

MISSION

The mission of the Vector Control Services District is to prevent the spread of vector-borne diseases, injury, and discomfort to the residents of the District by controlling insects, rodents, and other vectors and eliminating causal environmental conditions through education, legal enforcement, and integrated pest management practices.



DISTRICT SERVICES

Request for Service Investigations

- Conduct investigations pertaining to service requests for disease vectors, assess the extent of the problem, and take the appropriate action.
- Investigate reported public health and vermin problems related to rodents, cockroaches, flies, fleas, lice, yellow jackets, as well as, ticks, mites, and spiders, and render the appropriate service.
- Provide insect, tick and spider identifications and recommend least-toxic control tactics.
- Conduct surveys of rodents, insects and arthropods of public health importance, and maintain a reference collection.
- Survey and control cockroaches in public sewers, utility boxes, and storm drains.
- Conduct yellow jacket and bee swarm control in public areas or by contract with other agencies.

Wildlife Management, Domestic Animals, and Rabies Control

- Oversees the administration of rabies quarantine measures resulting from animal bites.
- Conduct investigations of nuisance wildlife problems relating to bats, skunks, opossums, raccoons, dogs, cats, rabbits, pigeons, chickens, and fowls.
- Trap biting or nuisance animals when preventative alternatives are not possible or unlikely to be effective.
- Work in coordination with local animal control agencies, and submit annual statistics reports to the California Department of Public Health.

Rodent Control

- Provide recommendations for rodent proofing and suppression in homes, neighborhoods, open areas, and businesses.
- Conduct rodent suppression during disease outbreaks or emergencies.
- Conduct surveys of rat populations to assess species abundance, distribution, and disease carrying potentials.
- Conduct District-wide inspection and baiting of sanitary sewers and waterfronts for rats.
- Inspect and test sewer laterals and mains to detect breaks, which may provide entry portals for rodents to move into adjacent neighborhoods.

Solid Waste Problems

- Investigate complaints regarding solid waste handling and disposal problems involving refuse, human or animal waste, and odors at residential properties and businesses.

Vectors, and Vector-Borne Disease Surveillance and Control

- Investigate reports of animal or human illness such as Lyme disease, psittacosis, plague, hantavirus, scabies, head lice, reptilian salmonellosis, ehrlichiosis, and rabies to determine cause, incidence, and recommend preventative, and remediation measures.

- Assist the public with tick identification, and submissions to the public health laboratory for Lyme disease testing.
- Collect rodent fleas and determine plague, or other vector-borne disease transmission potentials.

Public Education and Information

- Provide vector control presentations to interested groups, and participate in public events.
- Disseminate educational information on vectors and vector borne diseases to individuals and groups.
- Staff public display booths at health fairs, special events, and the County Fair.
- Post annual shellfish harvesting quarantine notices at the Alameda County bay shoreline.
- Maintain an informative, and contemporaneous web site.
- Provide timely and informative media releases on vector control issues.

Legal Enforcement

- Enforce state laws, regulations, and local ordinances when necessary to protect the public from vectors and related problems.

INTRODUCTION

This Annual Report for County Service Area (CSA) VC 1984-1 for Vector Control is presented to the Alameda County Board of Supervisors (BOS) in compliance with Section 25210.77a of the Government Code; County Service Area Law, and California Health and Safety Code Section 2855-2868, 116175-116183, and Section 2000-2007. The report, which includes the recommended benefit assessment for the fiscal year 2010-2011, is submitted for review and public hearing.

This report gives a history on how and why the County Service Area (CSA) known as the Alameda County Vector Control Services District was formed, explains how the assessments are calculated, and includes assessment tables since the CSA was formed in 1984, as well as the new secondary assessment that was approved in 2007.

This report is available for public review at the Vector Control Services District, 1131 Harbor Bay Parkway, Suite 166, Alameda, CA 94502, and it is also posted on our website at (<http://www.acvcSD.org>).

BACKGROUND & HISTORY

The County Service Area (CSA) 1984-1 for Vector Control was established in June 1984 to serve the public needs by providing a comprehensive vector control program. Environmental Health Department was experiencing fiscal shortfalls, and had to reduce vector control services in Alameda County. In response, the Board of Supervisors (BOS) created the County Service Area after the passage of Measure A, which received over 70% voter's approval for the formation of the CSA. Initially, Dublin, Emeryville and Fremont were not included in the District and opted to seek alternative sources for providing vector program.

In 1992, at the request of the Dublin City Council, which voted to join the District and Dublin was annexed by the BOS. In 2009, both Emeryville and Fremont were annexed to the District by the BOS after a successful Proposition 218 mail-out balloting process. Currently, the CSA is a countywide District; provide the vector control services to all 14 cities in Alameda County, and the unincorporated county areas.

The City of Berkeley already had an existing vector control program when the CSA was formed in 1984, which is currently funded by a formal contract between the City of Berkeley and the CSA.

CITY OF OAKLAND

In 1987, the City of Oakland recognized that it had a severe rat problem emanating from the sanitary sewers which exceeded the District's staff capabilities to control the problem. Subsequently, Oakland voters approved a supplemental assessment, which was first levied in fiscal year 1988-89, and provided additional funding to control rodents in the sewers.

2009 ANNUAL SUMMARY

Introduction

The County Service Area (CSA) VC 1984-1 is solely funded through benefit assessment (BA) charged to each property parcel. In 1997, the voters approved Proposition 218, requires that all parcel owners receive a mailed ballot regarding any proposed change in an assessment prior to imposing an increase. Since then, the District (CSA 1984-1) has not been able to increase revenues without conducting a Proposition 218 Ballot Measure, and revenue only increased in accordance with the growth of new properties. Since 2005, the CSA has operated on reserves and savings, while costs and responsibilities have drastically increased. From 2005 to 2008, the District has reduced expenditures by not replacing staff vacancies and cutting back on purchasing equipment and supplies. The CSA has been able to keep up with demand services, but has cut back on District initiated work.

In 2007, the SCI Consulting Group was awarded the contract to conduct a survey among the property owners to gauge their support for a new benefit assessment. The result was an overwhelming support for a BA of \$ 4.08 to boost the existing annual assessment rate to \$10 per single-family residence. Assessment ballots were mailed to all property owners within the District boundary areas in May 2007. The ballot measure received 67.7% voter support and the Board of Supervisors approved the new assessment of \$4.08 in July of that same year.

In May of 1995, the Alameda County Department of Public Health contracted with a private consultant to prepare a Strategic Marketing Plan. The recommendation for the CSA was to work with the Cities of Emeryville and Fremont toward incorporation into the CSA. The City of Emeryville contracted for services with the District in the late 1980's, but discontinued the contract for financial reasons. The City of Fremont attempted to create its own Vector Control program, but was not able to secure the necessary funding to develop an effective program. In 2006, the Alameda County Local Agency Formation Commission (LAFCO) contracted with Burr Consulting to review all of the County Service Areas for possible consolidation. Burr Consulting recommended that the Vector Control District and the Mosquito Abatement Districts conduct balloting to provide countywide services and work toward consolidation. In January of 2008, SCI Consulting surveyed a sample of residents in Emeryville and Fremont, the results from both cities were favorable to a new benefit assessment to have the CSA provides the vector services.

In March, 2008, the Alameda Board of Supervisors (BOS) authorized the CSA to proceed with an application to the LAFCO to obtain an approval of Annexation process to annex Emeryville and Fremont. The CSA submitted the application which included environmental documents (Initial Study, negative Declaration) pursuant to the California Environmental Quality ACT (CEQA). In July of 2008, the LAFCO approved the CSA application of annexation and issued a Certified LAFCO Resolution. On September 9, 2008 the LAFCO adopted a Resolution and ordered the Annexation.

