



MOSQUITO and VECTOR MANAGEMENT DISTRICT of Santa Barbara County

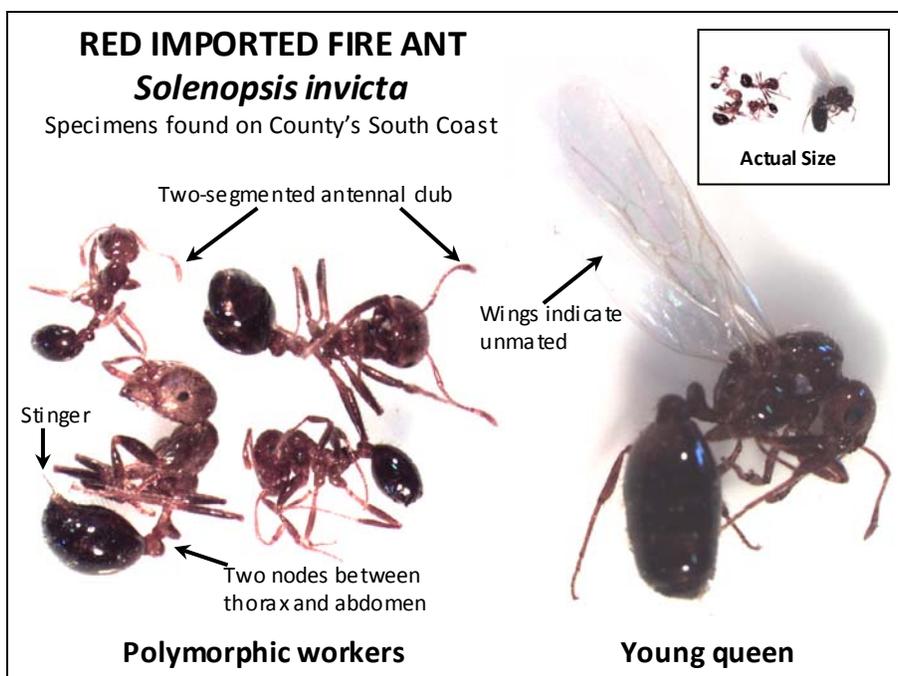
DISEASE SURVEILLANCE REPORT

October 2017

Red Imported Fire Ants found on Santa Barbara County's South Coast

On October 16, 2017 the District responded to a report of possible fire ants by a groundskeeper at a south coast golf course. He stated that a golfer and one of his own staff had been stung by the ants at one of the bunkers. The groundskeeper also stated that the turf around the bunker was purchased from a supplier in Palm Springs, an area that is already infested with red imported fire ants. The District's biologist investigated and retrieved dead ants from the original nest that had been sprayed with insecticide and also collected live ants from another nest nearby. The ants were tentatively identified as red imported fire ants (*Solenopsis invicta*) or RIFA. A sample was submitted to the Santa Barbara County Agricultural Commissioner's office who forwarded them to the California Department of Food and Agriculture's laboratory in Sacramento. The CDFA laboratory confirmed that the ants were RIFA. The Agricultural Commissioner is taking the lead in surveying and mapping the extent of the infestation. The golf course grounds staff will be deploying granular insecticidal bait specifically formulated for RIFA to hopefully eradicate the infestation. However, the presence of young winged queens raises the ominous possibility that the infestation has already spread.

RIFA will aggressively bite and sting in large numbers when their nest is disturbed. The sting is venomous and hypersensitive individuals can go into life threatening anaphylactic shock and require emergency medical treatment. RIFA can also damage lawns, landscaping, agricultural crops, electrical equipment, and endanger wildlife. RIFA workers and queens are characterized by a two-segmented club at their antennal tips and two nodes between the thorax and abdomen. Workers are also polymorphic; that is they are present in several different sizes. More information about RIFA can be found on the District's public information brochure on pages 5 and 6 of this surveillance report or at <http://www.mvmdistrict.com/brochures.html>.



