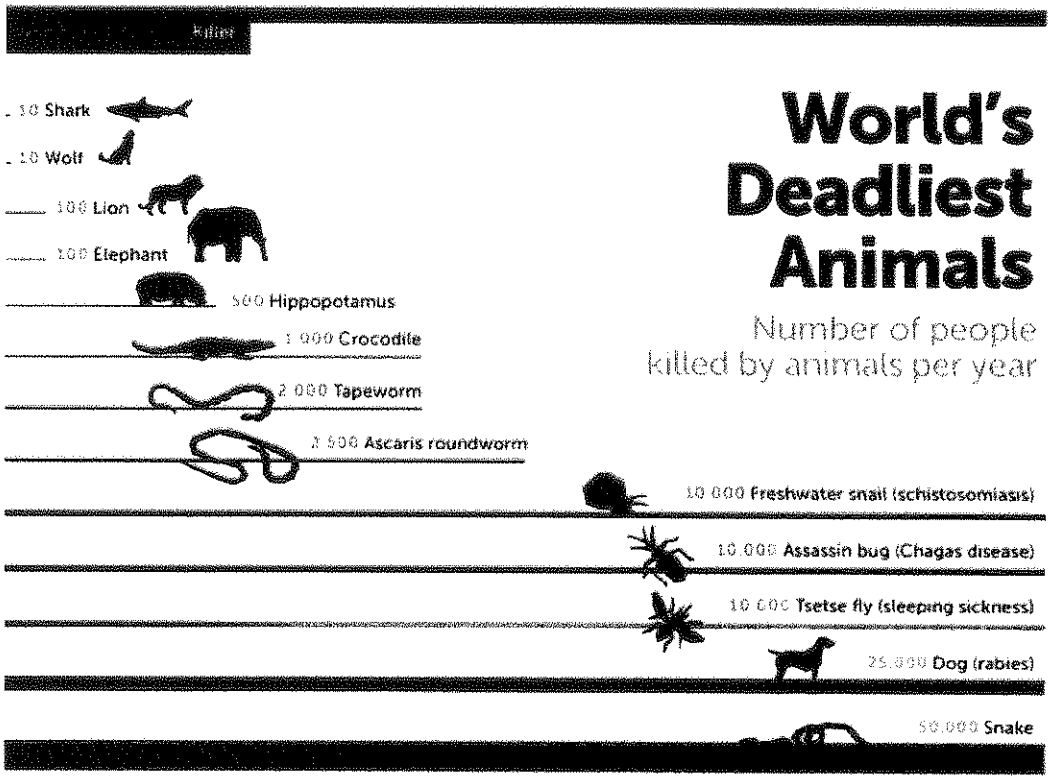
To prevent exposure to mosquito bites and West Nile virus, health officials recommend that people practice the "Four Ds":

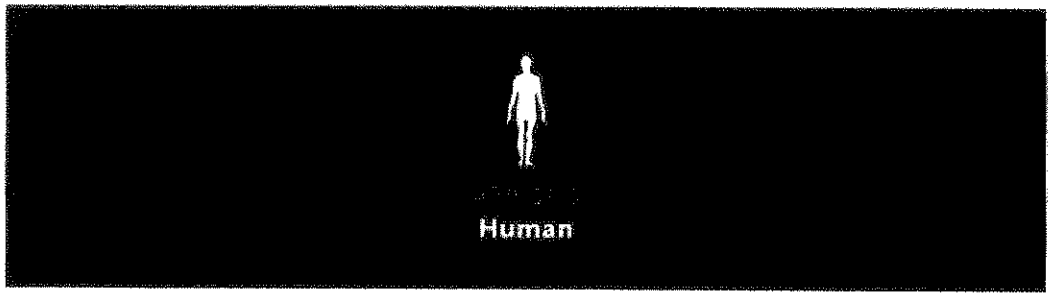
1. DEET: insect repellants containing DEET, picaridin, IR3535, and some oil of lemon eucalyptus and para-menthane-diol products provide longer-lasting protection, according to the CDC.