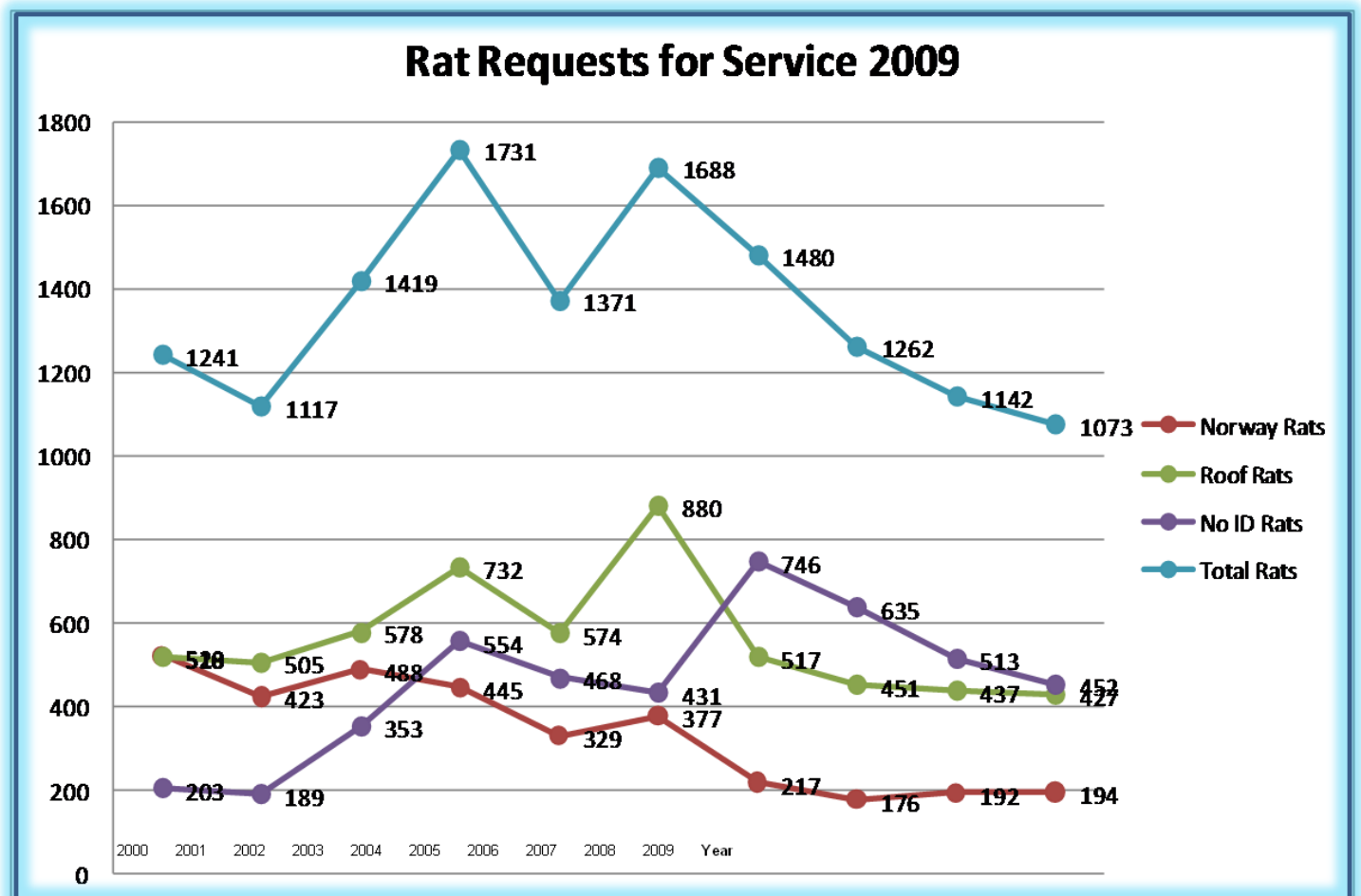
In compliance with Proposition 218, the CSA mailed out ballots to all parcel owners in Emeryville and

Fremont regarding the proposed New Vector and Disease Control Assessment of \$10 for single-family residence. The results were favorable (Emeryville-70.23% and Fremont- 66.36%) to support the new assessment in providing the vector services in both cities. In response, subsequently, the BOS approved newly proposed Vector and Disease Control Assessment of \$10 for single-family residence. As of July 1, 2009, the CSA has extended the vector control services to Emeryville and Fremont and became a countywide service District.

VECTOR CONTROL SERVICES in 2009 - Detail

Urban Rodent Surveillance

The urban rodent surveillance program focuses on monitoring and controlling commensal rats (Norway and roof rats) and mice in residential, commercial and business properties. Program objectives include giving recommendations on environmental manipulations and sanitation methods to exclude and prevent rodent settlement, and when necessary, suppressing rodent populations to reduce property damage, food contamination, and disease transmission. In 2009, the District received 1073



requests for service from the public on domestic rodents, representing 21.2% of all requests. Additionally, staff performed 7180 field services related to domestic rodents including smoke and dye tests of sewer lines, field surveys, follow-up evaluations, and enforcement actions.

When evidence indicates rats are surfacing near sewer laterals, field staff conducts inspections to locate broken sewer lines, and notify the homeowners or the Public Works Department to ensure repairs are made. In 2009 staff found 29 broken sewer laterals and performed dye tests or smoke tests to verify the breaks. Our District notified Oakland Public Works supervisors and other municipalities to facilitate repair of broken sewer lines and laterals.

As part of the supplemental assessment in the City of Oakland to enhance sewer rodent surveys, District staff conducts weekly inspections of designated census tract blocks. Underground sanitary sewer access structures (manholes) were inspected for signs of rodent activities (live rats or their droppings); to control the rodents, anticoagulant bait blocks are suspended in sewers to allow feeding. A total of 8,759 sewer inspections and 1,114 treatments were made in Albany, Hayward, Oakland, Piedmont, and San Leandro. We also continued our effort to evaluate neighborhoods with rat activity in the sewers based on clusters of complaints, and take remedial action when possible. Specifically, we targeted neighborhoods where residents were seeing rats roaming on surface streets.

Roof rats are established throughout the suburban and semi-urban areas of Alameda County. Vector control officers responded to 411 roof rat service requests from homeowners, business, and municipalities. Despite low flea numbers have been found on roof rats in the County; nevertheless, because this species is highly adaptable to the diverse ecological habitats, a relatively rich flea fauna could potentially be found from rodents inhabiting these areas. The Oriental rat flea, *Xenopsylla cheopis* is of primary concern because it is the vector for urban bubonic plague. The District sets a high priority to ensure that these rodents do not enter homes, and expose occupants and their pets to the rodent fleas. Staff responding to a rodent service request will conduct extensive survey of the exterior and interior premises looking for conditions conducive to rodents, and advise the homeowner on structural modifications to prevent rodent entry to their home. They will also hand out brochures (or fact sheets), and when necessary, the District will work with the Local Code Enforcement Agencies to initiate enforcement of state, county, and municipal laws, and regulations pertaining to vectors to achieve compliance. If evidence is found suggesting an infestation over a larger area than a single-family residence, neighborhood surveys are conducted.

Additionally, ectoparasites attached on rodents are capable of vectoring a number of disease organisms, 81 commensal rodents (Norway and roof rats) from urban and peridomestic areas were trapped and examined for ectoparasites (fleas and ticks) (Table 1).

