

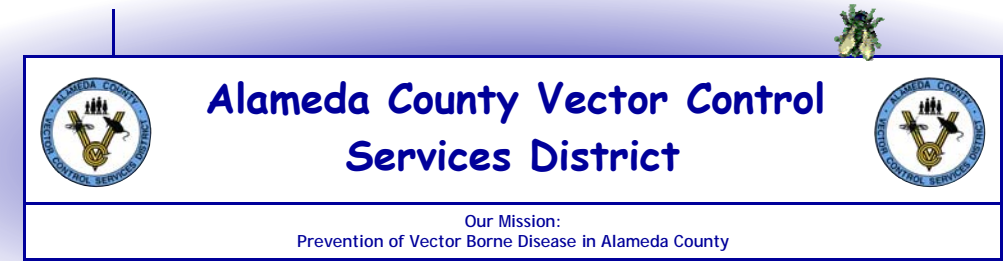
CSA VECTOR CONTROL SERVICES RECOMMENDED ASSESSMENTS FY 2005-2006

Benefit Unit Assessment

Use/Size	Basic	Oakland
1. Single Family Residence/ Condominiums	\$ 5.92	\$ 7.20
2. Vacant land	\$ 5.92	\$ 7.20
3. Multiple Residence Small (2-4 Units)	\$ 11.84	\$ 14.40
4. Commercial, Industrial	\$ 11.84	\$ 14.40
5. Large Rural Property (More than 10 Acres)	\$ 11.84	\$ 14.40
6. Multiple Residential	\$ 29.60	\$ 36.00
7. Large Commercial (Hotels, Motels, Mobile Home Parks)	\$ 29.60	\$ 36.00

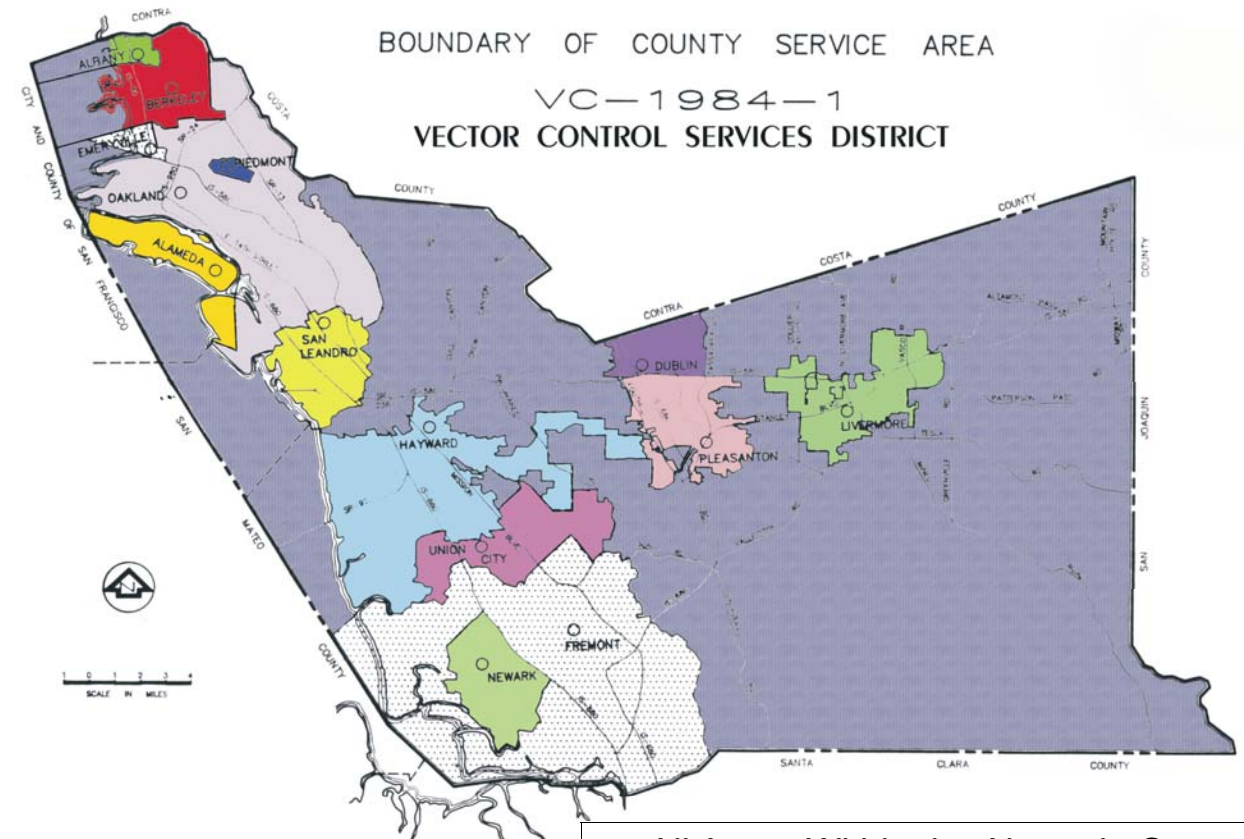


Alameda County Vector Control Services District
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ALAMEDA COUNTY VECTOR CONTROL SERVICES DISTRICT COUNTY SERVICE AREA VC 1984-1

Annual Report 2005



All Areas Within the Alameda County
 Boundaries are Served by ACVCSD,
 Except the Cities of Fremont and Emeryville

MISSION

The mission of the Vector Control Services District is to prevent human disease, injury, and discomfort to the residents of the District by controlling insects, rodents and other vectors of disease and eliminating causal environmental conditions through education, legal enforcement, and *integrated pest management (IPM)* practices.

Integrated pest management (IPM) is an approach which first assesses the pest situation, evaluates the merits of pest management options and then implements a system of complementary management actions within a defined area. The goal of IPM is to mitigate pest damage while protecting human health, the environment and economic viability. Integrated Pest Management is a dynamic system that is adaptable to diverse management approaches. Pest management decisions are made by the individual, community, business entity or government agency but are influenced by the diversity of public and private values.

ASSESSMENT FOR ONE BENEFIT UNIT (BU) (Single Family Residential and Vacant Land) CSA Basic Rate and Oakland 1984-2006

FISCAL Year	CSA Basic Rate	OAKLAND Supplemental Rate	OAKLAND 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

*Includes Oakland Supplemental initiated 1988-89

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 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, and at the Clerk of the Board Office at 1221 Oak Street, Oakland, 5th floor.

