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AN OVERVIEW OF THE ISSUE OF DOG AGGRESSION, DOG BITES AND SOCIAL POLICY.

by

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(A working paper originally produced - in 1988 - when Rowan was Director of the Tufts Center for Animals and Public Policy but which has been revised since to provide additional data and guidance on dog bite issues.)

NOTE: Segments of the report below have already been published as part of the Tufts Center for Animals and Public Policy report on the pit bull terrier issue in **1988** titled *Dog Aggression and the Pit Bull Terrier*, edited by A. N. Rowan. The report was developed out of a workshop held at Tufts School of Veterinary Medicine on July 17, 1986. The workshop was developed after Dean Franklin M Loew suggested in June of 1986, that the Tufts Center for Animals should organize a workshop to explore the growing furore over “pit bull terriers.” The city of Lynn in Massachusetts had recently passed an ordinance restricting pit bull ownership and other cities and municipalities were considering similar legislation. Breed-specific legislation has seldom been reported to have been accompanied by a reduction in dog bites. Those individuals who want to have an aggressive dog simply switch to another breed (in Lynn, a local veterinarian reported that the number of pit bull terriers in his practice fell but the number of rottweilers increased to take the place of the pit bull terriers.

There are at least two examples of municipal policies that have been accompanied by a fall in dog bites and aggressive dog incidents. In Multnomah County, Michael Oswald (1991) reported on a program that classified dogs according to reported aggression against animals and people. As the classification level increased, the owner was required to take measures to prevent the dog attacking animals or people and to have appropriate insurance to cover any injuries caused by their dogs. Owners could appeal the classification to a special court set up for the purpose but most owners did not make use of this process but more than 90% of owners of the dogs placed in the most aggressive category did appeal. In this way, owners were afforded due process but the public was protected. The number of dogs who were involved in repeat aggressive incidences fell by two-thirds after the new classification scheme was established. In Calgary, the local animal control agency established a program of fining owners when their dogs attacked another animal or a human. The fines increased substantially if a particular dog engaged in repeated attacks. The number of incidents of dog aggression in Calgary fell dramatically over two decades (Bruce et al, 2015; Caffrey et al, 2019). These two municipal approaches to dog bite incidence did not rely on establishing breed-specific policies - instead, dog owners were held accountable for the behavior of their dogs.

Dog bites are a problem wherever people keep dogs. It is the price that humans pay for choosing to share their lives with a social carnivore. However, most of us who have been bitten by dogs suffer little or no lasting damage and the experience does not produce a negative attitude toward dogs (Beck and Jones, 1985). In a study of one county in Pennsylvania, Beck and Jones (1985) found that, while

17.3% of children aged 5-14 were bitten, the actual reported bite rate in the county for this age group was only 0.46%. Thus, less than three percent of actual bites were reported. Of the children who had been bitten in their lifetime, 38% had received medical attention - an indication of the perceived seriousness of the bites. However, there are relatively few bites that need sutures or hospitalization. According to two surveys in Baltimore, only 6-10% of reported bites required suturing (Berzon and DeHoff, 1974 and DeHoff and Ross, 1981) and very few reported bites (0.78%) are "severe" (Wright, 1985).

Nonetheless, many people will be startled or frightened as a result of dog aggression and a cottage industry of behaviorists has developed, in large part to deal with the aggressive behavior of owned animals. Society has the right to expect animal owners to control their animals and we should all work towards the minimizing of dog bite rates, especially the incidence of "severe" bites. Some attempts have been made to address dog attacks in the wake of the pit bull hysteria that swept through the nation's media in the mid-1980's by banning specific breeds of dogs, specifically pit-bull terriers. However, such actions have not proved to be particularly effective. For example, in the wake of the banning of pit bull terriers in the town of Lynn, Massachusetts several years ago, one local veterinarian reported that while he was seeing fewer pit bull terriers (down from over 300 to around 200 in his practice), he was dealing with many more Rottweilers (up from 25 to 150 - Anon, 1987). Nonetheless, the concern over pit bull terriers led to a number of attempts to quantify the relative risk of being bitten by specific breeds of dog.

Breed Specific Bite Rates - Some Historical Analyses

Determining the relative risk (RR = the number of observed bites divided by the number of expected bites) for different breeds with any level of confidence is very difficult given the paucity and poor quality of the data available. Reported dog bites are not a reliable and representative index of actual dog bites. Beck and Jones (1985) reported that bites by strays were more likely to be reported than bites by owned animals. However, the data on reported dog bites is more reliable than the data on the number of animals of any specific breed in the canine population. Dog license statistics are rarely complete (if a community has 50% of the dogs in households licensed, they are considered to be doing very well and some breeds are much more likely to be licensed than others). Apart from the lack of good dog demographic data, people also tend to be rather cavalier in their classification of dogs by breed and are likely for example, to call any large black and tan dog a German Shepherd.

