Free-Roaming Urban Pets

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CONSIDERABLE SCIENTIFIC EVIDENCE suggests that pets not only help many mentally healthy people cope with this complex society but that they also exercise a therapeutic effect in certain emotional disorders (*1*). In these times of increasing crime and violence, high geographic mobility, youthful alienation, anomie, and neglect of the aged, a pet is an essential companion for many an urban dweller. However, the right to keep a pet also puts a responsibility on the owner to prevent his animal from harming or annoying people and degrading the environment. Clearly, many pet owners do not accept their responsibility.

The veterinarian's responsibility is succinctly and unambiguously spelled out in the Veterinarian's Oath (revised July 13, 1969, by the AVMA House of Delegates): "Being admitted to the profession of veterinary medicine, I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animals, the relief of animal suffering, . . . [and] the promotion of public health. . . ." However, the veterinarian's precise role with regard to problems caused by urban pets is controversial and variously defined.

The population of free-roaming urban pets is comprised of stray (ownerless, feral) and straying (owned) dogs and cats. Veterinarians and other public health authorities who bear official responsibility for animal control rarely give adequate attention to free-roaming animals. Control efforts proceed unnoticed and haphazardly between episodes of public agitation. Valid scientific studies must be made of the free-roaming urban pet problem and possible solutions (*2*).

Most authorities consider the U.S. dog population to be 25 to 35 million and the domestic cat population to be at least 30 million. A nationwide survey found population ratios of both human beings to dogs and human beings to cats to be roughly 6 to 1 (*3*). The magnitude and reproductive potential of pet populations can be appreciated if one considers that a single bitch or queen may produce four offspring (including two fem-

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ales) every year for 7 years. The total progeny is 4,372 animals!

In a number of communities, pet overpopulation and free-roaming pets have created a situation bordering on disaster, and such situations are occurring more frequently. A free-roaming dog or cat is a potential ecological, medical, and social threat in several ways:

1. Harboring diseases transmissible to man
2. Inflicting bites
3. Damaging property and wildlife
4. Causing accidents
5. Creating nuisances and pollution

A brief discussion of these five threats follows.

Zoonoses

At least 65 zoonoses involving dogs and cats may be transmitted to man by direct contact or contact with secretions and excretions of pets. About 40 such zoonoses exist in the United States —among them rabies, ancylostomiasis, hydatidosis (echinococcosis) leptospirosis, ringworm, toxocariasis (visceral larva migrans), cestodiasis (for example, dipylidiasis), salmonellosis, and tuberculosis.

Another potential zoonotic threat is bubonic plague. In sero-epidemiologic studies, plague antibodies have been found in dogs (*4*). The increasing concentrations of men, dogs, rats, and their respective fleas in cities may be creating the conditions for explosive outbreaks of the disease.

Free-roaming pets may also transmit diseases to confined pets. From a public health standpoint, a citizen has a right to expect reasonable control of free-roaming urban pets so that he is not exposed to greater zoonotic risk than that presented by his own pets.

Bites

Dogs cause human casualties mostly by biting. Dogs cause 84 percent of all reported animal bites and cats, an additional 10 percent (*5*). Local and regional statistics suggest that the number of reported animal bites in the United States is between 1 and 1½ million annually (*2,3, 5–7*). About 30,000 people each year in the United States receive post-exposure anti-rabies treatment (*8*). In 1971 in Alameda County, Calif. (excluding the cities of Berkeley and Albany), there were 4,069 reported dog or cat bites—about 1 reported bite per 250 people per year—and 6 people received anti-rabies treatment (*7*). The Berkeley Health Department records more than 800 bites annually, or about 1 reported bite per 150 persons per year (*9*); and each week more than 300 citizens complain to the city about free-roaming dogs (*6*). Statistics for 1971 from the Center for Disease Control (CDC) suggest a national animal bite rate of at least 1 reported bite per 250 persons annually (*5*).

Free-roaming dogs commonly overturn garbage cans, attracting rats and increasing the cost of trash collection. Photo supplied by Dr. Alan M. Beck, "The Ecology of Stray Dogs," York Press, Baltimore, 1973

Baltimore, Md., authorities handle 7,000 cases of dog bites annually. Children 15 years of age and under are the victims in 60 percent of these cases; 30 percent of all biters are free-roaming dogs which are never retrieved for quarantine (*2*). It is generally agreed that more dog bites go unreported than the number that are reported.