Assessments are based on land use as classified by the Assessor's Office. A basic assessment rate is established as a single benefit unit (BU), which is applied to the schedule for assessments according to land use as follows:

LAND USE CATEGORIES

1. Single Family Residence/Condominium	1 BU
2. Vacant Land Parcel	1 BU
3. 2-4 Residential Units	2 BU's
4. Commercial and Industrial Property	2 BU's
5. Large Agricultural Rural Properties	2 BU's
6. 5 Residential Apartments or more	5 BU's
7. Improved Commercial Property	5 BU's

DISTRICT SERVICES

Request for Service and Investigations Related to the Following Categories:

Arthropods

- ◆ Conduct investigations in response to service requests concerning vectors, assess the extent of the problem, and take the appropriate action.
- ◆ Investigate reported problems concerning cockroaches, flies, fleas, lice, yellow jackets, and other insects, as well as, ticks, mites, and spiders, and render the appropriate service.
- ◆ Provide advice on insect, tick and spider identification and recommended methods of control.
- ◆ Conduct surveys of insects and arachnids of public health importance and maintain a reference collection.
- ◆ Survey and effect control of cockroaches in public sewers, utility boxes, and storm drains.
- ◆ Conduct yellow jacket and feral bee control in public areas or by contract with other agencies.

Wildlife Management, Domestic Animals and Rabies Control

- ◆ Oversee the administration of quarantine measures regarding animal bites.
- ◆ Conduct investigations of nuisances related to animals such as bats, skunks, opossums, raccoons, dogs, cats, rabbits, pigeons, chickens, and fowl.
- ◆ Trap biting or nuisance mammals when preventative alternatives are not possible or will probably be ineffective.
- ◆ Work cooperatively with local animal control agencies, and compile statistics for an annual report for the State Health Department.

Solid Waste Problems

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

Rodent Control

- ◆ Make recommendations on rodent proofing, food source reduction, habitat modification and suppression of rats and mice.
- ◆ Conduct rodent suppression during disease outbreaks or emergencies.
- ◆ Conduct surveys of rat populations to assess species prevalence and population control needs.
- ◆ 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 allow rats to expand their range into neighborhoods.

Vector Borne Disease Surveillance and Control

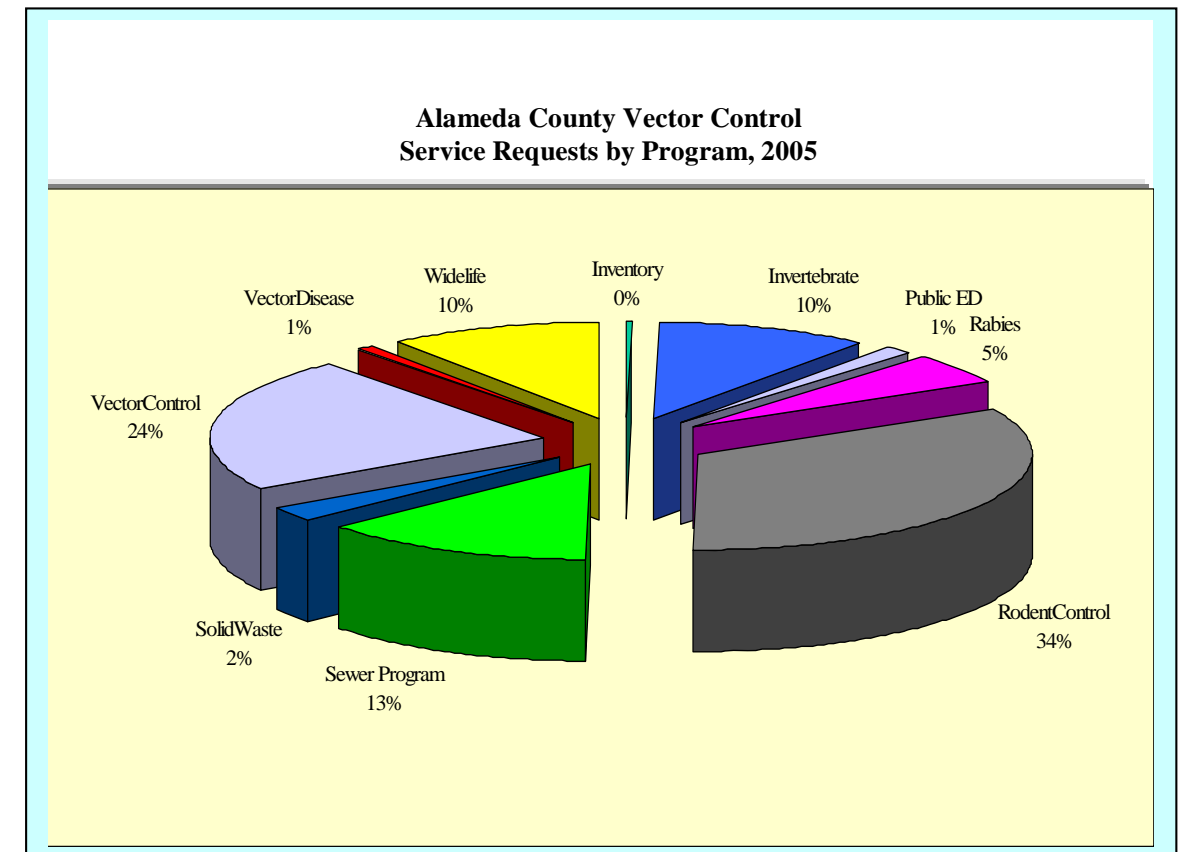
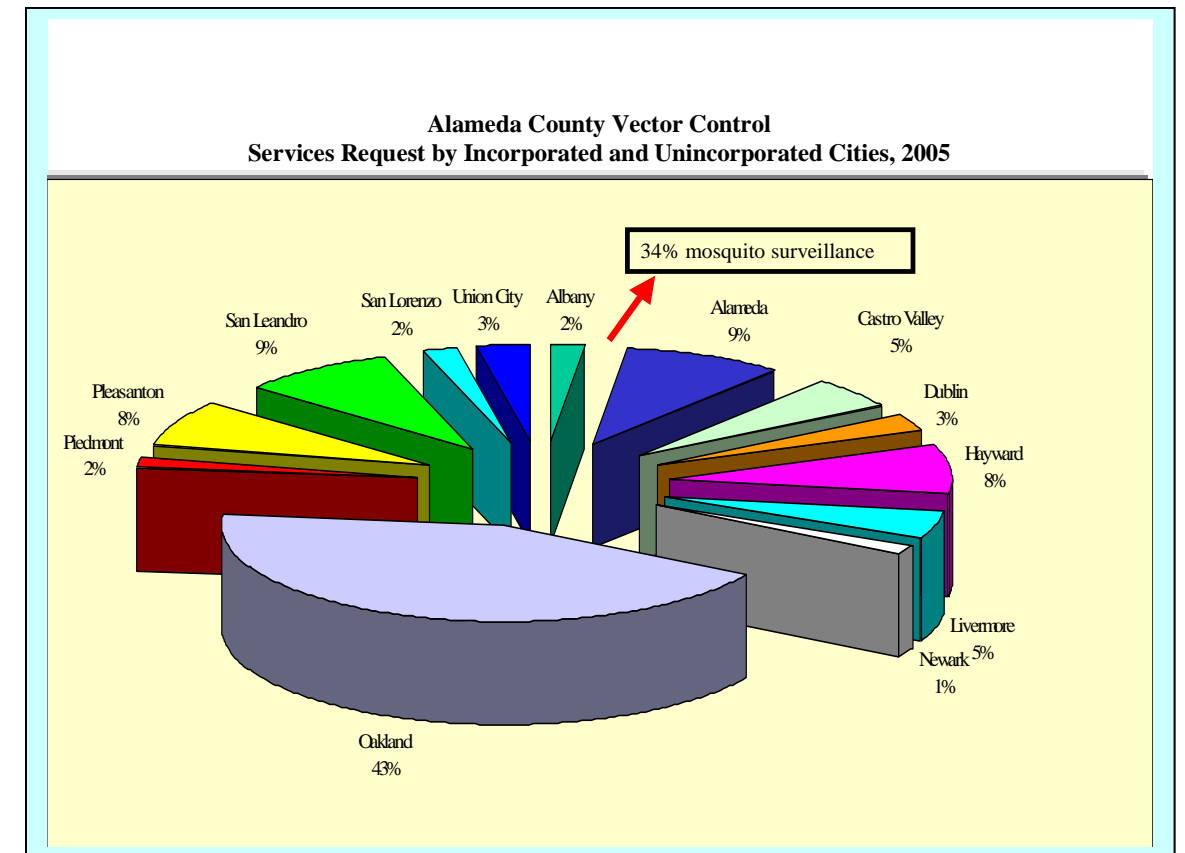
- ◆ Investigate reports of animal or human illness such as Lyme disease, Psittacosis, Scabies, Head Lice, Reptilian Salmonella, Ehrlichiosis, Plague and Rabies to determine cause, and recommend preventative measures.
- ◆ Assist the public in submission of ticks to the public health laboratory for testing, as well as surveillance for prevalence of ticks and tick-borne diseases.
- ◆ Collect rat fleas and determine the potential risk of plague transmission.
- ◆ Mosquito surveillance and control in Albany.