Asian House Rat

The Asian House Rat, *Rattus tanezumi* was first recorded in Alameda County in 2000. In 2009 the District collaborated with U.C. Berkeley Museum of Vertebrate Zoology to trap additional specimens and learn about this invasive species' biology and disease carrying potentials. Forty-nine *Rattus* species were collected from various locations. At UC Berkeley, using mitochondrial sequence techniques, two rodents were determined to have identical genetic markers to *R. tanezumi* from Japan

2009	N	# w/ fleas	# of fleas	Flea species	Flea Index	Ticks species
Pinon mouse <i>Peromyscus truei</i>	1	0	0			
Deer mouse <i>P. maniculatus</i>	5	4	10	<i>Malaraeus telchinus</i> <i>Opisodasys keeni</i>	2	
Meadow vole <i>Microtus californicus</i>	8	5	21	<i>Malaraeus telchinus</i> <i>Opisodasys keeni</i>	2.6	
Wood rat <i>Neotoma fuscipes</i>	7	6	21	<i>Orchopeas sexdentatus</i> <i>Opisodasys keeni</i>	3	<i>Dermacentor sp.</i> (nymph, 2)
COMMENSAL RODENTS						
Norway rat <i>Rattus norvegicus</i>	16	13	68	<i>Xenopsylla cheopis</i> <i>Leptopsylla segnis</i> <i>Nosopsylla fasciatus</i> <i>Opisodasys keeni</i> <i>Malaraeus telchinus</i> <i>Orchopeas sexdentatus</i>	4.25	<i>Ixodes pacificus</i> (larva, 1)
Roof Rat <i>Rattus rattus</i>	63	17	27	<i>Nosopsylla fasciatus</i> <i>Orchopeas sexdentatus</i> <i>Malareus telchinus, Opisodasys keeni</i> <i>Hystrihopsylla sp.</i>	1.59	<i>Ixodes pacificus</i> (larvae, 18;nymph, 1) <i>Dermacentor sp.</i> (larva,1)
Asian House Rat <i>Rattus tanezumi</i>	2	1	2	<i>Atyploceras longipalpus</i> <i>Opisodasys keeni</i>	1	

Table 1. Ectoparasites (fleas and ticks) collected from commensal and sylvatic rodents in urban and peridomestic areas.

(MVZ). Presently, there are five records of *R. tanezumi* in North American, of which four were collected in Alameda County. Further analysis is underway by MVZ to determine if hybridization is occurring with roof rats. Results will be published in the near future.

Sylvatic Rodent Surveillance

Sylvatic rodents such as deermice, woodrats, squirrels, and meadow voles are commonly found in rural and semi-rural areas of Alameda County. Many of these animals serve as reservoir hosts to zoonotic diseases such as plague, Hantavirus Pulmonary Syndrome (HPS), ehrlichiosis, tularemia, Lyme disease, and babesiosis. A reservoir host is an animal that can support parasite development, remains infected for an extended time, and serves as a source of vector infection. The reservoir hosts are not affected by the pathogens.

Hantavirus Pulmonary Syndrome (HPS) was first recognized in 1993; it is a respiratory illness associated with breathing air containing rodent urine and feces contaminated with the *Sin Nombre* virus (SNV) particles. Deer mice were identified as the principal reservoir host. Occasionally, deer mice will enter buildings and potentially expose the occupants to the virus. Past surveillance conducted at various localities, detected 6-18% of the deer mice are infected with SNV. In collaboration with the California Department of Public Health (CDPH), the District conducts HPS surveys in the East Bay Regional Parks to increase public awareness of the disease and to reduce exposure to deer mice inhabited structures.

In 2009, District staff surveyed eight parks in the East Bay Regional Park District: Anthony Chabot, Coyote Creek, Del Valle, Garin, Mission Peaks, Redwood, Sunol and Tilden. Only Anthony Chabot and Sunol yielded rodents for serological testing. Five deer mice from Anthony Chabot and ten rodents from Sunol were trapped, respectively. They tested negative for SNV.

Bartonella species have been described and found to be associated with human disease including acute febrile illness, ocular manifestations, edocarditis, cat-scratch disease and trench fever. These agents are generally associated with pet dogs and cats, wild carnivores, or wild rodents. In collaboration with the Centers for Disease Control and Prevention, 49 commensal rodents were tested for *Bartonella* infections and *Bartonella* species. Four roof rats were infected with *B. coopersplainsensis* and one Norway rat was infected with *B. tribocorum*.

Tularemia is caused by a bacterium *Francisella tularensis* that is vectored by arthropods and rabbits. Symptoms of human tularemia may include fever, chills, malaise, and fatigue. The disease is commonly called "rabbit fever" when hunters become infected while skinning rabbit carcasses; however, fleas, deer flies and tick bites, can also transmit the disease. The District submitted blood samples from 39 *R. rattus*, 3 *R. norvigecus*, 2 *R. tanezumi* and 2 *Neotoma fuscipes* for testing. All samples tested negative for tularemia.

Rabies Surveillance

The authority for the Rabies Program is the responsibility of the County Health Officer at the Department of Public Health, which provides laboratory support for the program, and performs human case investigations. The CSA manages the statistical data, and works cooperatively with the 13 local animal control agencies to administrate the rabies surveillance program in Alameda County. Moreover, the District responds to service requests and conducts surveillance on skunks, bats, and other wildlife. Suspected animals involved in biting or exposure incidents are euthanized, their heads removed and submitted to the Alameda County Public Health Laboratory (ACPHL) for rabies testing. The District also investigates animal bite incidents and prepares an annual report for the CDPH. Bats and skunks are the primary rabies-infected animals in California. Rabies is almost never found in squirrels, rabbits, rats, or mice. The CSA submitted 130 animal heads, including dogs, cats, raccoons, skunks and bats to the ACPHL for rabies testing in 2009. Bats (2) collected from Oakland and Pleasanton tested

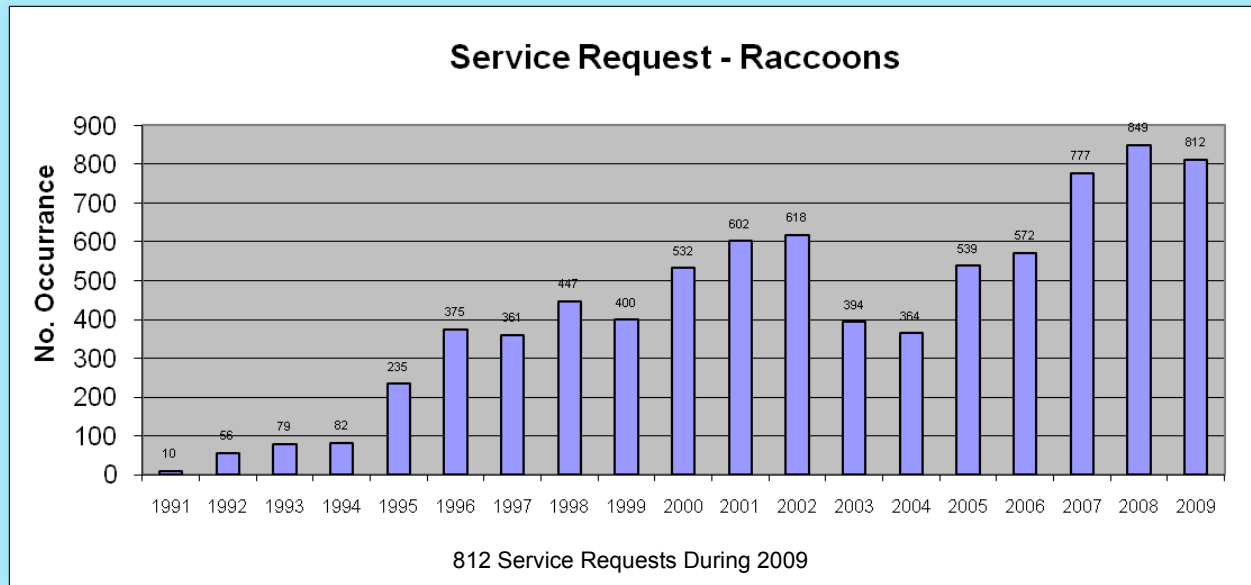
positive for the rabies virus. Of the animals submitted for testing, 64 were reported to have human contact; 23 had no human contact; 33 were reported as wildlife and domestic animal contacts; and 5 with unknown contact information.