The poor quality of the data has not stopped people from attempting to draw conclusions about the Relative Risk posed by different breeds. Both Hoffard (1984)

and Multani and Clifford (1985) point a finger at "pit bull terriers" as having higher bite rates than other breeds.

Hoffard (1984) cites a paper on human fatalities due to dog attacks by Pinckney and Kennedy (1982). The paper noted that, of 73 fatalities, the bull terrier (pit bull) was responsible for the highest number of deaths in relation to the small number of dogs registered. In fact, pit bull terriers were responsible for 6 deaths compared to 8 by the Saint Bernard, 9 by the Husky and 16 by the German Shepherd. Using AKC statistics, Pinckney and Kennedy report that there were only 929 registered Bull Terriers compared to 17, 537 Saint Bernards, 20, 598 Huskies and 74, 723 German Shepherds. Multani and Clifford (1985) also cited Pinckney and Kennedy (1982) as well as a study by Wright (1985) that reported that, of sixteen severe dog bites in five South Carolina counties in a three year period, 6 involved pit bull terriers. As a result, Multani and Clifford (1985) conclude that "the total number of dog bites, serious bites and deaths is unproportionately greater for adult, male pit bulls which has led to the conclusion that they are dangerous animals." It must be stressed that the above conclusions drawn from the studies by Pinckney and Kennedy (1982) and Wright (1985) are not necessarily supported by the data.

Brisbin's (1984) analysis of the Pinckney and Kennedy (1982) report points up the basic error. Pinckney and Kennedy used 1976 AKC registration figures (Table 1) but the main pit bull terrier registry has always been the UKC. If one adds UKC statistics to Table 1, the number of bull terriers should be increased by approximately 23,500. Since the UKC does not register the other identified breeds in the Pinckney and Kennedy study, their numbers would not change. As a result, the relative fatality rate using breed registration as an index of total dog population (which is probably also inappropriate since anecdotal data indicates that pit bulls are much less likely to be registered than, say, German Shepherds) should be as shown in the last column of Table 1. Therefore, using appropriate registration figures, one should conclude that Malamutes, St. Bernards, Huskies and Great Danes are more dangerous than pit bull terriers. Even though these calculations are an improvement on Pinckney and Kennedy (1982), registration figures are still a poor index of actual breed incidence in the community.

The study by Wright (1985) identified sixteen severe dog bites (all by male dogs) over a three year period (1979-1982) in five South Carolina counties. Of these, 6 were attributed to bull terriers or bull dogs, 4 to St. Bernards or St. Bernard mixed breeds, 3 to Cocker Spaniels or Cockerpoos and one each to a Rottweiler, Husky and Irish Setter. This does represent a high proportion of bull terriers in the sample, even given the possibility that pit bull terriers are popular dogs in South Carolina.

TABLE 1: FATALITIES CAUSED BY DOG ATTACKS (FROM PINCKNEY AND KENNEDY, 1982)

<u>BREED</u>	<u>No. REGISTERED</u>		<u>No. OF DEATHS</u>	<u>FATALITIES/1000 REGISTERED</u>	
	<u>AKC (1976)</u>	<u>AKC + UKC</u>		<u>AKC</u>	<u>AKC + UKC</u>
G. Shepherd	74,723	74,723	16	0.240	0.240
Husky	20,598	20,598	9	0.437	0.437
St. Bernard	17,537	17,537	8	0.456	0.456
Bull Terrier	929	24,429	6	<u>6.458</u>	<u>0.236</u>
Great Dane	19,869	19,869	6	0.302	0.302
Malamute	8,324	8,324	5	0.600	0.600
G. Retriever	27,612	27,612	3	0.109	0.109

NOTE: One death was caused by a Rottweiler, of which there were 1400 registered, giving a fatalities per 1000 figure of 0.714

However, there were signs that four of the six animals had been involved in fighting and the sub-population of pit bull terriers used in fighting is undoubtedly a disproportionately dangerous group of animals. It is also interesting to note the high proportion of St. Bernards and Cocker Spaniels in the sample. Anecdotal reports indicate that unknown male Cocker Spaniels are treated with caution by veterinary personnel.