Public Education and Information

- ◆ Make presentations to groups on vector control, and participate at public events.
- ◆ Provide educational information on vectors and vector borne diseases for individuals and groups.
- ◆ Staff public displays at health fairs, special events, and the county fair.
- ◆ Maintain our Web Site to facilitate vector related information dissemination.
- ◆ Post the annual shellfish harvesting quarantine notices on the Alameda County bay shoreline.

Legal Enforcement

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



Pesticide Use Summary 2005

Pesticide	Manufacturer	Formulation	Target Pest	Amount Used	Applications
Delta Dust	AgrEvo	Dust	Yellow Jacket/ Wasp nests	1.19 lbs	5
Conrac Super Blox	Bell Labs	8 oz or 1 lb blocks	Domestic Rodents	740 lbs.	84
Ditrac Tracking Powder	Bell Labs	Dust	Domestic Rodents	2.6 lbs	11
Quintox Meal	Bell Labs	Meal	Domestic Rodents		
Conrac Pellets	Bell Labs	Pellets	Domestic Rodents	1.4 lbs.	3
Conrac Blox	Bell Labs	1 ounce	Domestic Rodents	0	0
M-Pede	Mycogen	Liquid	Bees	.08 gal	1
Maxforce	Clorox	Large Bait Stations	Cockroaches	5.4 lbs.	260
Wasp Freeze PT515	Whitmire	Aerosol Spray	Wasps	11.4 gal	76
PT565	Whitmire	Aerosol Spray	Wasps	0.0005 gal	1
Drione Dust	Aventis	Dust	Yellow Jackets	11.1 lbs.	57
Rozel	Lipha Tech	Tracking Powder	Domestic Rodents		
Poison Free	Victor	Aerosol	Yellow Jackets	1.0 gal	28
BTI Briquette	Summit	10.0%	Mosquitoes		
BTI Liquid*	Valent	VectoBac 12-AS	Mosquitoes		
Methoprene*	Wellmark	ALL SR-20	Mosquitoes		
Altosid XR .	Wellmark	XR Briquette	Mosquitoes	3.85 oz	3
Altosid XR-G	Wellmark	XR-G granules	Mosquitoes	1.85 Lbs	13

The District follows a policy of Integrated Pest management, in conformance with the Board of Supervisors IPM Plan. The largest amount of pesticides are applied to suppress rats in the sewers or to destroy yellow jacket nests.

The total amount of Larvicide applications for mosquitoes is less than a quarter pound of active ingredient. The (*) for BTI Liquid and Methoprene Liquid refer to a field formulation called Duplex, which is a mixture of the two bio-rational insecticides.

INTRODUCTION

The Annual Report for Alameda County Service Area (CSA) VC 1984-1 for Vector Control is presented to the Alameda County Board of Supervisors in compliance with Section 25210.77a of the Government Code; County Service Area Law, and Chapters 5.24 and 6.32 et. Seq. of the Alameda County General Ordinance. The report, which includes the recommended benefit assessment for the fiscal year 2006-07, is submitted for review and public hearing.

This report gives the history of 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 tables of assessments since the CSA was formed in 1984 as well as the proposed 2006-07 assessments.

This report is also available for review at the Vector Control Services District, 1131 Harbor Bay Parkway, Suite 166, Alameda, CA 94502. In addition, current reports will be posted on our website at (<http://www.acvc.org>).