West Nile Virus Activity

Four sentinel chickens from the District's flock at the City of Solvang Wastewater Treatment Plant have tested positive for West Nile virus (WNV) as well as a dead bird from the Santa Ynez Valley and a mosquito pool at the UCSB/Santa Barbara Airport bluffs. The sudden outbreak of WNV could be due to a combination of the October heat wave and the influx of migratory birds into the county. There is WNV activity in other areas of California, but activity levels are mostly down from the same time in 2016. To date 403 human cases (24 fatal) have been confirmed in 23 counties. A total of 481 WNV positive dead birds have been reported from 39 counties along with 3,325 WNV positive mosquito pools from 26 counties. Two hundred ninety-seven WNV positive sentinel chickens have been reported from 18 counties. Twenty equine (horse) cases of WNV have been reported in 13 counties. Ventura County has reported one human case, three WNV positive mosquito pools and two WNV positive dead birds all from Simi Valley. San Luis Obispo County has reported three WNV positive dead birds.

Statistics for California WNV activity can be found online at www.westnile.ca.gov. National statistics for WNV can be found at the National Centers for Disease Control and Prevention website at www.cdc.gov.

St. Louis Encephalitis Virus Activity

In 2017 to date, a total of 179 mosquito pools have tested positive for St. Louis encephalitis (SLE) from 14 California counties along with 9 sentinel chickens in three counties. All of the SLE positives have been found in hot inland regions. St. Louis encephalitis is a native mosquito-borne virus that is in the Family Flaviviridae (as are West Nile, dengue, Zika, and yellow fever viruses) and has symptoms similar to WNV.

Zika Virus and Invasive *Aedes* Mosquito Update

The Santa Barbara County Public Health Department has reported a total of 10 travel related cases of Zika infection in Santa Barbara County to date, three in calendar year 2017. No invasive *Aedes* sp. mosquitoes have been found in Santa Barbara County to date. There have been 608 total imported cases of Zika virus into 36 California counties as of October 27, 2017 (508 in 2015-16, 100 in 2017), but no local mosquito transmitted cases. In Mexico in 2017, the highest number of Zika cases has been occurring in central Mexico as opposed to southern Mexico in 2016. At least one locally acquired case of Zika has been reported in Ensenada, Baja California, Mexico. Local mosquito transmitted cases of Zika infections have also been reported in southern Florida and southern Texas. Overall the number of Zika cases are down throughout the Americas in 2017. Invasive yellow fever mosquitoes (*Aedes aegypti*) and Asian tiger mosquitoes (*Aedes albopictus*) have now been found in 161 cities and communities in 14 California counties, with Kings and Merced counties recently added to the list. A third species, the Australian backyard mosquito (*Aedes notoscriptus*) appears to be getting established in parts of Los Angeles County and a single specimen has been found in Orange County. *Ae. aegypti* and *Ae. albopictus* can transmit dengue, chikungunya, and yellow fever viruses as well as Zika virus. *Ae. notoscriptus* is an excellent vector of dog heartworm.

Zika virus information can be found at <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Zika.aspx> and at <http://www.cdc.gov/zika/>.

West Nile Virus Dead Bird Submissions

The District submitted one dead bird in October 2017, a yellow-billed magpie collected in the Happy Canyon Road area of the eastern Santa Ynez Valley. **The magpie tested positive for West Nile Virus.** All other dead birds submitted by the District in 2017 to date have been negative for WNV. The West Nile Virus Dead Bird Hotline closed down for the winter season on October 13, 2017. Citizens will still be able to report dead birds online at www.westnile.ca.gov. The District has made arrangements with the California Department of Public Health to continue retrieving and sampling approved dead birds through the winter. The Hotline will resume full operation in spring 2018.

Citizens can report dead birds to the California Department of Public Health's toll free West Nile Virus Dead Bird Hotline (1-877-968-2473 or 1-877-WNV-BIRD) or online at www.westnile.ca.gov. Local agencies will pick up the dead birds and collect samples via oral swabs that are transferred to RNase cards. The RNase cards are dried outdoors for at least

two hours then mailed to the Davis Arbovirus Research and Training (DART) laboratory on the U.C. Davis campus where the samples are analyzed for West Nile Virus.

Sentinel Chicken Flocks

District personnel are obtaining samples from each chicken in the five sentinel flocks every two weeks. **Four sentinel chickens from the flock at the City of Solvang's Wastewater Treatment Plant have tested positive for WNV.** The samples were obtained on September 25, 2017. These are the District's first positive sentinel chickens since 2005. All chickens from the District's other flocks have been negative in 2017 to date.

Samples of blood are collected from each chicken on strips of filter paper and dried overnight. They are then submitted to the California Department of Public Health Vector-Borne Disease Laboratory at Richmond, California where they are analyzed for antibodies to WNV and other mosquito-borne encephalitis viruses.