About 1 of 10 dog bites requires sutures, and about 2 of 7 become infected and require medical attention (*10*). Significant disfigurement may occur in bites (16 percent) on the face, head, and neck (*10*). About 75 percent of the persons bitten are under 20 years of age, and 41 percent of the total are children under 10 (*5*).

In California, as in other States where rabies is endemic in wildlife, the bite victim's anxiety is greatly magnified when the dog is a free-roamer that cannot be captured and observed. In addition, anti-rabies treatment causes the victim pain, inconvenience, and expense. A 1971 CDC survey revealed that in 21 percent of all animal bite cases the animals were unowned or of unknown

ownership; 39 percent of biting dogs had not been vaccinated, and 85 percent were owned by someone other than the victim (*5*).

In recent years, the situation has become more alarming as an increasing number of attacks by free-roaming dog packs are being reported. A recent Baltimore study revealed that 50 percent of feral urban dogs traveled in packs, most in twos or threes, but the largest pack numbered 17 dogs (*2*). In Chiba Prefecture, Japan, during the first 5 months of 1972, three people were bitten to death by free-roaming dogs (*11*).

Damage to Property and Wildlife

Free-roaming dogs damage fences and doors in attempts to reach confined bitches in estrus, or stray bitches in estrus incite owned dogs to damage fixtures and furnishings in their frenzied efforts to escape and join the females.

The raiding of garbage cans and strewing of their contents by free-roaming pets is so well known as to be a part of American folklore. The spilled garbage impedes refuse collection and encourages rats. Damage to gardens and ornamental plants caused by canine digging and excretions is a source of numerous citizen complaints.

Parks and farmland adjacent to urban areas suffer tremendous animal losses because of the predation and worrying of wildlife (especially deer) and livestock (especially during the lambing and calving seasons) by free-roaming dogs (statement by Christian Nelson, chief, Interpretive Department, East Bay Regional Park District, Oakland, Calif., 1973).

Accidents

Total damage caused by dogs and cats straying on roads is the sum of deaths and injuries to persons and damage sustained and caused by vehicles. Animal-induced road accidents occur much more frequently than is realized. In 1958 in Britain (a country with less than 5 million dogs), 2,731 road accidents attributed to roaming dogs resulted in personal injury (*10*). According to a 1951 survey, 75,000 dogs were involved in road accidents in Britain (14 percent of all reported accidents). Four percent of the dogs escaped unhurt; 35 percent were injured, some of whom required euthanasia; and 61 percent were killed outright (*10*). Few such statistics are available for the United States.

However, the Baltimore Animal Shelter annually collects more than 8,000 dead dogs from the streets in that city, which has a human population of 2 million. Most are probably killed by automobiles; many more never get collected or reported (*2*). If this proportion can be applied to the national human population of 210 million, the Baltimore data suggest that 1 million dogs may be killed annually on city streets.

Victims of dog-related accidents also include harassed bicyclists as well as children and elderly persons who are injured when they are knocked down by rambunctious dogs.

These statistics dramatically demonstrate the consequences of excessive numbers of free-roaming dogs, high traffic density, and drivers' natural reflex to try to avoid dogs on the road. Apart from the misery of human death, maiming, and disfigurement, plus the cost of property damage, it is extraordinary that such unnecessary animal suffering should be tolerated with so little protest in this cruelty-conscious country.

Nuisance and Pollution

Littering of public and private property with animal feces is both a nuisance and unaesthetic, as well as an obvious public health hazard. New York City's Environmental Protection Agency has calculated that the city's 500,000 dogs deposit about 110,000 pounds of waste on sidewalks daily—or about 20,000 tons per year (*2*). Perhaps income from a graduated surtax based on a pet's size (10 cents to $1, for example) could be spent for dog parks and comfort stations, although their potential as epizootiologic hazards must be borne in mind. Strictly enforced public health ordinances which require on-premise toileting or fecal retrieval ("scoop laws"), or both, may eventually prove the only workable and effective means of solving the urban problem of dog excrement.