BACKGROUND & HISTORY

The County Service Area (CSA) 1984-1 for Vector Control was established in June 1984 in order to meet the public needs by providing a comprehensive vector control program. Environmental Health Services was experiencing dwindling financial resources causing severe cutbacks in vector control in Alameda County. In response, the Board of Supervisors created the County Service Area following confirming election for Measure A, in which over 70% of the voters approved formation of the CSA. The CSA now includes 12 of the 14 cities of Alameda County and the unincorporated county areas. The CSA excludes the cities of Emeryville and Fremont, which opted to seek alternative sources for administering vector programs. The City of Dublin was initially not included in the CSA but was annexed by the Board of Supervisors in 1992 at the request of the City Council of Dublin, which voted to join the District.

CITY OF OAKLAND

In 1987, it was recognized that the City of Oakland had a severe rat population, originating primarily from the sanitary sewers, which exceeded the capabilities of the district to cope with the problem. The City of Oakland approved a supplemental assessment, which was first levied in fiscal year 1988-89, and provided for two additional vector control officers.

CSA ALAMEDA COUNTY VECTOR CONTROL 2005 ANNUAL SUMMARY

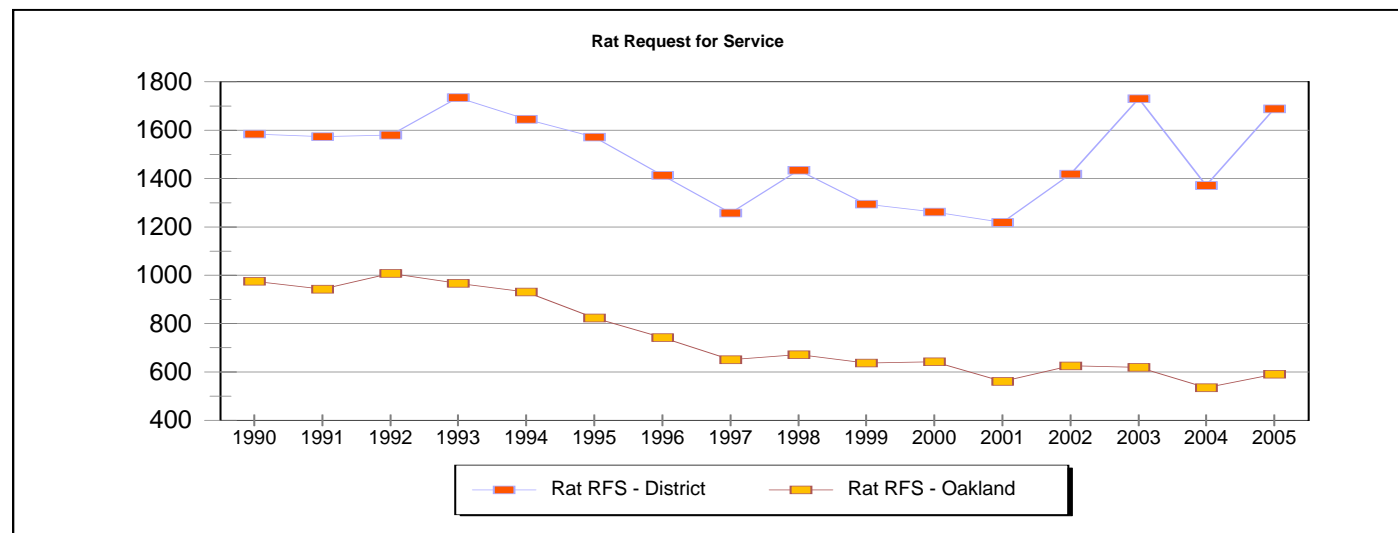
Introduction

The District experienced staffing shortages for the past four years. The District currently has three vacancies including one Vector Control Officer, and two Senior Vector Control Officers. When workload permits, the District will balance the budget with salary savings from vacant positions. Funding issues will require that the District conduct an election in 2006 to increase the Benefits Assessment, and offset cost of living increases since the last adjustment in 1997. In addition, surveys will be conducted in the Cities of Emeryville and Fremont, to determine whether those communities want to join the District. Feedback from residents of these communities has shown positive support for annexation.

Urban Rodent Surveillance

The urban rodent surveillance program concentrates on the monitoring and control of domestic (old world) rats and mice of the rodent family Muridae. The program goals include dissemination of advice, and administration of a strategy to suppress populations of Norway rats, roof rats, and house mice. The District responds to service requests concerning rats and mice at single-family residences, apartments, and businesses. In 2005, the District received 1688 requests for service from the public concerning domestic rodents, representing 34% of all requests. Staff also performed an additional 12,781 field services concerning domestic rodents, dye tests consultations, field surveys, follow up evaluations, and enforcement actions.

When there is evidence that rats are surfacing near sewer laterals, field staff conduct inspections to locate broken sewer lines, and take appropriate action to insure repairs are made. We have discontinued utilizing smoke producing flares to help locate breaks in the lines, and document locations where rats can exit the sewers and infest neighborhoods. Even though the smoke that is



Nuisance Abatement

Accumulations of garbage, rubbish, junk cars and stockpiles of animal manure can become public nuisances when left unattended before disposal. In addition, these nuisances can provide harbor-age and nourishment for rodents, other animals, flies and other pest arthropods that might result in human exposure and risk of disease. The District responds to complaints about these conditions and follow-up to assure compliance with applicable laws and regulations. The District responded to 371 service requests concerning nuisances, primarily garbage, resulting in 956 field services including investigations, progress assessments, correspondence, and compliance inspections. In some circumstances, we work with other agencies or organizations to resolve illegal dumping and refuse accumulation on private or public properties.

Public Education

In our continued response to the West Nile Virus threat, the District distributed a WNV video produced by Centers for Disease Control to six public access cable/broadcast channels (English and Spanish), as well as providing two videos to each school in Albany. We have initiated a survey in Albany to determine the extent of WNV prevention knowledge of residents to help guide us in seasonal outreach.

Community Events: Staff participated at 18 health fairs, conducted 18 presentations at communities throughout the County, and set up information booths at seven public libraries during West Nile Virus and Vector Control Awareness Week. Presentations are conducted before community organizations concerning zoonoses and the arthropod vectors associated with disease transmission.

Our Outreach Coordinator completed our Oakland English as a second language (ESL) Spanish outreach project. This project targeted Oakland elementary schools with students who come from predominantly Spanish speaking households. This group of eight schools has a total student population of about 5,200 students, and have ESL households ranging from 34-49%, were given West Nile Virus, and District information in English and Spanish, to bring home to their parents.

