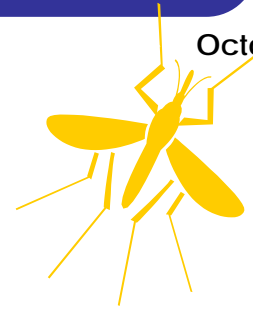


October 2007

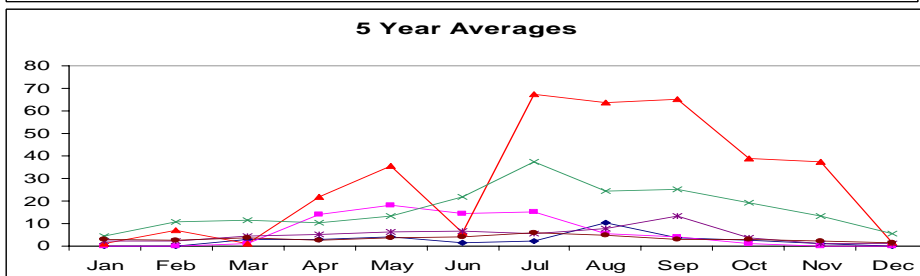
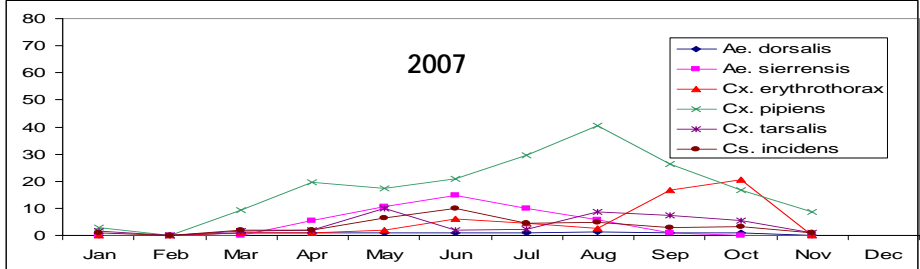
# Entomology Report



## Adult Mosquito Populations in CO2 Traps

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Adult populations of most mosquito species were low in October. The small surge in numbers of *Culex erythrothorax* (tule mosquito) seen this month is due to numbers collected at the edge of Lake Merced in San Francisco County, just north of Daly City. Mark-recapture studies in 2006 demonstrated that few of these mosquitoes move into neighborhoods in Daly City. The dramatic difference in numbers of *Cx. erythrothorax* this year over past years (see red line on graph above) is attributable to helicopter operations to control larvae at Searsville Lake, Sharp Park and Mills Field.

## Mosquito Control Operations

In October, mosquito control technicians treated **27,256** catch basins, **869** backyard fishponds, **45** swimming pools and water under **30** buildings. Helicopter applications of *Bacillus sphaericus* (*Bs*) were made to 100 acres at four sites (Sharp Park, Mills Field, Searsville Lake and another pond in Portola Valley) containing populations of tule mosquitoes. Sewer Plants in San Mateo, South San Francisco, Redwood Shores and Half Moon Bay were inspected and treated every 2 weeks.

Testing began on a briquet formulation of the bacteria *Bacillus thuringiensis israelensis* (*Bti*). These briquets are expected to provide control of mosquito larvae for over a month, while liquid formulations of Bti only last a few days. If they work well in field trials, these briquets will provide another tool for mosquito control in backyard fishponds and swimming pools. Bti briquets are nontoxic to fish and other organisms.



Mosquito control technician Ben Rusmisel checks for mosquito larvae at the bottom of a swimming pool.



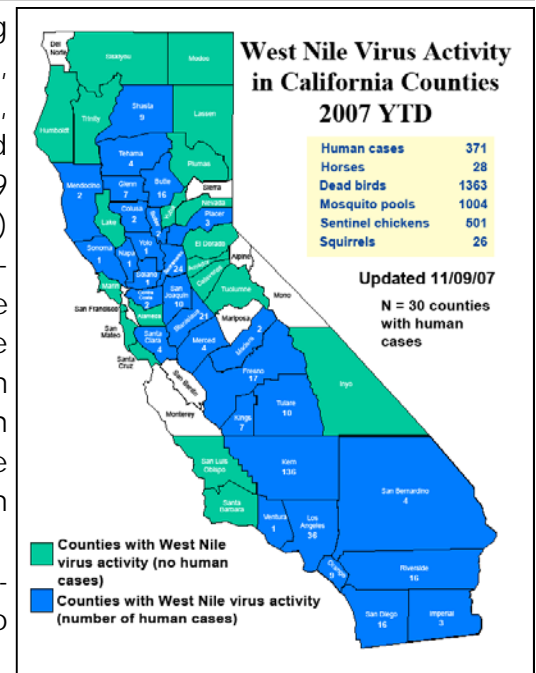
## State of the Estuary Conference

Vector ecologist Chindi Peavey attended the 8th Biennial State of the San Francisco Estuary Conference on October 16, 17 and 18, 2007. Chindi represents the Coastal Region vector control districts on the board of directors of the San Francisco Bay Joint Venture. The Joint Venture is a non-profit group that coordinates salt marsh restoration in the bay. The State of the Estuary Conference included presentations on salt marsh restoration, endangered plants and animals, and a forum on trash in local waterways. Salt marshes can be sources of mosquitoes and restoration projects can alleviate or exacerbate the problem. The District provides input on the design of restoration projects and on new regulations that can change the way water collects in storm drain systems or creeks. New regulations discussed at the conference may require structures in storm drain systems to prevent trash from reaching the Bay. These structures may also impede treatment for mosquito larvae in these drains. Therefore the District remains involved in searching for solutions to the problem of trash in the Bay.