Finally, the barking of roaming dogs and the response invoked from confined dogs add to urban noise pollution.

Costs of Control Efforts

In view of the meager statistics concerning owned pets, no city or nation can accurately judge the size of its free-roaming pet population. However, in fiscal year 1969–70, the City of Los Angeles Department of Animal Regulation destroyed 87 percent (45,917) of the impounded cats and 77 percent (48,068) of the impounded

dogs (*12*), or about 15 percent of the city's estimated dog population.

A 1971 survey of 4,500 residents of Watts, Calif., a predominately black ghetto, revealed that the number one environmental problem was free-roaming pets; air pollution was ranked a close second (*13*).

During a 1973 canine and wildlife rabies outbreak around Nogales, Ariz., it was necessary to intensify control of free-roaming dogs. Over a 4-month period, 386 roaming dogs were captured and 341 put to death (*14*). Nogales has a human population of 10,000. If ratios for Nogales are projected to the national population of 210 million, about 8 million free-roaming dogs would be captured, and about 7 million of them would be put to death in a similar 4-month period.

The California branch of the Humane Society of the United States (HSUS) estimates that animal control and pet animal euthanasia by local governments and humane organizations in that State cost taxpayers and private philanthropists more than $20 million each year (*15*). The HSUS further estimates that the national costs to local governments and humane groups of handling unwanted pets is more than $250 million annually (personal communication from John A. Hoyt, president of HSUS, Washington, D.C., 1972).

Only about 5 million of approximately 20 million surrendered and captured pets in pounds and humane shelters are claimed or placed in new homes each year (personal communication from Guy Hodge, director of legal and information services, HSUS, Washington, D.C., 1972). Clearly, something must be done to reduce this toll of animals destroyed and dollars spent by governments and private organizations. Four control measures, which will be discussed subsequently, can effect substantial reductions in this toll.

Discourage Owning Pets

The governments of Iceland and the People's Republic of China, by imposing punitive taxes or other prohibitions on dog owners, such as banning all dogs from cities, have successfully discouraged dog ownership. In Iceland, a country with a human to canine population ratio of unity, the problem was widespread hydatid disease; in China, the problem was the allocation of available food supplies. Conscientious groundwork in educating the public made it possible for these governments to impose severe penalties without losing general support.

Pack of urban street dogs. Larger breeds, such as these German Shepherds, roam city streets with increasing frequency. Photo supplied by Dr. Alan M. Beck, "The Ecology of Stray Dogs," York Press, Baltimore, 1973.

Encourage Owning Males or Spayed Females

The number of offspring is largely dependent on the number of intact female dogs or cats, since a relatively small number of males can mate all the available estrual bitches. Thus, pet sterilization programs should be confined to females because (*a*) maximum cost effectiveness is best achieved by concentrating scarce resources on spaying of females and (*b*) this tactic permits minimal surgical intervention compatible with efficient pet population control. Of course, limiting pets to males would quickly reduce the production of offspring.

Since owners of unspayed female pets carry the major responsibility for the production of surplus pets, it is justifiable to require these owners to pay an additional fee for this privilege. This differential license fee has been called a breeder's license. For such a fee to have an appreciable effect, it would need to be at least double or treble the regular license fee.

The male pet would be a cheaper alternative to paying a fee for spaying or for a breeder's license. A pet that is certified by a veterinarian as too old or otherwise unfit for surgical sterilization might be exempted from the breeder's fee. There might also be an exemption, at the time of enactment of the differential fee, for unspayed females whose owners were indigent.

Local governments could use revenue from the differential fees to improve animal control ser-

vices or to subsidize the spaying of pets of low-income owners. However, differential license fees can only be promulgated if the general public can afford the cost of spaying pets and is convinced of the desirability and safety of sterilization.

Those concerned with placing homeless dogs and cats with new owners find that males are in much greater demand than females, unless they have been spayed (*10*). Humane societies, SPCAs, and public animal shelters must be encouraged to adopt a policy of releasing only males or spayed females to new owners, except for animals under 6 months old. A sterilization fee can be paid in advance when a young animal is adopted.