Additional outreach methods include one-on-one consultations, production and distribution of educational materials person to person, or utilizing our web site, the media, as well as exhibits at health fairs or other public events such as the Alameda County Fair. A great effort is made to update all informational brochures, website informational materials, posters, and to research and produce additional language versions for existing material.

With the advent Avian Influenza, we are closely following the spread and planned response. The bird flu may become another of our outreach challenges for which we will be prepared.

Website Services Requests

Three years ago, the District provided the on-line service request under Contact Us on our web site (<http://www.acvcsd.org>). In 2005, we had a total of 246 inquiries for services posted on our web site .

Swimmer's Itch

Approximately 90 cases of a dermatitis condition caused by schistosome parasites (cercariae) associated with the marine snails were reported to the Department of Environmental Health from



Swimmers Itch Red Bumps on Foot of Crown Beach Swimmer



Bubble Snail at Crown Beach



Collecting Bubble Snails

Alameda Beach between June 16 to 25, 2005. The District staff investigated the area immediately after the initial human cases. Over five hundred snails of two different species were collected from the infected area and submitted to University of New Mexico for investigation of cercariae. No cercariae were observed from *Ilyanassa obsoletus*, mud snails; out of 200 *Haminoea* bubble snails examined, three were shedding cercariae. Further DNA sequence of the cercariae will be conducted by University of New Mexico to determine the infected species.

City of Berkeley

The City of Berkeley is within the ACVCSD, but enter into a contractual agreement with the Environmental Health Division within the City Health Department, for Vector Control responsibilities. ACVCSD staff responds to certain types of service requests, and City staff to others. In 2005 District staff responded to 27 service requests, within the City, primarily venomous wasps and rodent ectoparasites, which were biting humans in households with rat infestations. City staff responded to 1,255 service requests in such areas as invertebrates (84), rodents (379), solid waste (214), and wildlife (43). They also inspected 266 sewer manholes, treating ones with active rat signs with approved rodenticides.

Inventoried Sources

The District maintains an inventory of stables and kennels, and inspects them routinely to prevent nuisances such as odors, insects, or rodents. Animal hobbyist facilities are also evaluated when Alameda County Animal Control requests an inspection, at the time of their annual permit renewal. At the current time there is no statutory requirement or authority to conduct inspections of pet shops, animal grooming salons or livestock holding facilities, but we will inspect them when complaints are received regarding nuisances. A total of 14 inspections of these facilities were conducted, either in response to a use permit renewal or a service request from the public.

blown into the sewer lines is nontoxic, our following Cal/OSHA precautions, has illuminated potential liabilities related to public disclosure, and the additionally required respiratory protection for our staff, will reduce our productivity. The District is evaluating the feasibility of continuing smoke testing of sanitary sewers and is working with the County Risk Management to develop policy and procedures for future sewer break detection using smoke testing. In 2005, staff found 25 broken sewer laterals and performed dye tests to document the break. Staff Supervisors advise Public Works Supervisors in each municipality, to facilitate repair of broken sewer lines and laterals.

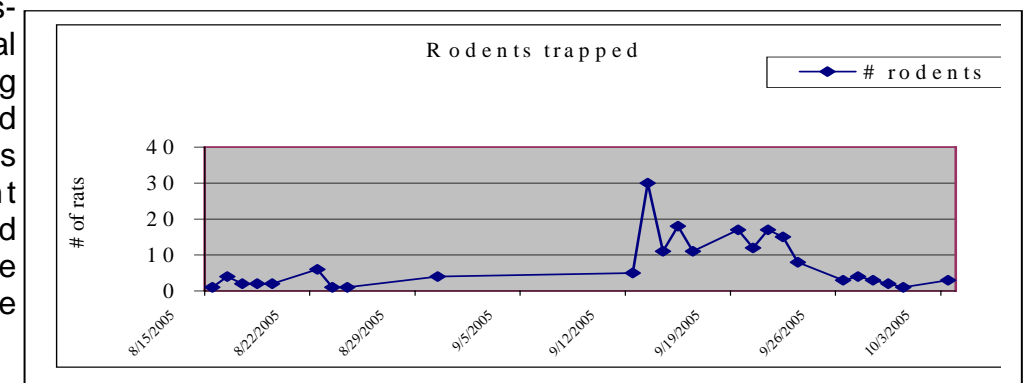
The disease surveillance staff trapped 51 Norway and roof rats from Alameda County and submitted blood samples for plague testing. None of the animals had tested positive to plague (Table 3). In 2005 thirty-seven commensal rodents from urban areas were trapped and examined for ectoparasites (fleas and mites). Oriental rat fleas (*Xenopsylla cheopis*), the vector of urban plague, were collected from fourteen of the rats (Table 1).

2005 Commensal rodents - ectoparasite		<u>Flea species</u>	Norway rats	Roof rats
# of Norway rats	31	<i>Nosopsyllus fasciatus</i>	23	1
# w/ fleas	19	* <i>Xenopsylla cheopis</i>	184	
# of fleas	230	<i>Leptosyllus segnis</i>	3	
# of Roof rats	6	<i>Holopsylla anomalous</i>	2	
# w/ fleas	1			
# of fleas	1			
FLEA INDEX				
Norway rats	7.42			
Roof Rats	0.17			
Total	6.24	Total	212	1

* From 14 rats (one location)

TABLE 1 : Fleas collected from commensal rodents

Our District discovered a large population of Norway rats inhabiting a high-density low-income hotel. The rats were infested with the Oriental rat flea, *X. cheopis*, (30 fleas/rat). As the conditions present constituted a public health risk, the District initiated direct rodent and flea suppression. Fleas per rat were reduced by 30% prior to trapping by using insecticidal dust. Various types of rat traps were employed. Within two weeks 197 were trapped. Very little rodent activity was noted after this period. The residents and management of this establishment were extremely grateful for the quick and professional service. Structural conditions and plumbing were assessed and recommendations concerning rodent control, prevention and rodent proofing were submitted to the management.