Live Mosquito-Borne Virus Surveillance

The District conducted 16 mosquito trapping surveys in October 2017. Results are shown in the table below. October surveys emphasized the Santa Ynez Valley, where WNV activity has recently been detected. Only low numbers of mosquitoes were collected. *Culex* sp. mosquitoes, the primary vectors of WNV, were in especially low numbers in the Santa Ynez Valley. However, despite the low numbers, **a pool of 17 Southern house mosquitoes (*Culex quinquefasciatus*) collected at the UCSB/Santa Barbara Airport bluff tops on October 26, 2017 tested positive for WNV.** The District has submitted 221 sample pools of mosquitoes for laboratory analysis in 2017 to date. All have tested negative for WNV and other mosquito-borne encephalitis viruses except for the one pool from the UCSB/Airport bluffs.

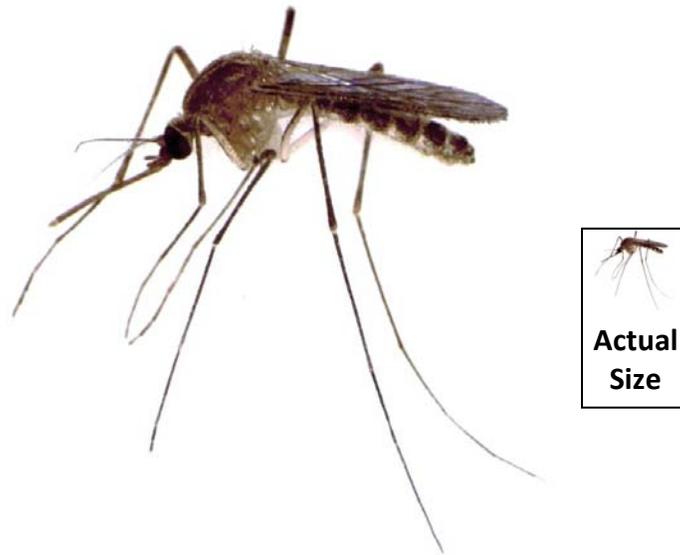
LOCATION	DATE	NUMBER of MOSQUITOES	NUMBER of TRAPS^	MOSQUITOES PER TRAP NIGHT*	POOLS SUBMITTED	RESULT
South Coast						
Lake Los Carneros, Goleta City	10/3-4/17	93	12 EVS	7.8	2	Negative
El Estero Wastewater Plant, Santa Barbara	9/28-10/6/17	24	3 BG	2.7	0	N.A.
Rancho Embarcadero	10/11-18/17	3	1 BG	0.4	0	N.A.
UCSB/Santa Barbara Airport Bluffs	10/25-26/17	91	10 EVS	9.1	3	1 Positive
UCSB Main Campus	10/25-11/1/17	39	2 BG	5.6	0	N.A.
North County						
Santa Ynez River @ Fjord Dr., Solvang	10/10-11/17	29	4 EVS	7.3	2	Negative
Solvang Wastewater Plant, Solvang	10/10-11/17	23	6 EVS	3.8	2	Negative
Santa Ynez County Park, Santa Ynez	10/10-11/17	8	4 EVS	2.0	0	N.A.
Sage Hill Campground, Santa Ynez Valley	10/18-19/17	42	4 EVS	10.5	1	Negative
Santa Ynez River @ Refugio Rd., Santa Ynez	10/18-19/17	1	4 EVS	0.3	0	N.A.
Alamo Pintado Creek @ Solvang City	10/18-19/17	6	5 EVS	1.2	0	N.A.
Riverview Park, Buellton	10/18-19/17	5	3 EVS	1.7	0	N.A.
Solvang Wastewater Plant, Solvang	10/9-20/17	14	1 BG	1.3	0	N.A.
Club House Rd., Vandenberg Village	10/30-31/17	38	5 EVS	7.6	1	Negative
S. Ynez River @ Floradale Ave., Lompoc City	10/30-31/17	2	5 EVS	0.4	0	N.A.
Bailey Wetland, Lompoc City	10/30-31/17	5	4 EVS	1.3	0	N.A.