Ultimate control of promiscuous breeding of pets in developed countries awaits a cheap, safe, and rapid means of chemical or physical sterilization of females, such as a drug which suppresses the sexual cycle with one annual dose.

Encourage Surrender of Unwanted Animals

Before the public can be urged to surrender unwanted kittens, puppies, and adult pets, authorities need to insure that efficient and humane means exist for impounding and killing the animals.

Los Angeles undoubtedly is the most successful city in encouraging the public to cooperate in surrendering unwanted pets. For the past several years, more than 90 percent of a total of about 100,000 unwanted dogs per year were voluntarily surrendered to the department of animal regulation; less than 10 percent had to be caught as strays (*12*). Mass public education and daily public relations efforts by the department have apparently convinced citizens to surrender unwanted pets.

Prohibit Abandonment of Pets

Two provisions are necessary before legal prohibition of abandonment can be considered. The first provision is to establish ownership by requiring a license that also confers on the owner certain responsibilities to maintain his pet properly and prevent it from straying. Second, authorities must provide and demonstrate to the public that the facilities for the holding and euthanasia of surrendered pets are efficient and humane. When these two provisions have been met, legislation against abandonment becomes reasonable.

Laws must effectively prohibit pet owners from (*a*) turning animals off the owner's property, (*b*) habitually allowing them to stray, and (*c*) failing to provide adequate maintenance. Proper care is important; it is the incessant barking of an insufficiently fed, protected, or exercised dog which makes it a nuisance to neighbors.

Many governments which require licensing do not enforce it with determination. In the United States, only about 50 percent of all dogs are licensed (*3*). The penalty for keeping an unlicensed dog in England is $25, even though the license is less than $1. Los Angeles probably has the best enforcement record as a result of house-to-house visits by officials of the department of animal regulation. Efficient enforcement can be achieved more economically by changing the color of the license disk issued each year. The dog's collar with the disk must be worn whenever the dog is off the owner's premises.

Tattooing pets with an identification number has not been tried by animal control agencies, but such a system might improve the enforceability of control ordinances and inhibit "petnapping." Tattooing of all dogs impounded for rabies observations could be made mandatory. To be maximally effective, the system must employ (*a*) a uniform number, for example the owner's driver's license number; (*b*) a uniform numbering site, the medial right thigh, for example; (c) a single number for all pets owned by one person; and (*d*) prohibition against altering the number unless with the written approval of the local animal control agency.

Perhaps requiring a 3-year, rather than a 1-year, initial license fee would discourage casual acquisition of pets; paying a sizable fee may force people to think twice before assuming the responsibility of a pet. Of course, the effectiveness of expensive fees would depend upon enforcement of pet licensing regulations.

In even the best regulated societies, there probably will always be some free-roaming pets, and a regular patrol to capture them and enforce leash laws is necessary. In large cities, the patrol must consist of enough men and vehicles to have more than a marginal effect on the stray animal population and must be visible and active enough to convince owners. Captured dogs should be taken to pounds and kept for at least 3 days, and owners of licensed dogs notified. Owners should be allowed to claim their dogs after paying a penalty fee. On

the third such occasion, an owner could be heavily fined whether or not the dog is claimed. All surrendered, unclaimed, and ownerless dogs may be put to death after a statutory period of 3 or more days.

An anti-abandonment program can be self-supporting and effective, as well as humane, if it emphasizes fining owners rather than impounding their free-roaming pets. An owned but straying dog can easily be induced to make an immediate beeline for home by an appropriate loud noise directed at him from a car. He can then be followed home and his owner cited for a violation of the leash law.

A schedule of progressive fines for owner-violators concentrates enforcement on the culpable party (the owner) rather than on a victim (the pet). Such an approach would reduce the need to build and maintain an extensive animal shelter and would provide revenue to the local government rather than constituting a continuing expense, as does impoundment and euthanasia.

World Federation for Protection of Animals

The World Federation for the Protection of Animals (WFPA) has studied extensively the problems of surplus dogs in many of its 60 member countries. The WFPA's conclusion is that two measures are essential to controlling the production of surplus dogs in developed countries: licensing of dogs at the earliest practical age and a differential license fee for males and spayed females. Most U.S. communities already require licensure for all dogs starting at 4 to 6 months of age. Usually licensure is granted when the owner presents a current rabies vaccination certificate. In addition, annual rabies clinics held by local veterinarians and animal control agencies provide a means for simultaneous licensing and vaccination. It would appear to be beneficial to dogs, dog owners, public health, and animal control that licensing and rabies vaccination be linked.