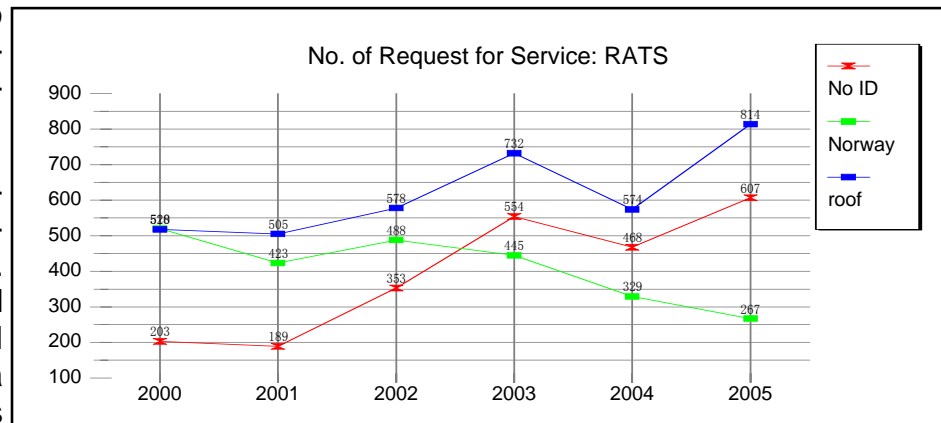


Pre- treatment	# of Norway rats	# w/ fleas	Total # of fleas	Avg (Index)	High	Low
# of <i>X. cheopis</i>	6	6	184	30.7	58	3
Post-treatment						
# of <i>X. cheopis</i>	8	8	69	8.6	16	4

The County has had a long history of Norway rats invading homes and neighborhoods from the sanitary sewers of Oakland, due to the age and cost of maintenance of the sanitary sewer system. Service requests determined to be Norway rats in Oakland totaled 267, plus an additional 607 complaints about rats in general which were probably about 50% Norway rats. The property owners of Oakland are assessed an additional \$ 1.28 over the standard rate of \$ 5.92 per residence, to cover the cost of placing anticoagulant bait, when necessary, in to the sanitary sewers. A total of 8,163 inspections and 1,643 rodenticide bait placements were made in the sewers of Oakland, Alameda, Albany, Piedmont and San Leandro. This was a slight increase in inspections from 2004.

In 2005 we continued our effort to evaluate areas with rat activity in the sewers and survey areas with clusters of rat complaints in neighborhoods on the surface of the ground. Staff worked closely with neighborhood associations in areas of Piedmont Avenue, San Pablo Avenue, and the Oakland Coliseum. Staff arranged community meetings with local residents and the City of Oakland, and agreements were made to improve environmental conditions in the affected neighborhoods.

Vector control officers responded to 814 service requests for roof rats this year. Roof rats are well established throughout the suburban and semi urban areas of Alameda County. The District responds to requests by homeowners, businesses, and communities regarding roof rat activity. Even though live trap surveys indicate that this rat has insignificant numbers of fleas and other ectoparasites, historical accounts of plague cite this rat as the most significant species associated with bubonic plague epidemics. This is probably the result of this species' ability to live in a variety of habitats in close proximity to humans. The District has established a high priority to ensure that these rodents do not enter homes, and expose occupants to potential diseases. Homeowners and landlords are advised on recommended structural modifications to prevent rodent ingress. The perimeter yard is also surveyed for conditions conducive to rodents, and recommendations to eliminate these conditions are given. Staff responsibilities during the inspection include consultation, recommendations for habitat reduction, distribution of brochures (or fact sheets), and enforcement of Environmental Health Laws when necessary. If evidence is found suggesting an infestation over a larger area



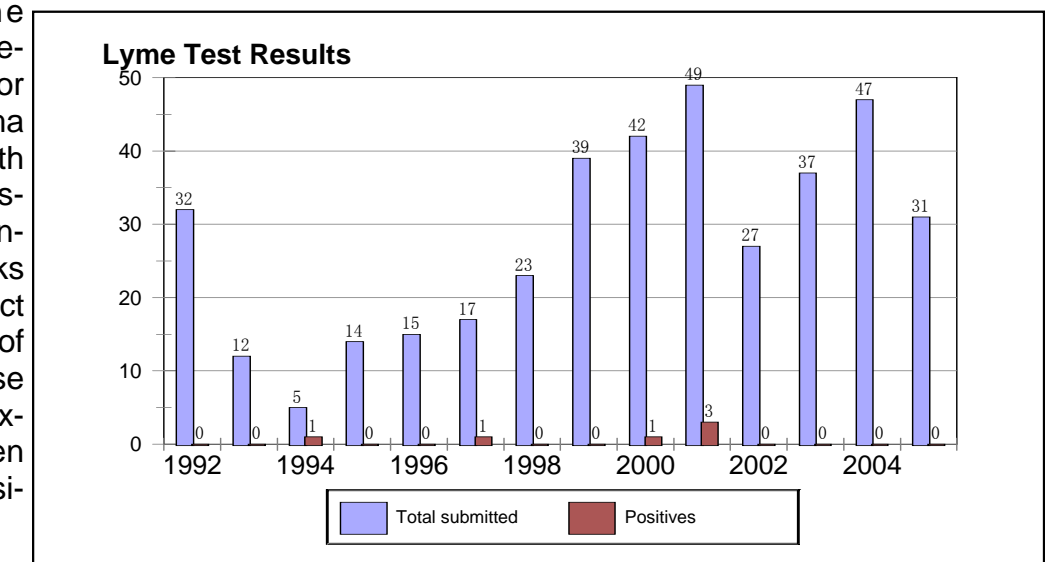
District responded to 366 venomous wasp and 234 honeybee complaints. An additional four yellow jacket nests were controlled within the EBRPD. Yellow jacket populations increase when there are mild winters and the spring rains end in February. Most yellow jackets nest in the ground, and late rains tend to expose the developing nests to moisture and mold. Since the district is not licensed to make structural repairs to buildings, control of bees and wasp nests inside buildings are normally referred to structural pest control operators for abatement.

Miscellaneous Arthropods

The District responds to service requests regarding a variety of arthropod and insect pests such as spiders, ticks, mites, head lice, cockroaches, flies, fleas, or ants that infest homes and commercial facilities. A total of 370 service requests for identifications, consultations and inspections were responded to concerning these pests. From time to time, the District will receive service requests concerning biting arthropods other than mosquitoes. There were eight incidents concerning bedbugs that were investigated by our vector ecologist or staff. Complaints about biting arthropods numbered 134, including fleas (46), mites (25), lice (12), and ticks (20), were also investigated. In thirteen of the cases, tropical rat mites were identified as the cause, and advice on eliminating the mites and the rodent hosts was provided. Tropical rat mite infestations may cause severe emotional distress to humans. Incidence of this mite infestation has steadily increased over the last number of years. In six of the cases, no biting arthropods were found and it is possible that the victims were exposed away from their residence or were possibly suffering from delusory parasitosis. The term delusory does not imply that they do not have the sensation of being bitten. Some people with skin conditions or unusual reactions to drugs may experience sensations of being bitten by minute arthropods. In these instances, they are referred to their physicians for further evaluation.