Neither Pinckney and Kennedy (1982) nor Wright (1985) provide much help in determining the breed-related Relative Risk of bites. However, two earlier studies attempted to determine these statistics. In 1959, Parrish et al (1959) reported a study of 947 bites in a two-month period in Pittsburgh. Working dogs (G. Shepherds, Huskies, Great Danes, St. Bernards, Dobermans, Boxers and Collies) were more likely to bite than any other group. Sporting dogs (Setters, Pointers, Retrievers and Spaniels) also had a higher bite rate than expected. Hounds and terriers had a lower bite rate than expected.

In Baltimore, Berzon (1978) reported the bite rate statistic for various breeds between 1974 and 1976. Mixed breeds had higher bite rates than expected (32.1% of bites attributed to mixed breeds although they accounted for only 25% of the registered animals). However, G. Shepherds had much higher bite rates (45% of total bites compared to 23% of registrations) than expected. Only the Collie, Doberman and Spitz of the other breeds accounted for more than 1% of the bites

each. The Collie was involved in fewer bites (2.8%) than expected whereas the Doberman and Spitz produced the expected number of bites. Once again, it must be stressed that registration (licensing) figures are not necessarily an accurate reflection of the actual numbers of different breeds of dogs. For example, it is likely that mixed breeds will be underrepresented in the licensed population.

In addition, the data before the 1980s probably does not reflect the rise of the pit bull terrier (an ill-defined breed – dogs identified as pit bull terriers can range from 35-90 lbs in weight) as the dog of choice in the inner city and for guarding questionable and illegal activities. Pit bulls began to dominate the statistics of fatal dog attacks in the 1980s. {NEED TABLE}

Several animal control agencies have begun to examine their registration and bite statistics to try to determine whether certain breeds cause more problems than others. In 1986, a report from Florida of dog bite incidence by breed was published (Miller, 1986). Table 2 shows some of the data including license registration statistics, numbers of dogs impounded, and the reported bites associated with each breed. Miller does not attempt any sophisticated analysis but does conclude that large breeds roam and bite more than small dogs and that pit bulls are overrepresented in the biting population.

From the table, it appears as though pit bull terriers are over-represented in the biting population. But this assumes that license statistics are an accurate representation of the total dog population. What if pit bull terrier owners had a character trait (such as a dislike of bureaucracy or a frontier-type independence) that make them less likely to license their dogs? That would mean that the license statistics are flawed (most animal control operations are doing well if they have 50-60% of the dogs licensed) and would consequently underestimate the total number of pit bull terriers.

If one considers impoundment figures to be a better indication of total number of dogs in the population (although it has been shown that larger dogs are over-represented in the shelter population - Nassar et al, 1984), then the chows and pit bull terriers (and perhaps the G. Shepherds) are associated with more bites than would be expected while Schnauzers, Poodles, Golden Retrievers, Irish Setters, Collies and Labradors (and perhaps Huskies) are associated with fewer bites than expected. However, impoundment figures may not correlate particularly well with dog bites since stray dogs account for only about 10% of all bites (Beck and Jones, 1985).

Table 2: Dog License Numbers, Impoundments and Bites by Breed, Pinellas County, Florida (from Miller, 1986)

<u>Breed</u>	<u>Number Licensed</u>		<u>Impounded</u>		<u>Bites</u>	
	<u>Number</u>	<u>% Total</u>	<u>Number</u>	<u>% Total</u>	<u>Number</u>	<u>% Total</u>
Boxer	503	1.4	12	1.1	1	0.5
Chihuahua	1,211	3.3	17	1.5	3	1.4
Chow & Chow Mix	782	2.1	29	2.6	11	5.1
Cockerpoo	1,338	3.6	29	2.6	7	3.3
C. Spaniel	2,171	5.8	33	2.9	8	3.7
Collie & Mix	981	2.6	34	3.0	3	1.4
Dachshund	2,236	6.0	21	1.9	5	2.3
Doberman	2,518	6.8	114	10.1	20	9.3
G. Retrieval	1,392	3.7	36	3.2	3	1.4
Husky	632	1.7	40	3.5	4	1.9
Ir. Setter	570	1.5	24	2.1	0	0.0
Labrador	1,683	4.5	92	8.1	10	4.7
Lh. Apso	1,409	3.8	16	1.4	3	1.4
Pit Bull & Mix	1,378	3.7	111	9.8	38	17.8
Schnauzer	1,834	4.9	23	2.0	1	0.5
G Shepherd & Mix	6,825	18.3	346	30.6	79	36.9
Shih Tzu	976	2.6	10	0.9	1	0.5
Terrier	1,622	4.4	55	4.9	11	5.1

Palm Beach County Animal Control has also collected data on bites and breed registration statistics (Dennis Moore - personal communication, 1988) and some of the data is presented in Table 3. They also identified how many bites were due to registered animals so one could not criticize this data (see last two columns of Table 3) because registered animals are not representative of the total population of the breed. Their data indicates that Chows and pit bull terriers were disproportionately represented with the German Shepherd and Rottweiler in the next tier.

