University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Proceedings of the Twelfth Vertebrate Pest Conference (1986)

Vertebrate Pest Conference Proceedings collection

3-1-1986

AN URBAN ROOF RAT CONTROL PROGRAM IN ORANGE COUNTY, CALIFORNIA

Gilbert L. Challet
Orange County Vector Control District, Santa Ana, California

Follow this and additional works at: http://digitalcommons.unl.edu/vpc12

Part of the Environmental Health and Protection Commons

Challet, Gilbert L., "AN URBAN ROOF RAT CONTROL PROGRAM IN ORANGE COUNTY, CALIFORNIA" (1986). *Proceedings of the Twelfth Vertebrate Pest Conference (1986)*. Paper 11.
http://digitalcommons.unl.edu/vpc12/11

This Article is brought to you for free and open access by the Vertebrate Pest Conference Proceedings collection at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Proceedings of the Twelfth Vertebrate Pest Conference (1986) by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

AN URBAN ROOF RAT CONTROL PROGRAM IN ORANGE COUNTY, CALIFORNIA

GILBERT L. CHALLET, District Manager, Orange County Vector Control District, Santa Ana, California.

INTRODUCTION

A program to control roof rats (Rattus rattus) has been conducted by the Orange County Vector Control District since 1975. Orange County is located in southern California just south of Los Angeles and is composed of 782 square miles of coastal foothills and alluvial plain with a population of 2 million. Urbanization takes up about one-half the total area and it is mainly a semidesert situation with usually less than 15 inches of rain a year. However, because of the balmy temperature and imported water, vegetation grows rampant. Vegetation is used by the rats as harborage (Algerian ivy, bougainvillea, dracaena, etc.) and a food source (oranges, avocados, and various ornamentals with small fruits).

The Orange County Vector Control District is a special district with its own appointed governing board and 32 employees. There are 16 vector control technicians assigned to 16 geographic zones to answer complaints, make inspections, and control rats, flies, mosquitoes, and chironomid midges. They answered 7,281 complaints (service requests) on rats in 1985. Technicians visit approximately 41,000 properties for inspection and treatment per year. They are examined and certified in rat and other vector control by the State Health Department.

The roof rat (Rattus rattus) is a difficult animal to control. It is wary of traps, shows bait shyness, and some of its food (avocado) has high amounts of vitamin K, an anticoagulant antidote. It is secretive, an excellent climber, and can get through very small openings. It is typically an outdoor rat but we have seen an increasing incidence of animals going into the home. Over a 10-year period, there has been a 3 to 20% increase. They take advantage of every resource in their environment for harborage and food. The district has very few problems with Norway rats.

The program is basically a complaint/response program. We have tried neighborhood surveys and inspections and found them to be not cost-effective. Our process is to receive a service request, record the location data, and have the technician call with 48 hours to set up an appointment to visit the service requester's property. The technician visits the property and inspects for rat signs, harborage, food sources, and entrances into the structure. He does not go into the home because any work there is the responsibility of the homeowner or a private pest control company. The technician writes out and gives to the property owner a set of recommendations and an educational pamphlet. If chemical control is needed, then a release is signed by the property owner and bait blocks are placed in an appropriate place. It is the judgment of the technician that determines if bait is placed, under what conditions it is placed, and where it is placed. The technician also visually checks the adjacent properties for rat signs and harborage. If there is suspicion of rat activity, then the technician visits and inspects those properties. We will not place bait if the resident doesn't want it. Since our workload in the summer doesn't allow the technician to recheck a property within 3 months, we try to revisit in the slower winter months to check for bait activity, new rat signs, and clean-up by resident.

PUBLIC EDUCATION

We feel public education is a key element of our program along with chemical control and environmental management. The key to public education is the vector control technician meeting with the property owner and explaining rat biology, environmental management, and control in terms the property owner understands. So the view the public has of rat control by this agency depends on that contact between the property owner and the technician. The technician is supported by a lot of written information, which includes a rat control pamphlet, a recommendation sheet, and a release form with the chemical information. We have a full time position that coordinates our public education program. The educational coordinator, as he is called, develops all the informational pamphlets, gives talks to homeowner groups and schools, and produces videotapes and slide shows for a wide variety of purposes.