However, it might be even more beneficial, from the animal control standpoint, to require licensure either as soon as a pup's eyes are open or when a dog first changes owners, thus establishing the fact of ownership at the earliest practical time. The WFPA favors the measures just described because they tend to discourage all but responsible persons from accepting the burden of breeding and ownership. Thus far, 20 humane organizations in 13 countries, including the United States, have formally endorsed these measures and are actively promoting their adoption in the respective countries.

Discussion

The simplest way to control free-roaming pets is undoubtedly to discourage pet ownership. However, only in an extreme crisis would U.S. society be persuaded to accept such a policy. Officials responsible for animal control have dismissed this approach as impractical, shrugged their shoulders, and concluded that the problem of free-roaming animals is insoluble. When officials scan the list of alternatives to discouraging pet ownership and find no new suggestions, they note that each method, in some form or other, has been tried without effect. Over the years the heads of animal control agencies have seen the final solution in terms of a single measure.

In fact, the other control measures previously discussed—encouraging ownership of male or spayed pets, encouraging the surrender of unwanted pets, and prohibiting the abandonment of pets—will show results only if they are applied simultaneously. Where this is done there is likely to be a profound drop in the number of free-roaming dogs within several years, and dogs will be in demand rather than being in surplus.

The success of animal control programs depends on a cooperating public. Dog lovers, more than dog haters, must be convinced that officials, from the department head to the dog catcher, are carrying out measures that will improve conditions for all pets, as well as for the human population. Irresponsible pet ownership, however, cannot be abolished legislatively. The owner's responsible behavior toward his pet and his neighbors can be achieved only through education.

Campaigns to achieve responsible ownership should include information on the reproductive patterns of pet animals, methods of contraception, and essentials of proper maintenance. School children are a particularly receptive audience since they are invariably interested in pets. (Children might also be taught how to avoid being bitten by roaming animals.) Youngsters who know about the hazards of urban pets and the duties of responsible pet ownership can be a cadre to carry this message into the households of a community.

The general public will not comply with the control measures advocated in this paper unless they are informed about hazards represented by

stray and straying pets and the desirability of owning male or spayed female pets. They will not turn in unwanted pets or refrain from abandoning animals until they are convinced that efficient, humane, and practical methods are followed in the capturing, impoundment, and euthanasia of stray animals.

Organized veterinary medicine can contribute substantially in educating the public. Local, regional, and national veterinary bodies should work through the mass communications media and with local governments, schools, humane societies, and groups of concerned citizens so that the message of responsible pet ownership becomes part of the conventional wisdom.

As the behavior of stray and straying pets increasingly impinges on human rights and privileges, especially in cities, more and more voices will be raised to demand curbs and regulations. One who suffers harm to himself or his property can seek no recompense when a free-roaming pet is to blame. Veterinarians and public health professionals ought to be informed concerning overpopulation of pet animals and be willing to implement practical solutions to the problems caused by free-roaming and unwanted pets.

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Free-roaming urban pets cause significant problems because they harbor zoonoses, bite human beings, cause accidents, destroy property and wildlife, and create nuisances and pollution. In the United States, about 30,000 persons each year receive post-exposure anti-rabies treatment; the national animal bite rate is estimated to be 1 per 250 persons per year. The Humane Society of the United States estimates that local governments and humane societies spend $250 million annually on impoundment and destruction of unwanted animals.

Simultaneous application of several control measures could substantially reduce the number of stray and straying animals. The measures include discouraging ownership of pets, encouraging ownership of male or spayed female pets by charging owners of unspayed females for expensive breeders' licenses, encouraging the surrender of unwanted pets, and prohibiting the abandonment of pet animals.

Adoption of these measures must also include mass education of the public to create an awareness of the urban hazards of roaming animals and of the responsibilities of pet ownership. Further, control measures will not be accepted unless the public is convinced that unwanted animals are captured and impounded, and unclaimed ones put to death, in an efficient and humane manner.