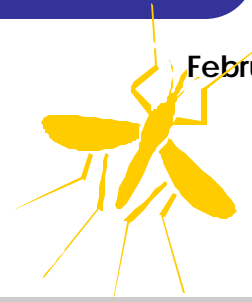


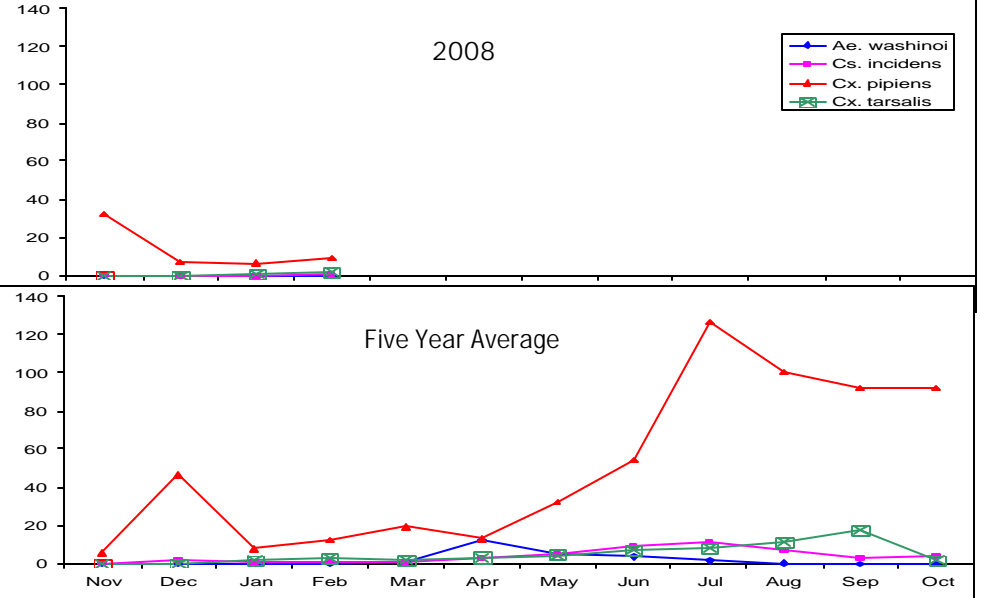


# Entomology Report



## Adult Mosquito Populations in CO2 Traps

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## Mosquito Control Operations

The month of February finally saw substantial rainfall and a sharp increase in standing water throughout the district. The majority of mosquito control applications this month occurred in seasonal marshes and impounds. The acreage of marshes and impounds treated leapt to 159 acres (up from 14 the previous month); the number of buildings with water under them also increased. In contrast, there was a decrease in the number of catch basins and creeks needing treatment. Heavy rainfall during the recent storms has flushed the developing larvae out of these sources.

Fifteen sources were stocked with fish this month (13 decorative residential fishponds and 2 neglected swimming pools).

Bair Island was inspected on February 2, 10 and 24. Technicians applied larvicides from backpack equipment to Outer and Middle Bair on Feb 2, 12, 13 and 27. The District anticipates conducting helicopter treatment for larval mosquitoes by mid-March.

Number of Sources Treated Per month by Source Type			
Source type	This month (Feb)	Last month (Jan)	Monthly Avg
Fishponds & Fountains	1,432	1,391	1,066
Containers	725	848	497
Ditches & Drainlines	90	147	120
Creek	3	14	40
Catch basins	148	618	24,712
Utility Vaults	49	45	102
Marshes & Impounds	280 (159 acres)	155 (14 acres)	187 (21 acres)
Neglected Swimming Pools	109	287	73
Water under Buildings	24	19	17



## Raccoons

The district has begun receiving calls from residents regarding raccoons. Raccoons enter their breeding season in March and are frequently seen or heard at night around homes at this time of year. The young are born in April and May. In March, females begin looking for den sites in which to raise their litters. Raccoons are common in urban areas throughout the county and can establish dens in attics or under homes. The best way to prevent this is to deny them access to these areas. Cut tree branches back from your roof and block access to the crawl space under a building or patio with strong wire screening or plywood. Once raccoons gain access under a building, they often try to enter the walls by tearing out wet or damaged wood around the drain pipes to showers or bathtubs. Raccoons should never be fed and it is important not to leave pet food or food waste out at night in accessible areas which might encourage them to visit your home.

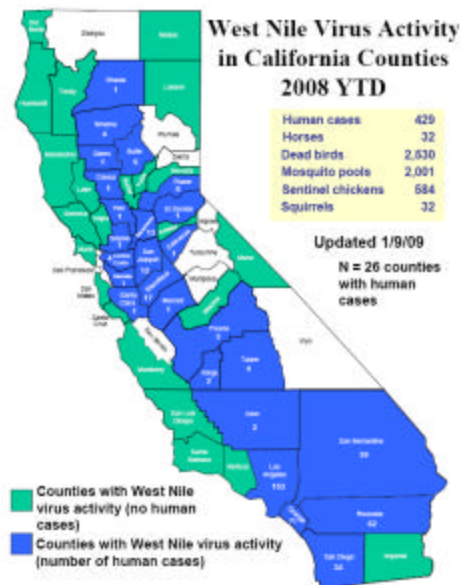
If a raccoon does establish a den under your home, contact a wildlife trapper to remove the animal and seal the area. The trapper should be aware of the need to ensure that baby raccoons are not left behind. Local wildlife trappers can be found in the phone book or on the internet.