ENVIRONMENTAL MANAGEMENT

The recommendations given are usually to reduce and maintain vegetation so that it is not used as harborage. Also, increasingly important are the access ways into the structure which are noted on the recommendations. Food sources are identified and are eliminated or made not accessible for rats. This is becoming more important with pet food being left out or in paper containers. In addition, the District has provided large bins (10 cu yd) to specific neighborhoods to eliminate trash and excess vegetation. I believe that environmental management is necessary but it is not much more effective than chemical control in our situation. Several things lead me to this statement. First, a very limited study 9 years ago in our district concluded that chemical control gave us the same amount of control as environmental management. In this case, environmental management means vegetation removal and management. With our environment and landscaping regimes in southern California, vegetation grows back usually within a year and property owners don't continuously maintain or manage that vegetation over the long haul. Therefore, we are probably visiting the same properties every 3 or 4 years. We have to find a motivational technique to keep these people interested in environmental management.

CHEMICAL CONTROL

The district places about 30,000 bait blocks per year with an average of four per infested property. These blocks are put in trees, large shrubs, and on fences up high and hidden. The blocks are wired to the vegetation or a fence so that they won't fall to the ground. Each block has a label. We make all our own blocks and chlorophacinone is the active ingredient with paraffin and cornmeal included. We have used fumarin and diphacinone as the active ingredient in the past. I would very much like to get out of the bait-making business and purchase the blocks, but we have not found a company that can meet our specifications. The district has had 10 dog poisoning incidents in 10 years, only 5 of these in which the district paid an average of $250. In only one of these did I feel it was the district's poor placement of the bait that led to the injury to the dog.

LEGAL

We have not done any legal enforcement even though the district has the power to do so.

ECTOPARASITE AND DISEASE SURVEILLANCE

Each quarter during the year we catch live rats and process them for ectoparasites. Our average flea index on Rattus rattus over the last 10 years has been less than one flea per rat. In 1985, out of 25 rats, no fleas were found. The district has found no evidence of plague in our rat population.

RESEARCH

The district has sponsored three research projects over the years. These projects fall under three titles:

1. Survival of rats at an Orange County landfill.

2. Home range and activity monitoring of roof rats.

3. Response to environmental management techniques.

All three of these projects were directed by Dr. Tony Recht of Cal-State Dominguez Hills, and he radio monitored the rats during these studies.

Results of the first study concluded that rats delivered live to the landfill in trash trucks don't survive in the landfill. Of 10 rats released, all were dead within 1 hour.

Five female roof rats (one adult, four subadults), captured in an urban neighborhood in the City of Orange, County of Orange, California, were fitted with radio transmitters and released at their points of capture. Locations, movement patterns, activity-phasing, and behaviors were recorded by radio-tracking each animal continuously on a 24-hour basis for 8 days. The rats made extensive use of woodpiles, unsealed buildings and dense vegetation for nesting and foraging sites and social activities. Trees and vines, which overlapped one or more buildings/yards, were used as pathways to go to and from nesting and foraging sites. All of the rats were found to be nocturnally active and some of the rats exhibited brief periods of mid-morning in-nest activity.

In the third study by Dr. Recht, again five rats were captured in an adjacent block in the City of Orange. He radio collared and released them at the point of capture. The rats were followed for 5 days to establish their home range and activity patterns. The district then went in and performed environmental management on five properties that ranged from vegetation removal to woodpile restacking, to building a new fence. The results showed that elimination of harborage exposed the rats in that they had to seek out new nests, pathways, and patterns. Secondly, bait should be put out after the environmental management.

CONCLUSION

I would like to leave you with four items which we should think about. First, I think we need regular conferences on rat control in California. A great many agencies have programs and are doing a significant amount of work. We should get together to talk about our successes and failures, new techniques, biology, and control.

The second item we should consider is a definitive publication on roof rats and their biology, which would show their distinct differences when compared to Norway rats. I believe the federal government had a problem with this when they were handing out money for rat control projects.

We need to discuss the bait station issue when it applies to roof rats and their biology and habitat. In my opinion, bait stations are not practical in our roof rat control program and probably most others.

Lastly, we need to discuss the reason why we are controlling rats! Is it because of disease? Is it because of nuisance? I think the potential disease aspect was essentially eliminated by the following quote from Schwan, Thompson, and Nelson, American Journal of Tropical Medicine and Hygiene, Vol. 34 (2):372-379, 1985, who did their work in the Los Angeles area.

"While rat control is important for numerous reasons as well as a zoonotic perspective, the costs may not be entirely justified on a basis of plague and murine typhus. Additional flea surveys should be done in other areas along the suburban-wilderness fringe where plague is active. From our results we would anticipate considerable variation in the flea faunas between areas. Should the absence of X. cheopis and low numbers of other species of fleas be true in other areas, it would demonstrate that roof rats in these areas are, as in the present study areas, of essentially little or no significance in the transmission of plague and murine typhus to humans."

If this holds true, then control in most cases should revert to the homeowner and not be done by a public agency.