## West Nile Virus in California

West Nile Virus activity in 2007 is waning. The following counties had the highest number of human cases: Kern (136), Los Angeles (36), Stanislaus (21), Sacramento (24), Fresno (17), Butte (16), San Diego (16), Riverside (16), San Joaquin (10), and Tulare (10). Sixteen WNV-related fatalities were reported from 9 counties. Of those with clinical presentations, 41% (153/371) were neuroinvasive disease, 57% (213/371) were West Nile Fever, and 1% (5/371) had unknown presentations (refer to table below). WNV peaked in California in 2005 with an incidence greater than 2.5 cases per 100,000. Although the incidence in 2007 is lower than in 2005, it is higher than in 2006 (refer to graph below). West Nile Virus requires constant monitoring to ensure activity is controlled and prevent a resurgence of human cases.

Thus far, 2 birds (San Mateo and San Carlos) and 1 squirrel (San Mateo) have tested positive for WNV in San Mateo County in 2007.



### WNV cases reported in California, 2007 (n=371)

Statewide incidence 1.1 per 100,000

Sex	Number	(%)
Male	207	(56)
Female	164	(44)

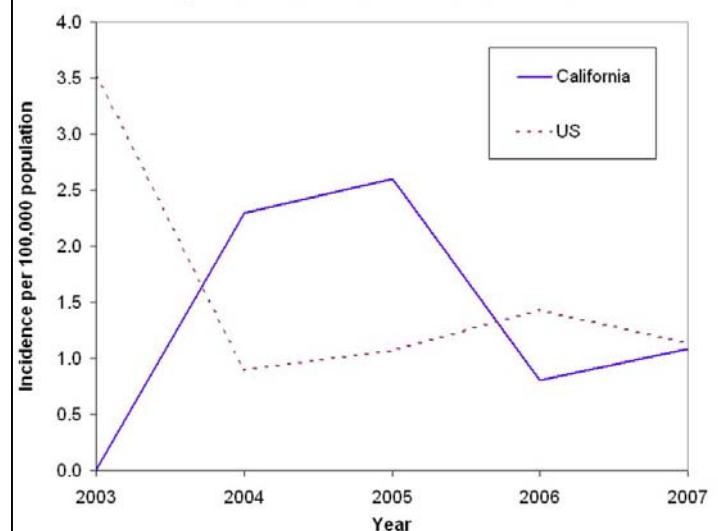
### Age, in years

Median	55
Range	2-96

### Clinical Presentation

Neuroinvasive disease	153	(41)
West Nile Fever	213	(58)
Unknown	5	(1)

### Reported incidence of WNV illness, 2003-2007





## Community Open House

The District held a community open house on November 7th in South San Francisco to inform residents about District services, disease surveillance, mosquito surveillance and control. Tables were set up with informational displays and brochures, and staff were available to answer questions. The event was advertised in the Pacifica Tribune, the Half Moon Bay Review, and the San Mateo County Times. The District received positive feedback from the community. Overall the event was a success.



Stephanie Cavanaugh and resident at the stinging insect table.



Pictorial overview of District services.



Brian Weber answers questions at the mosquito surveillance table.

## Testing the Efficacy of BVA Oil

BVA oil is a surface oil recently registered in California for control of mosquito larvae. It is similar in action to Golden Bear Oil (GB-1111), which is currently used at the District. BVA oil is odorless and leaves less of a sheen than GB-1111.

**Summary of Study-** The efficacy of BVA oil was compared with GB -1111 in a week-long laboratory study. Both larvicides were tested at the recommended low and high rates according to the label. Pools of 20 live *Cs. in-cidens* larvae were added to water-filled buckets treated at a low rate (0.75mL), a high rate (1.30 mL) and a control (no oil added) for each pesticide. Additional larvae were added throughout the study to determine the length of time the oils were effective.

**Results-** GB-1111 resulted in 100% mortality 24 hours after treatment at both low and high rates. Larvae that were added 2 and 4 days after initial treatment also reached 100% mortality in a 24 hour period. BVA oil did not reach 100% mortality until 1 week after treatment at either rate. In conclusion, BVA oil is effective, but takes longer to achieve results when compared to GB-1111. Additional field observations that BVA oil may not spread as well as GB-1111 during colder temperatures, or in water with a high content of organic matter, will be examined in future studies.



Treating larvae in buckets with BVA oil using a micro pipette.



"An Independent Special District  
Working for You Since 1916"

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MOSQUITO ABATEMENT DISTRICT

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The San Mateo County Mosquito Abatement 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."*

### Insect and Spider Identification

*Calisoga longitarsis* (family: **Nemesiidae**) is the local spider species which probably raises the most alarm when discovered by residents. Also known as the "False tarantula," or "Funnel-web tarantula," the *Calisoga* spider is a robust, hairy spider, but is differentiated from true tarantulas (family: Theraphosidae) by its lack of claw tufts and urticating hairs, and by possessing three tarsal claws instead of two. *Calisoga* spiders are found in a variety of environments in northern and central California, ranging from grasslands to coniferous forests, and occasionally urban areas. They line burrows or crevices in the ground with a



Calisoga spiders are often mistaken for small tarantulas.



This deceased male *Calisoga* spider was brought into the district by a resident.

silken web sheet, where they lie in wait for prey. Although residents usually encounter the wandering male spiders, female spiders may get flooded out of their burrows during the rainy season. The bite of the *Calisoga* spider is not particularly toxic, but can be painful. As these spiders have a reputation for defensive biting, the District recommends that residents avoid handling them.