## West Nile Virus Update

### California:

Thus far in 2009, West Nile virus (WNV) has been detected in three counties (see the map on the far right). WNV was detected in two sentinel chickens in Los Angeles County, in one dead bird in San Diego County, and one dead bird in Orange County. These three counties experienced epidemic levels of disease in previous years. The WNV season totals for last year (2008) are presented in the map on the near right.

The State Dept. of Public Health (CDPH) suspended testing of dead birds during January and February beginning in 2008 because virus detection during these months may reflect past infection, instead of new virus transmission. This year CDPH suspended testing from January 1 to mid-March. Statewide testing resumes on March 16th this year.



### San Mateo County:

No WNV testing was conducted during January or February. Dead bird testing will begin in March. District staff will pick up this year's flock of sentinel chickens on March 16. These chickens will be housed at the Jasper Ridge Biological Preserve in Portola Valley. Blood testing of these chickens will begin in mid-April and will continue through October. If a chicken is bitten by an infected mosquito, it will develop an immune response to the virus which can be detected in its blood. Sentinel chickens are a way of continuously monitoring large numbers of mosquitoes for WNV and other mosquito-borne viruses.



## Acterra Stewardship's 3rd Annual Habitat Restoration Workshop

On February 25, district laboratory staff attended the Acterra Stewardship Program's 3<sup>rd</sup> Annual Habitat Restoration Workshop at the Pearson-Arastradero Preserve in Palo Alto. The morning was spent visiting a stream restoration site on the preserve. Tour leaders discussed methods of shoring up an bank with willow plantings and check dams. District staff discussed the types of aquatic habitat and vegetation that can lead to mosquito problems with workshop participants. The workshop also included information on weed identification, and removal of non-native plants to reduce competition with newly planted native species. To encourage native bird species, specially-designed nesting boxes have been placed throughout the preserve. In the afternoon, restoration experts described case studies and field research. This event was a great opportunity for district staff to connect with several environmental organizations and learn about techniques used in freshwater restoration projects.



Environmental restoration of eroding cut bank.



Creation of natural pond to provide habitat.

## New Repellent Discovery

Chemist Aijun Zhang, of the USDA, along with collaborators from Nanjing Forestry University in China and the US Army Medical Department Center and School, discovered a compound in the South American Tauroniro tree that is as effective as DEET at repelling mosquitoes and ticks. Tests were performed on two mosquito species (*Aedes aegypti*, and *Anopheles stephensi*), and two ticks, (*Ixodes scapularis* and *Amblyomma americanum*). The new compound is more repellent than DEET to mosquitoes. For ticks, the new compound's repellency is equal to that of DEET.

The repellent compound, isoflongifolenone, is already a component of several commercial products, including cosmetics, fragrances, deodorants and some paper. Because of its widespread use, it is presumed to be safer than DEET, which is not recommended to be worn under clothes, around broken skin, near eyes or mouth, and should be used in lower concentrations on children. The study authors have devised a way of inexpensively synthesizing the compound from turpentine feed stock. Some previously discovered natural compounds with insect repellent qualities haven't become widely available because of the high cost of producing them. The study is available in the January 2009 issue of the Journal of Medical Entomology.



*I. scapularis*, the black-legged tick, is repelled by both DEET and isoflongifolenone. It is a vector of Lyme disease in the eastern US and closely related to the western black-legged tick of California.



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The San Mateo County Mosquito and Vector Control District is an independent, Special District funded by a property tax voted in by individual cities. Our mission is to safeguard the health and comfort of our citizens through a planned program to reduce mosquitoes and other vectors in an environmentally responsible manner.

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***"A VECTOR is any animal that can transmit  
disease to animals or people."***

## Calendar of Recent and Upcoming Events

### February

February 3—District staff attended meeting with Woodside Open Space Committee

February 20—Presentation to Stanford class on Malaria and other Vector-Borne Diseases

February 25—Laboratory staff attended workshop on Restoration methods

### March

March 3—Meetings with legislators in State Capitol on vector control issues

March 5 and 10—Presentations on Vector-borne diseases at Carlmont High School

March 12—Lyme Disease Advisory Committee Meeting in Sacramento

**March 16—State Dept of Public Health resumes testing of dead birds for West Nile Virus**

March 16—District picks up sentinel chickens for WNV surveillance season

**FIGHT  
THE BITE!**

**Report a Dead  
Bird or Squirrel**

call toll free:  
1-877-WNV-BIRD  
(1-877-968-2473)