Type of Animal	Number negative	Number positive	Total
Bat	43	2	45
Cat (domestic + feral)	38	0	38
Dog	18	0	18
Fox	1	0	1
Horse	1	0	1
Opossum	4	0	4
Raccoon	7	0	7
Skunk	13	0	13
Squirrel	3	0	3
Total Animal Tested			130

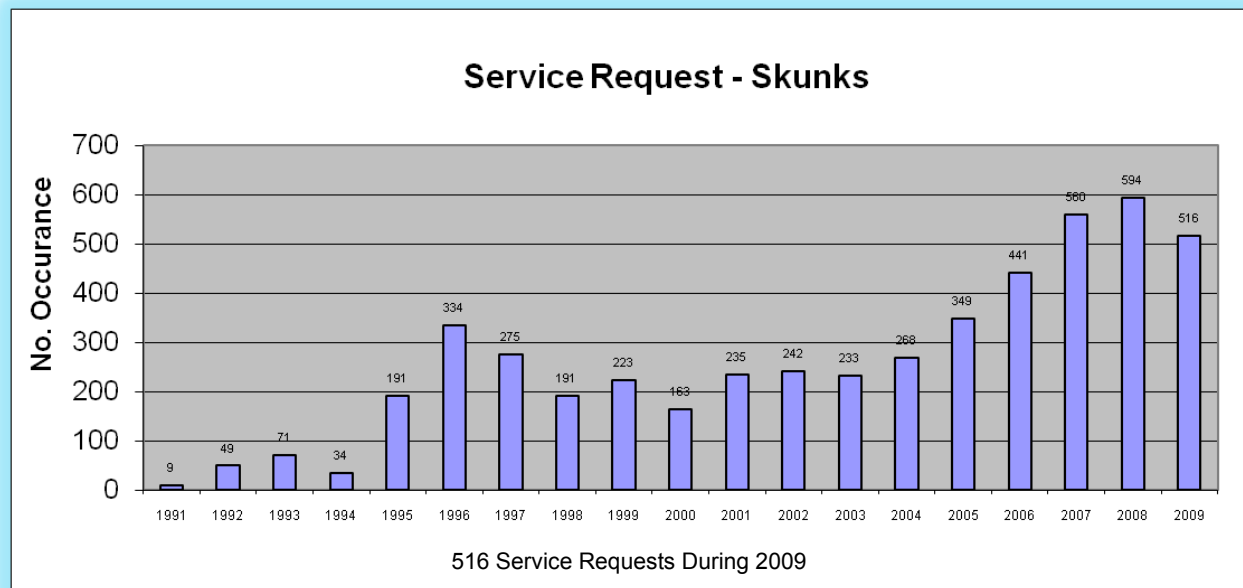
Wildlife Management

In 2009, the District responded to 1,625 service requests concerning wildlife, and provided almost 3,391 hours of field support within or near residential areas. Majority of these activities involved service calls on raccoons, skunks, squirrels, voles or opossums, and advising homeowners to implement exclusion, sanitation, and modification of habitats to eliminate or prevent recurrence of the wildlife problem. Our Vector Control Officers assist property owners by coordinating with the USDA Wildlife Specialist (WS) who deploys integrated pest management (IPM) techniques and offered a wide range of preventive (indirect control) and population reduction (direct control) methods. Here is a breakdown of the common wildlife nuisance species that comprised of most service requests.

Raccoons are well adapted to urban and suburban environments where they often den in backyards, beneath decks, and attics. On resident's property, raccoons feed on backyard fruits, vegetables; pet foods left overnight; and dig for beetle grubs in lawns. The damaged lawns from grubs digging is the most objectionable to homeowners that resulted in most frequent service requests for abatement. Moreover, young raccoons are generally born in April or May, and the mother's preference to nest and care for her babies in house attics is the second most service request for trapping and exclusion. In the attic, the raccoons may urinate and defecate in a specific spot that cause staining of the ceiling and creating an objectionable odor. To prevent damage to lawns, The WS suggested to homeowners to apply commercial grub killer products, repellents, and cutting back on watering the lawn. Exclusion is the key to eliminating den sites in attics. Repairing cracks and crevices, installing galvanized hardware mesh on attic windows, and using raccoon exclusion fluids will deter raccoon ingress to attics. In 2009, the District responded to 812 service requests for raccoon control.



Skunk problems were the second most service request tallied with 516 calls in 2009. Skunks are attracted to residential areas by the availability of food, water, and shelter. Skunk problems peak during the animal's mating season during February and March, with litters born about 9 weeks later. They become a nuisance problem during the breeding season when the mother, in defending her litter, will spray when she perceives threats from the homeowners. Additionally, skunks are a primary carrier of rabies in California, hence, creating a potential public health problem. Skunk control methods focus on making the garden, yard, and residences less attractive to skunks; trapping can be used if these methods are not sufficient. Habitat control include cut back on overgrown shrubbery and tightly stack firewood to reduce potential den sites. Exclusion involves denying access through screening and us-



ing ¼-inch mesh hardware cloth. Like the raccoons, homeowners can spray the lawn with an approved insecticide to control grubs and other insects, thus reducing the food for skunks and discourage them from digging. Odorous skunk carcasses underneath homes or in attic presented another type of service request. Often, once the carcass is located and removed, the problem is solved.

Feral pigs: Our WS received 11 reports of feral pig damage to landscape and lawns in Castro Valley and Fremont. In Castro Valley, feral pigs caused \$ 800 to \$1000 damages to landscape and lawns on a resident's property. In Fremont, over \$5000 damage occurred on a large property. In both incidents, the feral pigs disappeared and were not captured.

Wild turkeys: An ongoing wild turkey problem takes place at two apartment complexes in Dublin due to the residents continuous feeding the birds. Adult wild turkeys, which can weigh upwards of 20 pounds, can destroy flowers and vegetable gardens, leave their droppings on patios and decks, and roost on cars, scratching the paint. Turkeys can become aggressive during the breeding season, occasionally even charging, threatening, and acting aggressively toward people. The problem can only be resolved through a homeowner association meeting to educate the turkey feeders and discontinue their feeding practices.

Mountain lions killed 15 lambs, 1 adult sheep, and a dog in 2009. The killings were in the Palomares areas in Castro Valley and the Mission Peak areas in Fremont. Traps were placed at each kill site but no mountain lions were trapped.



Allowing wildlife access to our pets' food is a leading cause of wildlife population growth, and results in an increase of conflicts between people, our pets and wildlife.

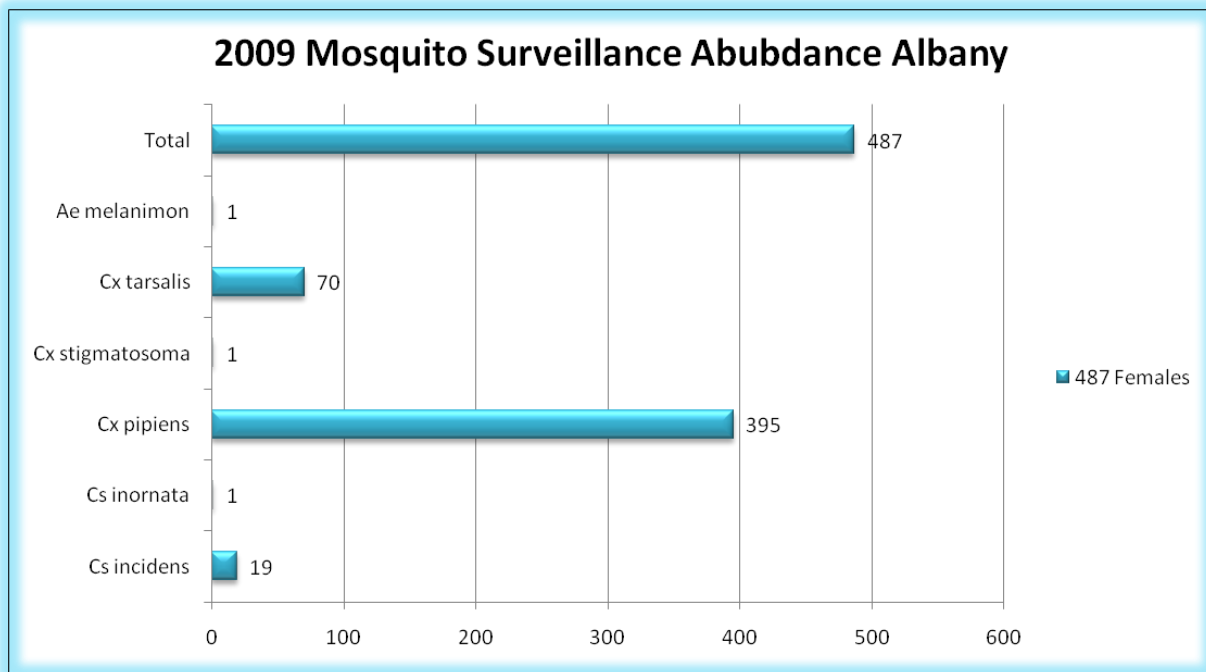


Mosquito Surveillance

In 2009, West Nile virus (WNV) activity hot spots were in southern CA and Central Valley counties. Continuing house foreclosures resulted in abandoned swimming pools producing high mosquito populations and increased viral transmission.