Table 3: PALM BEACH COUNTY ANIMAL CONTROL, 1985-1986 DOG BITES
(Dennis Moore - Personal Communication)

<u>BREED</u>	<u>REGISTERED</u>	<u>BITES</u>	<u>% OF REGISTERED</u>	<u>BITES BY REGISTERED ANIMALS</u>	<u>%</u>
G. Shepherd	6,102	398	6.5	239	3.9
Poodle	4,044	*	*	*	*
Lab Retriever	3,621	121	3.3	65	1.7
Doberman	3,181	139	4.3	49	1.5
Cocker Spaniel	2,273	44	1.9	33	1.4
Pit Bull Terrier	1,802	230	12.3	120	6.4
Golden Retriever	1,849	*	*	*	*
Terriers	1,758	70	3.9	34	1.9
Dachshund	1,335	*	*	*	*
Lhasa Apso	1,138	*	*	*	*
Rottweiler	958	40	4.1	32	3.3
Chow	332	38	11.4	22	6.6

The last example of an analysis of breed-specific bite rates comes from Oregon (Oswald, 1991). Multnomah County animal control has been evaluating the impact of its dangerous dog ordinance and has kept data on the breeds of the dogs classified as 'dangerous' (on a 1-5 scale where 1 identifies a dog as potentially aggressive and 5 is for a dog that has killed another animal and/or injured a human seriously enough to warrant treatment). Table 4 compares the percentages of those animals classified as dangerous with the percentage of the same breeds that have been impounded or that have been registered. The ratios (Classified/Impounded and Classified/Registered) provide some sense of dogs that are over-represented in the "aggressive" population. Note that the pit-bull is less likely than the other breeds to be registered (licensed - compare the ratio of Impounded dogs to Registered dogs).

TABLE 4: MULTNOMAH COUNTY DATA: ANALYSIS OF 'DANGEROUS' DOGS BY BREED

<u>BREED</u>	<u>% CLASSIFIED</u>	<u>% IMPOUNDED</u>	<u>% REGISTERED</u>	<u>CLASS./IMP.</u>	<u>CLASS./REG.</u>
German Shepherd	24	13.8	11.0	1.8	2.2
Pit Bull	16	6.3	2.3	2.5	7
Labrador	10	11.0	9.7	1	1
Doberman	7	2.3	2.7	3	2.6
Australian Shepherd	5	1.7	2.1	3	2.3
Chow	4	0.8	1.1	5	3.8
Rottweiler	4	0.4	1.0	10	4

Once again, the pit bull terrier comes out on top of the list (in terms of dangerousness) when one compares aggressive animals with registered animals but a comparison with impounded animals (probably a more reliable index of dogs actually on the street), indicates that there are several other breeds that are just as problematic.

Despite the more recent data, the only thing that can be said with certainty regarding breed-specific data on dog bites is that the figures are subject to a number of different interpretations. There is some suggestive evidence that pit bull terriers, Chows, Rottweilers and German Shepherds may be somewhat over-represented but better data are required. It must also be noted that bite rate incidences are likely to change with time and place as the popularity of different breeds (and strains within breeds) changes.

Severity of Bites

The Pinckney and Kennedy (1982) study reported data on 73 fatalities, 51 of which occurred during a five year period ending on April 30, 1980. They did not provide a breakdown of the breeds involved over this period so it is not possible to determine if there were years when some dogs were more prominent than other. However, pit bull terriers represented 7.5% of the dogs involved in the fatal attacks. By contrast, Wright's (1985) data on severe dog bite injuries spanned a three year period ending June 30, 1982 and pit bull terriers represented 37.5% of the total number of dogs involved. For a two-year period ending June 20, 1987, the Humane Society of the United States (HSUS) collected reports of 22 fatalities attributed to dog attacks. Pit bull terriers were involved in 15 - or 68% - of the attacks (K. Rindy - personal communication, 1987).