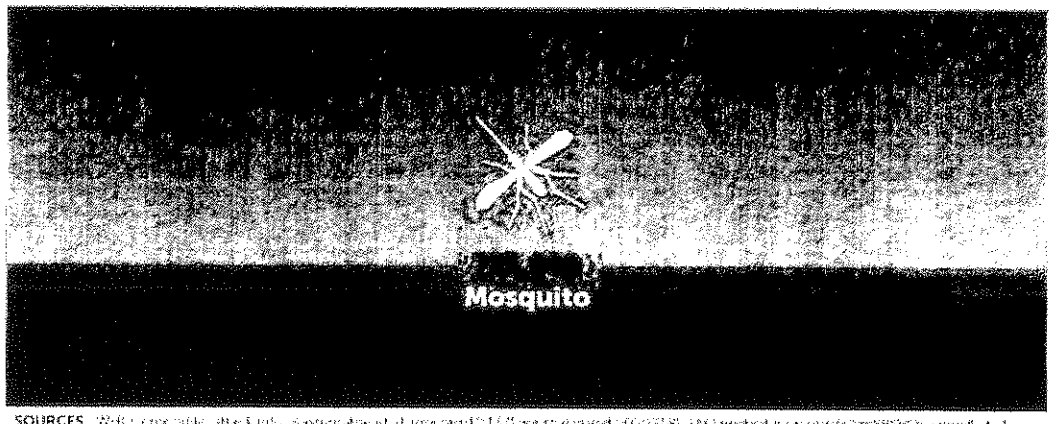
2. DRESS: Wear long sleeves, long pants and socks when outdoors, weather permitting. Spray repellant containing permethrin or another EPA-registered repellent on the clothing for extra protection.

3. DRAIN: Empty standing water from flower pots, gutters, buckets, pool covers, pet water dishes, old car tires and birdbaths on a regular basis, the CDC advises.

4. DUSK AND DAWN: These are peak mosquito biting times, so limit your time outdoors during these hours.


Killer
10 Shark
10 Wolf
100 Lion
100 Elephant
500 Hippopotamus
1 000 Crocodile
2 000 Tapeworm
2 500 Ascaris roundworm
10 000 Freshwater snail (schistosomiasis)
10 000 Assassin bug (Chagas disease)
10 000 Tsetse fly (sleeping sickness)
25 000 Dog (rabies)
50 000 Snake
World's Deadliest Animals
Number of people killed by animals per year


Human


Mosquito

SOURCES.

Vector Management Update

Pool Industry Touts Water Savings in California Drought

By Gillian Flaccus, *Associated Press*
June 1, 2015

ORANGE, CALIF. - Leigh McDonough stood in her backyard on a hot spring day and listened to the steady shush-shush-shush of two garden hoses filling her new pool and hot tub with water. Her family installed the 21,000-gallon pool despite a state mandate to cut overall water consumption by 25 percent amid a crushing, four-year drought.

McDonough, however, wasn't worried: She was told her pool would actually help save water that would otherwise go to her lawn.

It's a mantra being pushed by the California pool and spa industry in recent months, as water conservation campaigns have placed residential pools and other conspicuous water users in the crosshairs.

As residents struggle to cut waste at the tap, the California Pool and Spa Association is lobbying water districts to quash proposed bans on filling pools and spas. The industry cites an in-house study that found that a standard-sized pool, plus decking, uses one-third the amount of water as an irrigated lawn after an initial fill.

"We're not saying, 'Solve the drought, put in a pool,' but the bottom line is people who put in a pool are making a decision to do something more water efficient with their backyard. They're saving water," said John Norwood, the California Pool and Spa Association's president. "Pools are landscaping."

Some water conservation experts question the pool industry's math and say, at best, residential pools and lawns use roughly the same amount of water after an initial fill. There are 1.18 million residential pools in California, according to Metrostudy, which tracks housing information.

And at least a dozen cities and water districts in the hardest-hit areas of the state have passed bans on new swimming pool permits, filling new swimming pools and draining and refilling existing pools.

The South Coast Water District, in one of the poshest areas of Orange County, approved a ban on filling or refilling residential pools and the city of San Jose, which is trying to cut water use by 30 percent, did the same in April. That city also prohibits topping off existing pools with more than one foot of water, although the mayor did remark that unfilled pools would make excellent skate parks. The bans generally do not include community pools.

"We're in a very significant drought. We're asking people not to water their lawns," said Kerrie Romanow, director of San Jose's environmental services department. "That does require some level of sacrifice."

Even as cities and agencies crack down, contractors in some parts of the state are seeing a small uptick in demand as the recession ends. Applications for new pool permits declined steeply during the recession, but pool contractors in some areas without pool-related water restrictions say business is up this spring.

The rebound is slower in California than other warm-weather states like Florida, Texas and the Carolinas that aren't experiencing intense drought, said Toby Morrison, Metrostudy's national sales manager.