In Alameda County, the District conducts mosquito surveillance and control only in the City of Albany, while the Alameda County Mosquito Abatement District (ACMAD) has the jurisdiction for the rest of the County. Carbon dioxide baited traps (EVS trap) were set overnight (every two weeks) from April through October to selectively trap female mosquitoes seeking a blood-meal and to test for WNV

virus. A total of 71 trap nights were performed, and 487 female mosquitoes were captured in 2009. Two mosquito pools were submitted to U.C. Davis for WNV virus isolation and tested negative. In 2009, positive WNV activity in other areas of the county was identified by the ACMAD with no human case, 10 dead birds, and 1 mosquito pool.



Venomous Arthropods

Venomous arthropods include insects and spiders that can sting, bite, secrete venoms, and cause allergic reactions in humans and domestic pets. The District provides identification on a wide variety of stinging insects and arachnids. Exclusion and least-toxic control recommendations are given to property owners to avoid being bitten or stung by venomous arthropods. With yellow jackets nests and honey bee swarms, the risk of stinging increases the urgency for timely response. The District will destroy wasp nests when they are located in close proximity to people. In addition, the District has a contract with the East Bay Regional Park District (EBRPD), to control ground nests within the county parks. In 2009, the District responded to 179 venomous wasp and 279 honeybee complaints.

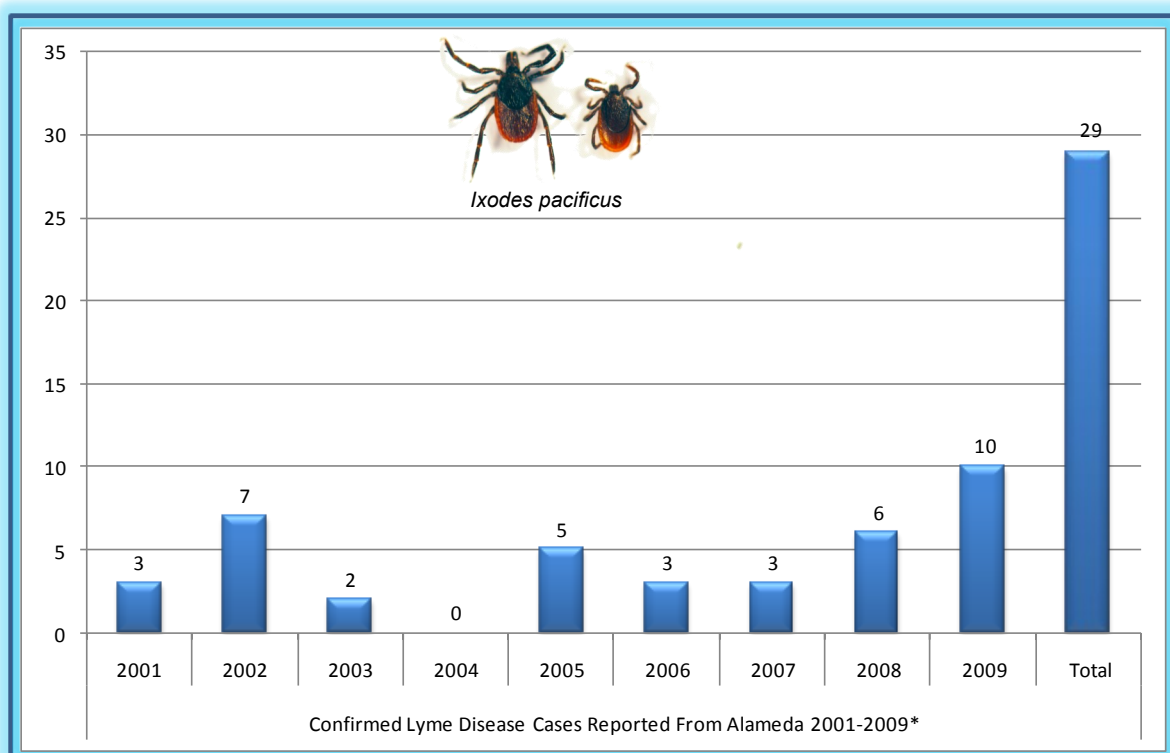
Miscellaneous Arthropods

The District responds to service requests on a variety of vermin pests such as ants, cockroaches, flies, or fleas that infest homes and commercial facilities. Bedbugs continue to be a nuisance pest problem in Alameda County. The District responded to 100 bedbug service requests in 2009. Another 100 service requests including fleas (41), mites (45), lice (6), and biting gnats (4), were also investigated. In 24 of the cases, tropical rat mites were identified as the offending agent. Tropical rat mite infestations may cause severe emotional distress to humans. Our Vector Ecologist provided advice on eliminating the mites, and the rodent hosts.

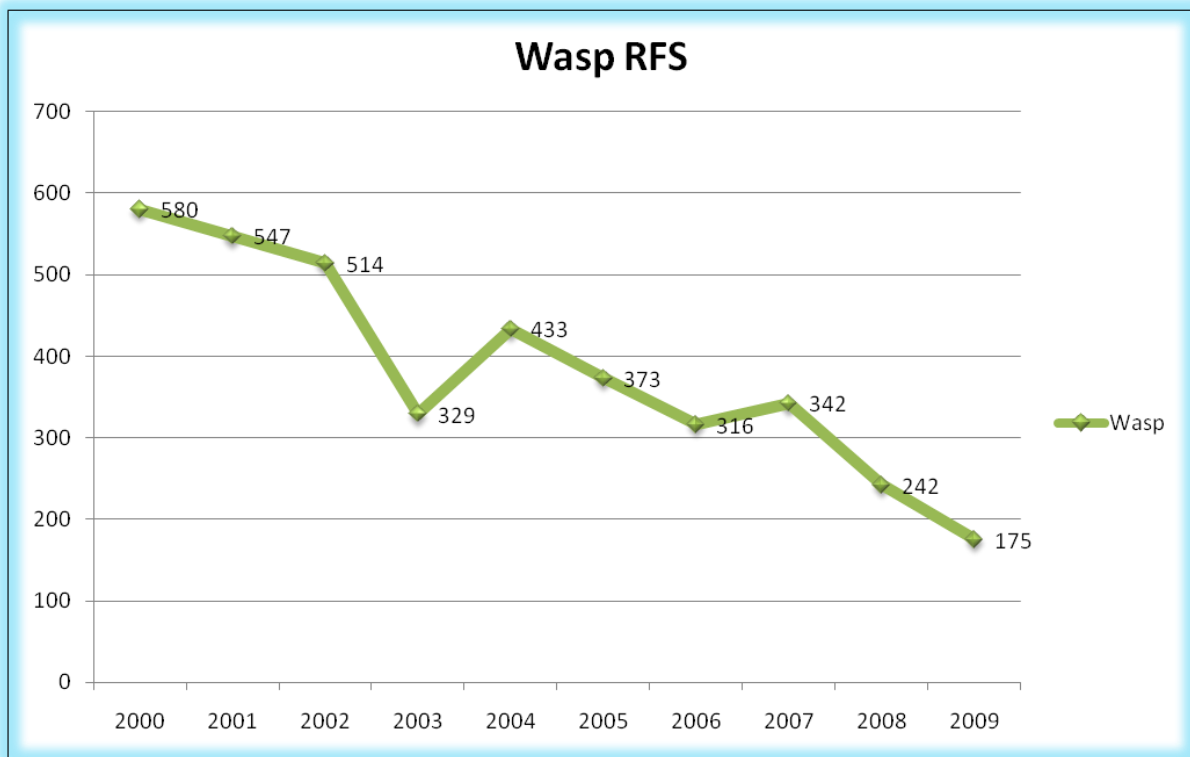
Suspect delusory parasitosis cases continue to provide challenging diagnoses for our staff and biologist. Delusory parasitosis occurs when an individual complains of having the sensation that “bugs” are crawling, biting, or burrowing into their skin. Often the individual will bring in specimens containing personal items or skin fragments, which they believe is infested with “bugs” for examination to seek validation that the problem is real. Usually, no insects are found in these samples. However, we cannot imply that the victims do not experience the biting sensation. Some people with skin conditions or allergic reactions to drugs may experience biting sensations by minute arthropods. In these instances, they should be referred to physicians for further evaluations. Delusory parasitosis cases are challenging and the District can only offer assistance when active pest infestations have been identified and evaluated.