* Mosquitoes Per Trap Night = Number of Mosquitoes ÷ (Number of Traps x Number of Nights)

^ EVS = CO2 trap BG = BG-Sentinel invasive *Aedes* mosquito trap

This surveillance technique utilizes battery-powered Encephalitis Virus Surveillance (EVS) traps that use dry ice as a source of carbon dioxide along with human scented BG-Sentinel traps to attract adult female mosquitoes that are actively seeking a blood meal. The live female mosquitoes are taken into the District's laboratory where they are anesthetized,

sorted by species, and placed into “pools.” The pools (1 pool = up to 50 adult female mosquitoes of a single species collected at one place at one time) are stored in the District’s ultra-low temperature freezer at -70°C until they can be submitted to the Davis Arbovirus Research and Training (DART) laboratory on the U.C. Davis campus where they are analyzed for the presence of live mosquito-borne viruses including WNV. The BG-Sentinel traps are deployed to survey for invasive *Aedes* mosquito species that are known vectors of Zika virus and other diseases.



SOUTHERN HOUSE MOSQUITO (*Culex quinquefasciatus*) - Adult Female

The Southern house mosquito adapts very well to the urban and suburban environments where it is usually the primary vector of West Nile virus. Some research has implicated *Cx. quinquefasciatus* as a vector of Zika virus, but other research contradicts this. This species breeds in storm drains, mud puddles, standing water in street gutters, old tires, stagnant swimming pools and stagnant hot tubs along with buckets, flower pots and wheelbarrows that are partially filled with water plus many other sources of standing water. It is common throughout southern and central California. In northern California it is replaced by the morphologically identical Northern house mosquito (*Culex pipiens*).



RED IMPORTED FIRE ANTS

Solenopsis invicta

 ← Actual Size = 1/8 to 1/4 inch

GENERAL INFORMATION

The Red Imported Fire Ant (RIFA) is a very aggressive stinging insect that is native to South America. RIFA can interfere with outdoor activities, cause stinging victims to seek medical attention, harm wildlife, and damage agricultural crops and landscaping.

RIFA was introduced into the southeastern United States during the 1930s. It is now established throughout most of the southeast and as far west as Texas and Oklahoma. Occasionally, RIFA is introduced into California. In Santa Barbara County, infestations occurred at wholesale nurseries in Carpinteria during 1988 and again in 1998. Both infestations were eradicated by county and state agricultural authorities. However, another infestation has been discovered on the south coast in 2017. A much larger infestation began in Orange County, Calif. several years ago. Apparently introduced into a wholesale nursery, this infestation appears to have gone undetected for 4 to 5 years. RIFA has now become well established in a number of parts of southern California, especially Orange and Riverside counties. Control programs are in place, however these infestations greatly increase the likelihood of further introductions throughout California. RIFA is usually spread through transportation of nursery stock and sod.

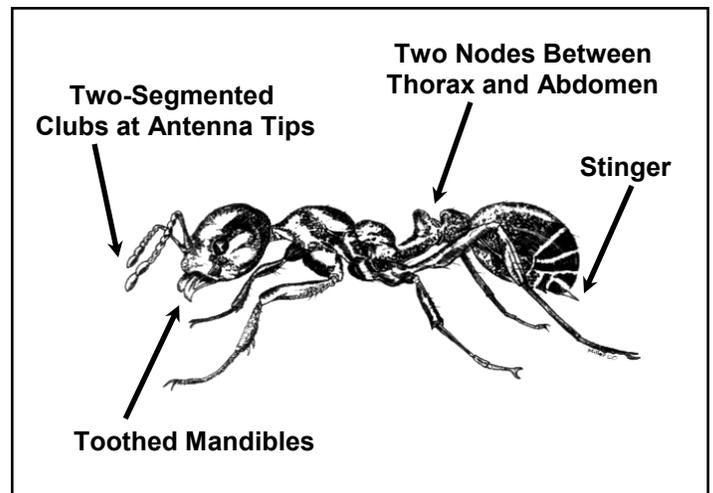
HEALTH CONCERNS

Red Imported Fire Ants are considered dangerous because, unlike most ants, this species delivers venomous stings that produce immediate pain, a burning/itching sensation, and raised pustules several days later. When a nest is disturbed, large numbers of worker ants erupt from the surface of the mound to defend the colony. An unsuspecting victim can be rapidly covered with stinging ants within seconds. The venom is relatively toxic and potentially lethal to pets, wildlife, and sensitized humans. Hypersensitive individuals can go into life-threatening anaphylactic shock and require emergency medical treatment.