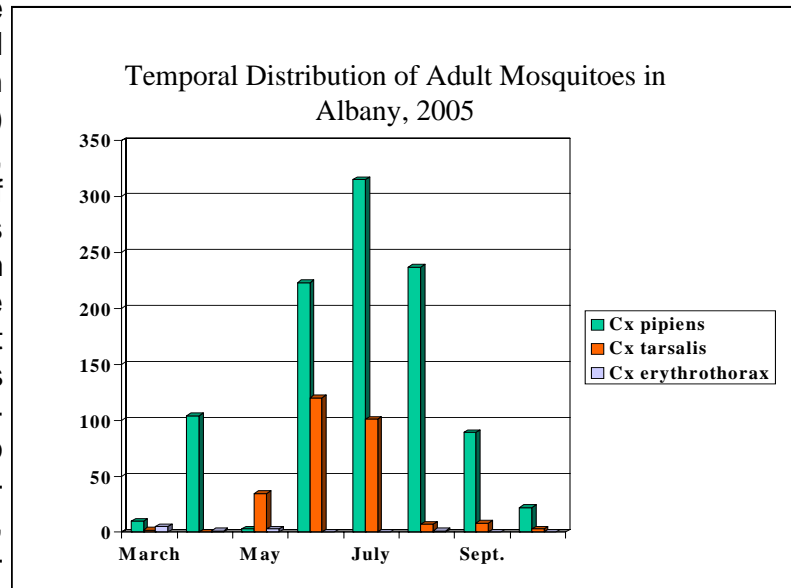
Lyme Disease Surveillance

As part of the Lyme disease surveillance program, staff collect and identify ticks, and may recommend testing for tick borne disease when appropriate. Our District provides advice, education, tick identification and testing facilities, as well as other resources relating to Lyme disease. We submitted thirty-one *Ixodes pacificus* ticks removed from residents or their pets to the Sonoma County Public Health Laboratory for Lyme disease testing, with no infection found in the ticks submitted. The District now has the capability of conducting Lyme disease IFA tests. We hope to expand this capability when we fill our vacant positions.



the rapidly expanding West Nile Virus (WNV) epidemic in California has resulted in increased surveillance of mosquitoes in the Albany area, and preparation for the ultimate arrival of the disease. Our Community Outreach Coordinator has done an outstanding job of getting the news out on WNV, including published articles in the District's Newsletter, provided videos to the Albany schools, distributed an informative WNV video to the local public access channels, and posted latest WNV information on our Web page.

As part of an ongoing WNV response plan, the District continues to place and monitor mosquito prevalence with Carbon Dioxide baited traps (CDC light trap) placed out overnight during the spring, summer and fall months within the City of Albany. We submitted 33 mosquito pools to U. C. Davis for arbovirus testing, from the 200 trap nights of surveillance; none tested positive. Our intensified efforts at Golden Gate Fields paid good dividends in 2005, with our staff working cooperatively with their staff to reduce the risk to humans and horses. We now have a better understanding of Golden Gate Fields, and will be able to eliminate most mosquito breeding sources there before it starts.



Since we increased the duration of the surveillance season, we were able to add yet another mosquito species, *Culex erythrothorax*, to our list of 11 mosquito species. Albany now has *Cx. tarsalis*, *Cx. pipiens*, *Cx. erythrothorax* and *Cx. stigmatosoma*, which are recognized to be competent vectors of WNV. Starting early spring of 2006, we will implement an expanded surveillance plan including the implementation of a risk assessment strategy developed by U. C. Davis, and CDHS. In addition to the CDC light traps, we are going to use gravid traps for collecting mosquitoes. Gravid traps capture mosquitoes, which have taken a blood meal and are seeking a location to lay their eggs. They are the most likely transmitters of WNV, when they take a second blood meal. We plan to continue submitting mosquito pools to U. C. Davis for testing.

We also are providing periodical reports to the Albany City Council, Mayor, City Administrator, City staff and the Alameda County Health Officer, and Alameda County Supervisor Keith Carson's office.

Venomous Arthropods

The District provides advice and identification of spiders, scorpions, bees, and a wide variety of wasps, including yellow jackets. Recommendations are made for exclusion and control of these pests in order to help property owners reduce their risk of exposure. In the case of yellow jackets and honey bees, the risk of a stinging incident increases the urgency for timely response. The District will destroy the nests of these insects when they are located in close proximity to people, but outside of habitable structures. In addition, the District has a contract with the East Bay Regional Parks District (EBRPD), to control ground nests within the county parks. In 2005, the

than a single-family residence, neighborhood surveys are conducted.

As part of the District's IPM policy, least toxic pesticides are used when feasible. Rode-trol®, a non-poisonous product affecting only rodents, was tested under field conditions to assess its efficacy. Field trials indicated that rodents were not attracted to the bait.

During our rodent surveillance in the past few years, several specimens of *Rattus* spp. collected from various locations in the county were morphologically similar to the roof rat but behaved very differently. Two of these specimens were identified as an exotic species of rat through DNA sequencing by University of California, Berkeley and Australian National Wildlife Collection. This is a new addition to the distribution territory of the Asian house rat (*Rattus tanezumii*) in North America. This species used to be considered a subspecies of roof rats but is now known to be different from true *Rattus rattus* in both chromosomal and biochemical characters. The disease implications for this species are unknown at this time.

Sylvatic Rodent Surveillance

Sylvatic rodents are species native to California and are classified in the rodent families Sciuridae, Cricetidae, and Arvicolidae. These animals are normally confined to the rural and semi-rural areas of Alameda County. Many of these animals are reservoirs of zoonotic diseases such as Bubonic Plague, Hantavirus Pulmonary Syndrome, Ehrlichiosis, Lyme disease, and Babesiosis. Since Alameda County has a history of plague, surveillance of the sylvatic plague reservoirs is an on going program. Twenty-seven sylvatic rodents (deer mice, wood rats) collected in 2005 from rural locations were tested for the plague pathogen. No infection was detected in these rodents. No plague infection was detected in the thirty-two sciurid rodent (California ground squirrels) blood samples tested (Table 2 & 3).