Lyme Disease

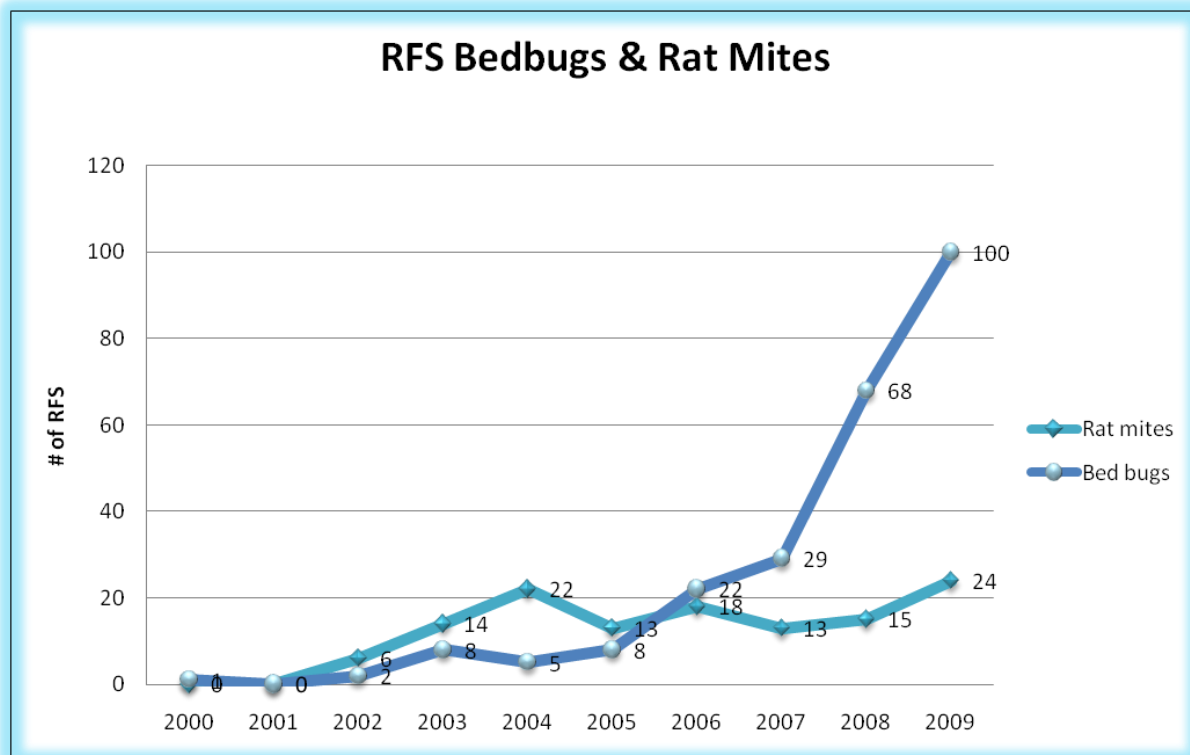
Lyme disease remains the highest reported vector-borne disease in the United States. The District provides consultations, educational resources, and tick identification to the public. Moreover, the District has hired an experienced consultant to collect and identify ticks, and to culture and isolate bacteria for infection studies. Ticks were collected from city, county and regional parks and private properties. A total of 1597 ticks (adults & nymphs) were dissected and cultured for *Borrelia* spirochetes. Forty-nine ticks were positive for *Borrelia* spp. (3%). Responding to a concerned resident's request, our staff collected ticks at a residential area in Sunol. A 16.2% infection rate was detected in the 179 nymphal ticks tested. This is a higher than normal infection rate and further investigations are planned for 2010. Fifteen rats and three woodrats were tested for *Borrelia* infection. Five roof rats were cultured for *Borrelia bissetii*.



(*2009 Case data is tentative pending annual review by CADPH)



Interestingly, wasp requests for service (RFS) have been on the decline over the last decade.



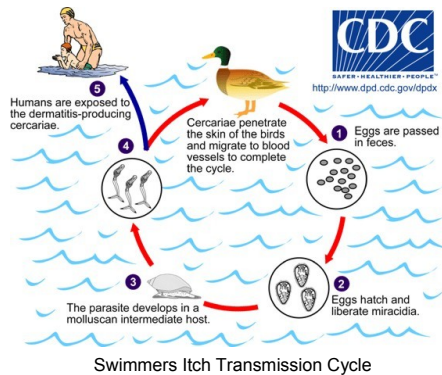
Bed bug RFS's have been skyrocketing, compared to a fairly stable rat mite service request.

Swimmer's Itch

For the sixth year, sections of the Robert Crown Memorial State Beach in Alameda were closed and signs posted warning beach users that the water maybe unsafe for swimming. Swimmer's itch, also called cercarial dermatitis, appears as a skin rash caused by an allergic reaction to certain parasites found in specific birds and mammals. When these microscopic parasites are released from infected snails, they can burrow into the nearby swimmer's skin, causing an allergic reaction and rash. Swimmer's itch occurs when several factors converge at the optimal time of the summer. 1) the water temperature reaches the appropriate level for snails to reproduce and grow rapidly, 2) migrating aquatic birds infected with the parasite return from their winter habitats and 3) the frequency of swimmers and bathers reaching peak during this period. In 2009, 17 cases from Crown Beach were reported to the Department of Environmental Health starting from early June to late August. In collaboration with Dr. Sara Brandt at University of New Mexico, a peer reviewed paper characterizing the biology, ecology, and infectivity of the parasite will be published in the journal *Emerging Infectious Disease* in 2010.



Rash Examples



Swimmers Itch Transmission Cycle



Rash Examples

City of Berkeley

The City of Berkeley is one of four cities in California with its own environmental health jurisdiction. In 1976, the City adopted several environmental health ordinances that provide a mechanism to protect public health from vectors. The voters of Berkeley approved Measure A in 1984 and became part of the CSA. Since the Berkeley Division of Environmental Health already had a vector control program that contains enforceable regulations for controlling rodents and other vectors, the CSA authorized a contract each fiscal year to fund the City vector program through the benefit assessment. In the years since 1984, the Berkeley vector program was not able to perform all of the Duties expected of the CSA, and CSA staff continued to provide field services to enhance their program. In 2006 the City added new staff and expanded the services to all vector programs within the City.