DESCRIPTION

The Red Imported Fire Ant ranges in size from 1/8 to 1/4 inch in length. They are shiny and dark red in color with a dark brown abdomen. They possess one pair of toothed mandibles for grasping the skin before stinging. Two nodes located between the abdomen and thorax are characteristic of the species. The tips of the antennae are two-segmented clubs.



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ENVIRONMENTAL CONCERNS

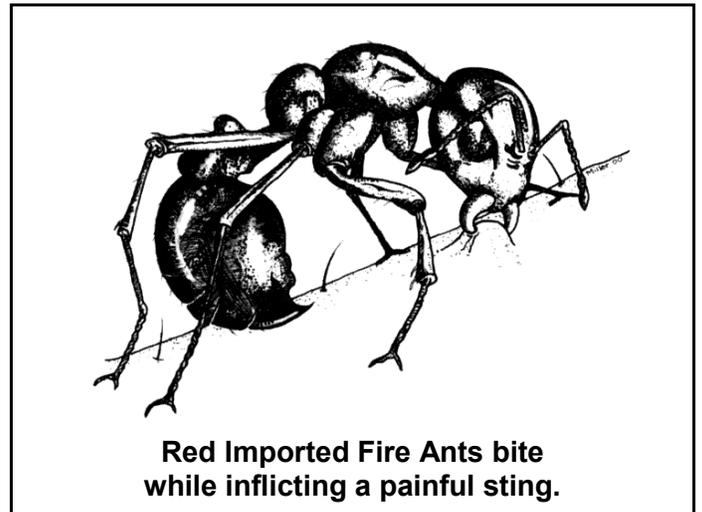
RIFA can have an adverse impact on native wildlife. They often displace native ant species and other forms of insect life. Other small ground dwelling wildlife, especially the eggs and young of ground-nesting birds, are vulnerable to being attacked and stung to death or being driven from the area.

Fire Ants can damage agricultural crops and landscaping by gnawing into roots, stems, buds, and fruit of plants. Young trees may be girdled by the removal of outer bark from trunks and roots. The aesthetic appeal of lawns, golf courses, and landscaping can be ruined by numerous ant mounds.

WHERE THEY CAN BE FOUND

The colony or nest is often very distinctive and easily recognized as a loosely compacted, finely granular dome (up to 18 inches in diameter and six to ten inches high) of soil that resembles a “gopher mound.” RIFA can build nests almost anywhere, but they prefer open, sunny areas such as pastures, parks, lawns, golf courses, meadows, and cultivated fields. Nests are occasionally located in or around yard plants, rotting logs, stumps, and trees, or up against the walls of buildings. Fire Ants need water to survive and are often found near creeks, rivers, ponds, lakes, runoff ditches, and other bodies of water. They may tunnel to the underground water table if surface water is unavailable.

Fire Ants often nest close to homes and other buildings. They may enter buildings to forage for food and water, and sometimes will nest inside wall voids or rafters. Fire Ants are strongly attracted to electrical current, often infesting electrical equipment and utility housings, where they can chew on insulation and move soil in, thereby causing short circuits and other problems. Nests may also be located under cracked pavement. By removing dirt from underneath sidewalks and roadways, RIFA can create or aggravate structural problems.



BIOLOGY

Mature Fire Ant colonies contain 100,000 to 500,000 workers. Several to many queens may live in one nest. Usually several hundred winged ants (males and young queens) also inhabit a nest.

Queen ants can live 7 years or more. Workers normally live about 5 weeks, but can survive much longer. Winged ants live in the nest until their mating flight, which usually occurs during spring or fall afternoons following a rainy period. Males die after mating. Fertilized queens find a suitable nest site, shed their wings, and dig chambers to start new colonies.

CONTROL

Call the Mosquito and Vector Management District or the Santa Barbara County Agricultural Commissioner’s Office if you suspect that you have found Red Imported Fire Ants. RIFA is a quarantined pest that is not known to occur in Santa Barbara County, and is subject to eradication whenever found. The presence of very aggressive stinging red ants is the most obvious clue to suspect RIFA. **DO NOT** disturb suspected RIFA nests or try to destroy the nests yourself.

MOSQUITO and VECTOR MANAGEMENT DISTRICT of Santa Barbara County

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Take a look at our Public Information Website: www.mvmdistrict.org