2005	N=	# w/ fleas	# of fleas	Flea species	Flea Index
<i>Microtus californicus</i>	4	3	15	<i>Malaraeus telchinis</i>	3.75
<i>Neotoma fuscipes</i>	3	1	1	<i>Opisodasys keeni</i>	0.33
<i>N. lepida</i>	6	3	8	<i>O. sexdentatus</i>	1.33
<i>Peromyscus maniculatus</i>	31	9	13	<i>O. keeni, M. telchinis, O. sexdentatus</i>	0.42
<i>Spermophilus beecheyi</i>	32	16	673	<i>Oropsylla montanus, E. gallinacea, H. anomalus</i>	21.03
<i>S. audubonii</i>	1	1	16	<i>Echidnophagus gallinacea</i>	16.00

TABLE 2: Fleas collected from sylvatic rodents and one lagomorph

Occasionally Cricetid rodents, primarily deer mice, will enter buildings and potentially expose the occupants to Hantavirus Sin Nombre Virus (SNV) infection. Previous surveillance activities in various locations indicated a 6% to 18% infection rate of SNV in deer mice. Due to staffing levels and budgetary restraints at the California Department of Health Services (CDHS) laboratory, surveillance of Sin Nombre Virus is restricted to risk assessments requested by the public and all human exposure incidents. However, the District does conduct routine rodent surveys, usually working

cooperatively with the CDHS, in an effort to minimize the transmission of this disease. In 2005, as part of a risk-assessment requested by a homeowner in a rural part of the county, twenty-one deer mice were captured and samples of the blood were tested for SNV infection. None of the mice tested positive for Hantavirus (Table 3). Rodent surveys also provide an opportunity to advise the public on the potential health risks and provide resources and information necessary to avoid exposure to these animals.

Tularemia, a disease caused by strains of *Francisella tularensis*, is not commonly transmitted by contacting rodents or tick bites. However, three human cases of tularemia were reported to CDHS in 2004; two of which were likely acquired through a tick bite: one from Alameda County and one from Contra Costa County. The adult American dog tick (*Dermacentor variabilis*) removed from the Alameda case was tested positive by culture and PCR for *F. tularensis* (type B) by Center for Disease Control and Prevention (CDC). Because of the human cases and also its importance as a bio-terrorism agent, the CDHS requested blood samples from various animals for testing. Blood samples from twenty-three rodents from various locations in Alameda County were submitted for testing. None of these samples showed infection with *F. tularensis*. United State Department of Agriculture (USDA) – Animal and Plant Health Inspection Service (APHIS) submitted additional twenty-eight blood samples of feral cats, skunks, Norway rats, jackrabbits and red foxes. Of these, one striped skunk tested positive for the tularemia pathogen (Table 3).

Animal	Hantavirus (Sin Nombre)	Plague	Tularemia
<i>Peromyscus maniculatus</i>	0/21	0/23	0/18
<i>P. truei</i>			0/1
<i>Microtus californicus</i>		0/4	
<i>R. megalotis</i>			0/1
<i>Neotoma lepida</i>			0/3
<i>Spermophilus beecheyi</i>		0/32	
Feral cat			0/2
Striped skunk			1/13
<i>Rattus norvegicus</i>			0/2
Jackrabbit			0/8
Red fox			0/3
Commensal rodents			
<i>Rattus norvegicus</i>		0/41	
<i>Rattus rattus</i>		0/10	

TABLE 3: Zoonotic disease testing summary (# Infected/# tested)

Rabies Surveillance

The District and the various animal control agencies administrate the rabies surveillance programs in Alameda County. The Alameda County Animal Control and the thirteen municipal animal control agencies are responsible for monitoring rabies associated with cats and dogs. The District conducts surveillance over skunks, bats and occasionally other wildlife, by responding to service requests, and submitting specimens to the Alameda County Public Health Laboratory (ACPHL) for rabies testing. Raccoon rabies, a strain specific for this animal, is not present in California, and is confined to the Eastern United States and Canada. Raccoons can be exposed to

bat or skunk rabies, but positive animals have been rare in recent years. The District also investigates animal bite incidents and prepares an annual report for the CDHS. In 2005, one hundred and sixty-seven animals including dogs, cats, raccoons, skunks and bats were submitted to the ACPHL for rabies testing. A total of five bats and one skunk tested positive for the rabies virus.

Wildlife Management

The District responded to 1077 service requests concerning wildlife, and provided almost 2,421 hours of field support within or near residential areas. This represents a minimal decrease in the number of service requests from the year 2004 which may reflect the fact that the current USDA Wildlife Services Specialist (WSS) has played a greater role in urban wildlife problems than in previous years. The number of hours spent on each request, reflects an effort to follow up on these complaints; to insure that structural improvements have been made to minimize reoccurrence of an infestation. Most of these activities involve responding to service requests about raccoons, skunks, squirrels, or opossums, and advising homeowners on how to exclude these animals from their residences, and making their property unattractive to them. When circumstances require direct action, Vector Control Officers may assist property owners by coordinating with the USDA to set traps, pick up and remove the animal. Occasionally staff will assist residents in gaining assistance from local service agencies that help the poor or elderly with making structural repairs.

In 2005 the USDA WSS documented an increase in raccoon problems associated with damaged landscape and lawns in the fall. This year, a new method utilizing “Raccoon Eviction Fluid” was applied in attics or under a home. Successes were noted in preventing a family of raccoons from returning to the premises, and the WSS worked closely with homeowners to permanently close openings to attics when raccoons vacated. The skunk activity was about the same as last year. The mating season lasted a bit longer due to the cold weather. Three mountain lion request calls all were related to sheep predation. The WSS recommended penning sheep in the barn at night. None of the lions returned to all three locations. The fourth mountain lion killed two large lamas in Del Vale Regional Park, as the result of this incidence; the lion was removed by the WSS.

Mosquito Surveillance

Alameda County Vector Control conducts mosquito surveillance for the City of Albany. The Alameda County Mosquito Abatement District serves the remainder of the County. Over the years, staff have documented a number of mosquito sources in Albany, primarily in the drainage close to the San Francisco Bay, and along the Southern Pacific Railroad Tracks. Mosquito breeding sites are found in the early spring when ditches do not completely drain after seasonal rainfall. Since 2002,