In 2009, the City responded to and investigated a total of 878 service requests and complaints in the following categories--rodents (234), vegetation overgrowth (42), sewer inspections and baiting (62), wildlife (45), arthropod (103), miscellaneous arthropods (68), nuisance abatement (100), sewage (112) and general survey (112). The City participated in two community events: Solano Stroll, and Spice of Life.

Inventoried Sources

The District maintains an inventory of stables and kennels, and inspects them regularly to prevent nuisance problems such as odors, insects, or rodents. Upon request by the Alameda County Animal Control, animal hobbyist facilities are inspected during annual permit renewal. Currently, there is no statutory requirement or authority to inspect pet shops, animal grooming salons or livestock holding facilities; however, when there are nuisance complaints, we will perform the inspections.

Nuisance Abatement

Garbage, rubbish, junk cars and animal manure stockpiles can become public nuisances when left unattended prior to disposal. In addition, these nuisance piles provide harborage and food sources for rodents, flies, and other pests that might result in human disease transmission. The District responded to 405 service requests concerning nuisances, primarily garbage (140), resulting in 1,105 field services including investigations, progress assessments, correspondence, and compliance inspections.



Fremont Festival of the Arts 2009 Informational Booth

Public Information and Education Activities

The District website underwent continuous expansion and update. The new additions included an image library of local arthropods, three video “shorts,” a new *Mr. Vector* edutainment dialog, and new vector brochure translations in Chinese and Vietnamese. In 2009, 306,067 hits were recorded on our web page—averaging about 25,505 hits per month.

“Lyme Disease Survey” of 440 physicians in Alameda County was completed. The survey results will be presented at the 2010 MVCAC Annual Conference. A follow-up educational package is being developed and will be mailed to all physicians in 2010.

Thirty-seven presentations were given to schools and organizations, among them were the East Bay Regional Park District, the Pesticide Applicators Professional Association of California (PAPA) and U.C. Berkeley. Our Countywide *Head Lice Prevention Month* mailing was expanded from 173 to 201 elementary schools—adding schools from Fremont and Emeryville. The annual *Mussel Quarantine* was posted along the Alameda County shoreline—to prevent paralytic shellfish poisoning (PSP).

Community Events

The Alameda County Fair was again the biggest community event for the year. Attendance was up 20% this year, over 2008, to 432,000, or about 24,511 per day! Two new large public venues: the Fremont Festival of the Arts (two days with over 385,000 attendees) and the Oakland Chinatown Street-Fest (two days with over 100,000 attendees) were added to the roster. Combining these two venues with other large public events such as the Solano Stroll (with 300,000 attendees) and the Dublin Day on the Glen (a two-day event with 90,000 attendees per day), our District managed to reach a larger and ethnically diversified population (1,397,000 attendances from only these 5 events!). We had several media contacts/press releases/interviews—on Lyme disease and ticks, wildlife and rabies. The best media coverage came from an article detailing our staff efforts to locate a homeless woman in Fremont who may have handled a rabid bat.

Public Education and Information Disclosure

Our staff uses various methods to disseminate information and to educate diverse audiences on emerging diseases, vectors, transmission cycles, and control strategies by using environmental modification and sanitation. The most effective way in reaching a large audience is through our web site, media contacts and event participations such as County and Public Health fairs. At special events, our staff interacts directly with the public through hands-on demonstrations and answer questions on vector and vector-related matters. At the District office, our Vector Ecologist, Community Relations Coordinator, and management provide phone consultations on vector-related questions and onsite identifications of insects, ticks, and others.

On our website, the public can search for current and useful information on vectors, nuisance pests, and diseases, download brochures, listen to edutainment, watch video shorts, view images library on local arthropods, rodents and explore links to other animals.

Pesticide Use Summary 2009

The District participates in a countywide *Integrated Pest Management* policy set by the Board of Supervisors. The majority of pesticides applications were used to suppress Norway rats in the sewers or to destroy yellow jacket nests. Mosquito larvicides totaled less than a quarter pound of active ingredient. The total pesticide usage is listed below and is reviewed by the Alameda County Agricultural Commissioner, the Department of Pesticide Regulation and the California Department of Public Health.

Pesticide Use 2009

Pesticide	Manufacturer	Formulation	Target Pest	Amount Used	Applications
Contrac Super Blox	Bell Labs	8 oz block	Domestic Rodents	662.34 lbs	189 ¹
Contrac 1 oz Blox	Bell Labs	1 oz block	Domestic Rodents	4 lbs	2
Contrac Pellets	Bell Labs	Pellets	Domestic Rodents	16.31 lbs	6
Ditrac Tracking Powder	Bell Labs	Rodenticidal Dust	Domestic Rodents	2.38 lb.	13
Drione Dust	Bayer Environmental Science	Insecticidal Dust	Fleas/Yellow Jackets/Wasps	16.94 lbs	96
Delta Dust	Bayer Environmental Science	Insecticidal Dust	Fleas/Yellow Jackets/Wasps	0.75 lbs	2
Prescription Treatment Brand P. I.	Whitmire	Aerosol Spray	Yellow Jacket/Wasps	0.97 Gal.	6
Wasp Freeze	Whitmire	Aerosol Spray	Yellow Jacket/Wasps	5.18 lbs	50
Victor Poison-free Wasp & Hornet Killer	Woodstream	Aerosol Spray	Yellow Jacket/Wasps	1.14 Gal.	17
Maxforce Roach Gel Bait	Bayer Environmental Science	Gel	Cockroaches	3.60 lbs	10
Siege PBS Gel	Waterbury Companies, Inc.	Gel	Cockroaches	0.88 lbs	8
Altosid XR Briquets	Wellmark International	Briquets	Mosquito Larvae	0.5 lbs	3

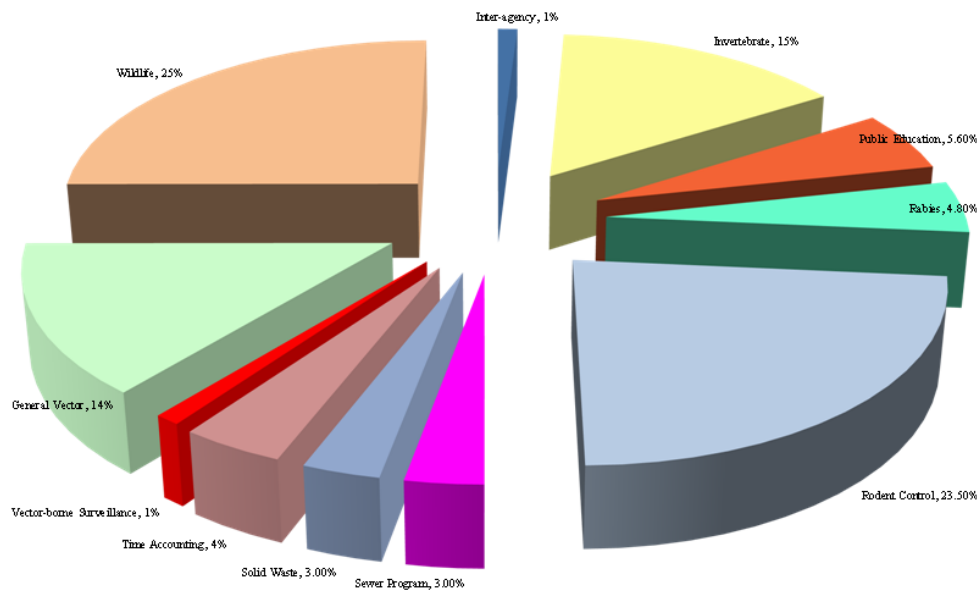
Pesticide Use by Berkeley Vector Control 2009

Pesticide	Manufacturer	Formulation	Target Pest	Amount Used (oz.)	Applications
Talon	Syngenta	8 oz. wax block	Norway rats	9,280	1,160 ²
Drione Insecticide	Bayer	Dust	Yellow jackets	8	12