"Our sales are up fairly significantly, but we have no idea how many people are influenced by reading in the newspaper and saying, 'Gee, I might not ever be able to fill it or will the neighbors throw rocks at me if I build one,'" said Cecil Fraser, owner of Swan Pools in Lake Forest, California.

McDonough's water district has not yet implemented restrictions and a pool seemed right for her two young children.

"For us, it was sort of a must-have when we bought this place," said McDonough. "So, I'm happy that it's getting done now and that we were able to fill it."

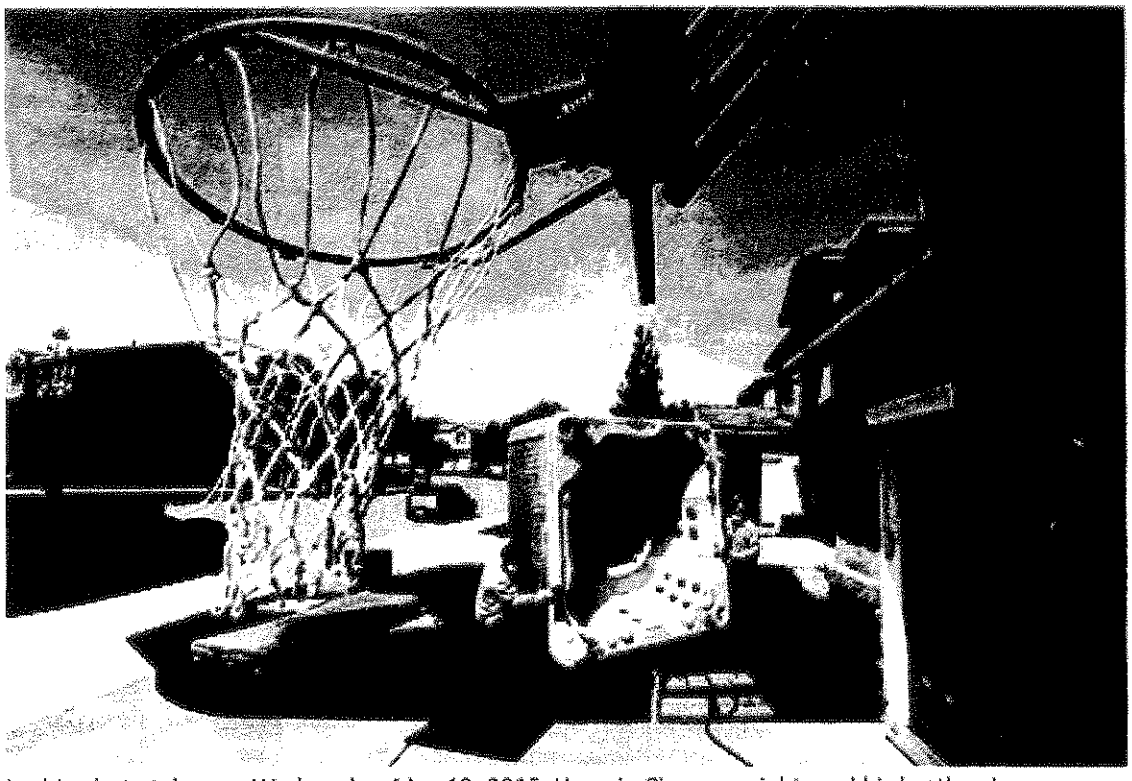
Experts caution that the pool-versus-lawn calculations depend on too many variables to be reliable, including how much water splashes out, whether there's a pool cover to prevent evaporation and how often the lawn was watered before it was ripped out.

In the end, the water used for pools and lawns is roughly the same, said Peter Gleick, president of the Pacific Institute in Oakland, a nonprofit research institute focused on the environment and sustainability. And letting a lawn die or replanting with desert landscaping uses dramatically less water than a pool, so the comparison misses the point, he said.

"These are luxuries and we're in a really bad drought

and everybody needs to step up instead of pointing the finger at the other guy," Gleick said.

Read more here: http://www.sacbee.com/news/state/california/article22781559.html#storylink=cpy



In this photo taken on Wednesday, May 13, 2015, Horacio Cisneros, right, and his brother Juan remove a spa from the backyard of a home in Murrieta, Calif. As residents struggle to reduce potable water consumption by 25 percent, the California Pool and Spa Association is promoting a campaign called Let's Pool Together and aggressively lobbying water districts to quash proposed bans on filling pools and spas. | CHRIS CARLSON AP PHOTO