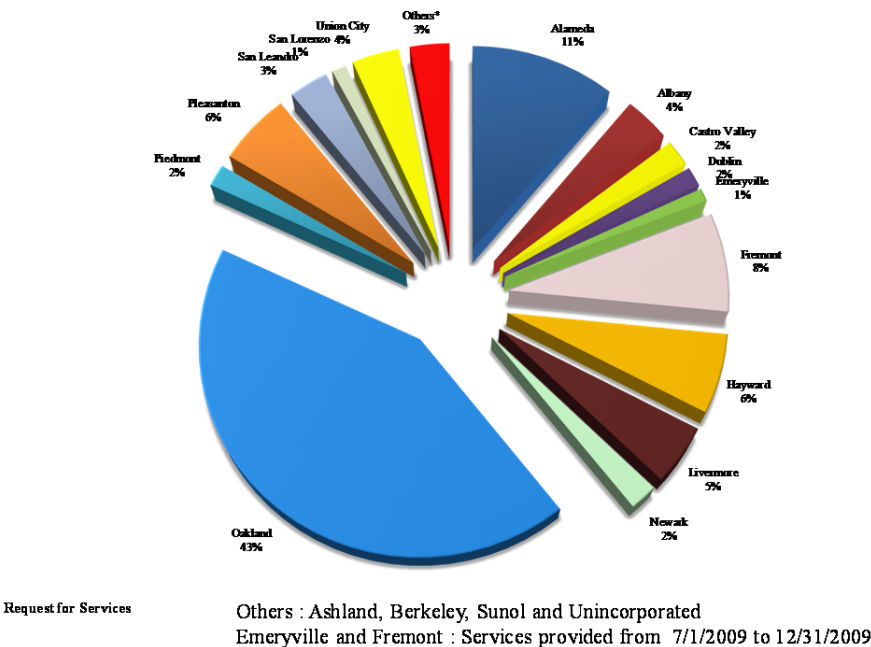
1. Applications based on cumulative per census tract

2. Applications based on each individual application

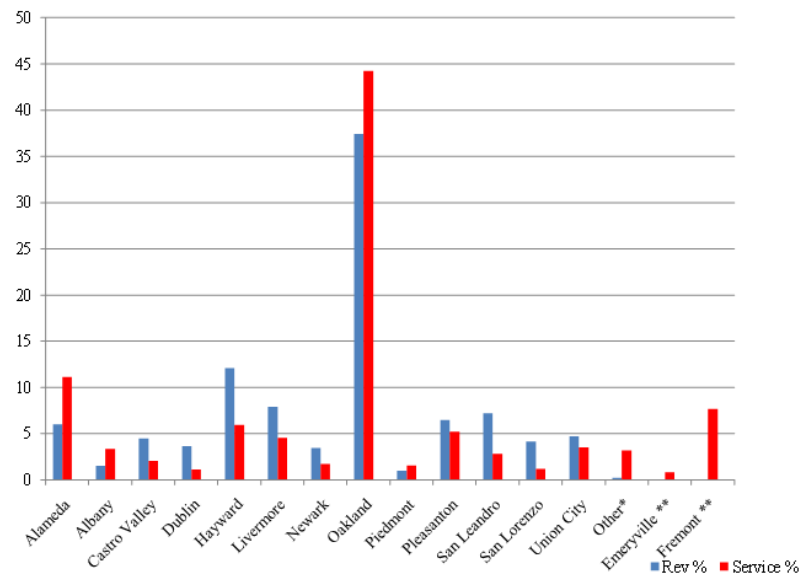
Alameda County Vector Control Services District
Services by Program, 2009



Alameda County Vector Control Services District
Total Services Provided to Cities, 2009



**Alameda County Vector Control Services District
Percentage of Service Requests and Benefit Assessment Per City
2009**



* Ashland, Berkeley, Sunol, and Unincorporated

** Service request data presented as for calendar year, the new benefit assessment (Emeryville and Fremont) was not available until January 2010

BENEFIT ASSESSMENT

The Board of Supervisors reviews annually the proposed rate of assessment, holds public hearings, and then establishes the assessment for the fiscal year. Assessments are levied and collected at the same time and in the same manner as the general county property taxes. They are subject to the same fines, penalties, and forfeiture as property taxes. The assessment charge levied against each parcel is available for review at the Vector Control Services District Office,

From 1984 to 2007, the CSA Vector Control Benefit Assessment (Initial Benefit Assessment) was based on land/property use as classified by the Assessor's Office. A basic assessment rate was established as a single benefit unit (BU), which was applied to the schedule for assessments according to land/property use.

In the Post Proposition 218 (Secondary Benefit Assessment) formulas (approved by voters in 1997), the BU rates was established on the number of people who potentially live on or work at the various types of property. The methodology determined by the ratio of population density factors in relation to the usage density for different types of property. In general larger properties such as parking lot, self storage, industrial property and golf course will be assessed in a lower BU under the Post Proposition 218 rate. The table below depicts some of the differences between the two rate calculation methods.

LAND/PROPERTY USE CATEGORIES

Property Use Categories	CSA Vector Control Benefit Units/per property type (Initial Benefit Assessment)	CSA Vector Control Benefit Units/per property type (Secondary Benefit Assessment)
Single Family Residence/Condominium	1BU	1BU/0.61BU
Vacant Land Parcel	1BU	0.25 BU
Multiple Residential Small (2-4 units)	2 BUs	0.46 BUs
Commercial, Industrial	2 BUs	0.5 BUs
Large Rural Property	2 BUs	0.08 Bus (per 10 acres)
Multiple Residential (5units +)	5 BUs	0.32 BUs
Large Commercial (Hotels, Mobile Home Parks)	5 BUs	0.5 BUs (per ¼ acre increments)

CSA VECTOR CONTROL SERVICES BENEFIT ASSESSMENTS FY 2009-2010

Use/Size	CSA Vector Control Initial Benefit Assessment	Oakland (Residence only) + Supplement Assess- ment (\$1.28)	CSA Vector Control Secondary Benefit Assess- ment
Single Family Residence/ Condominiums	\$5.92	\$7.20	\$4.08/2.49
Vacant Land	5.92	7.20	1.02
Multiple Residential Small (2-4 units)	11.84	14.40	1.88 ¹
Commercial, Industrial	11.84	14.40	2.04 ⁴
Large Rural Property (More than 10 Acres)	11.84	14.40	0.34 ³
Multiple Residential (5 units +)	29.60	36.00	1.30 ²
Large Commercial (Hotels, Mobile Home Parks)	29.60	36.00	2.04 ⁴

Notes:

1. This rate is per unit. There would be a minimum of 2 units for this category.
2. This rate is per unit. There would be a minimum of 5 units for this category.
3. A property would be charged this minimum. It would be \$.34 for 10 acres.
4. These estimates are based on per ¼ acre increments.

ASSESSMENT FOR ONE BENEFIT UNIT (BU)
(Single Family Residence - CSA Basic Rate and Oakland)
1984-2009

FISCAL	CSA	OAKLAND	OAKLAND
Year	Basic Rate	Supplemental Rate	Total Rate*
84-85	\$3.15	\$0.00	\$3.15
85-86	2.66	0.00	2.66
86-87	2.66	0.00	2.66
87-88	3.24	0.00	3.24
88-89	3.30	0.70	4.00
89-90	3.58	0.66	3.84
90-91	3.80	0.70	4.50
91-92	3.96	0.70	4.66
92-93	3.96	0.70	4.66
93-94	4.72	1.04	5.76
94-95	4.82	1.06	5.88
95-96	5.82	1.26	7.08
96-97	5.92	1.28	7.20
97-98	5.92	1.28	7.20
98-99	5.92	1.28	7.20
99-00	5.92	1.28	7.20
00-01	5.92	1.28	7.20
01-02	5.92	1.28	7.20
02-03	5.92	1.28	7.20
03-04	5.92	1.28	7.20
04-05	5.92	1.28	7.20
05-06	5.92	1.28	7.20
06-07	5.92	1.28	7.20
07-08	10.00	1.28	11.28
08-09	10.00	1.28	11.28



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