A larger analysis covering the period from 1979 through 1988 identified 157 deaths attributed to dog attacks (Sacks et al, 1989). Pit bull terriers were involved in 42 of the 101 deaths where the breeds of the dogs were identified, almost three times as many as German shepherds, the next most commonly reported breed. The incidence of pit bull terrier involvement increased from 20% in the first two years to 62% in the last two.

While the pit bull terrier population appears to have been rising in recent years - for example the Michigan Humane Society took in 1,200 pit bull terriers out of a total of 20, 802 dogs in 1986 or 5.8% of the shelter population (E. Liska - personal communication, 1987) - the data reported by Wright (1985), the HSUS and Sacks et al (1989) indicate that pit bull terriers are greatly over-represented in the severe or fatal bite cases. As Lockwood and Rindy (1987) comment, this can be expected

from their attack behavior patterns. Human owners have selected for behavior which results in infliction of maximum damage in the shortest possible time.

In addition, in the last five to ten years, it appears as though urban dog fighting and the use of pit bull terriers as guard dogs for illegal activities has increased. Therefore, it is not surprising that the proportion of dog-attack fatalities involving pit bull terriers has increased. By the same token, there does not appear to have been a large overall increase in dog attack fatalities that might have been expected if pit bull terrier attacks added a new dimension to the dog attack problem. Instead, it seems as though those individuals who, for whatever reason, seek out aggressive and potentially dangerous dogs, have been choosing pit bull terriers instead of Dobermans or some other breed in the past decade.

It should, however, be noted that the above studies also indicate that St. Bernards, Huskies and Chows, Rottweilers, any wolves or wolf cross-breeds and German shepherds should be included among those breeds that attract unscrupulous and anti-social owners who want an aggressive dog.

Gameness and Pain Tolerance

It may be, however, that the selection process that produced the pit bull terrier may have added certain qualities that make attacks by these animals particularly fearsome. For example, pit bull terriers have been selected for "gameness" - namely, the willingness to continue to attack despite exhaustion or grievous injuries. It is not clear what the molecular or neurochemical bases of "gameness" might be but it is certainly possible that an increased pain tolerance might be part of the phenomenon. One of the central elements of most accounts of pit bull attacks is the difficulty that rescuers experience in getting the dog (or dogs) to stop their attack. Thus an aggressive animal that is also very difficult to deter or stop is especially dangerous.

Veterinarians report that certain dogs seem to show less pain and seem to be more stoic than others. Hounds and pit bull terriers are generally regarded as falling into the stoic category. Thus, the Clifford et al (1983) report of some pit bull terriers confiscated from a dog fight stated that "compared with other dogs, the fighting dogs appeared to react less to IV and IM injections and to be less sensitive to pain."

Aggression Behavior

Lurid adjectives have been applied to pit bull terriers as the descendants of vicious Roman "war dogs" or as the descendants of 19th century fighting and guard animals. However, our understanding of the factors leading to aggression by pit

bull terriers and the other problem breeds listed above is, to say the least, incomplete. There is evidence that there are genetic factors that control aggressive behavior but upbringing and environment also play an important role. Most of the controlled studies on aggression have employed rats and mice rather than dogs but it is likely the principles are similar in both rodents and canines.

Inbred mouse strains vary considerably in their level of aggressiveness (Maxson, 1990). For example, the DBA strain is nearly always more aggressive than the C57 strain although environmental conditions such as low lighting or crowding modify the relative aggressiveness of the strains (Palmour, 1983). Palmour (1983) also reports that studies have shown that aggressive behavior can be developed quickly - selective breeding of mice produced strain behavioral differences within only three generations. If this is also true of dogs, it has important implications for the speed with which the behavior of a particular breed can be changed.

The above reports represented only a fraction of the studies on aggressive behavior in animals but they are reported here to illustrate two points: (1) there are genetic controls on aggressive behavior, and (2) aggression can be bred into or out of a population very quickly.

Finally environment also has important effects on behavior. Isolation, lighting and other variable affect the level of aggression in mice and there is ample anecdotal evidence that environmental factors and training can change aggressive behavior in dogs.

Controlling the Problem

The problem of vicious dogs, as exemplified by pit bull terrier attacks, has grown steadily worse during this decade. Since 1980, when the city commission of Hollywood, Florida passed an ordinance requiring special registration for pit bull terriers, communities all across America have made various attempts to ban or restrict these animals. According to Marmer (1984), these ordinances represent a new development in municipal police power legislation because they attempt to classify a single breed (or a few breeds) of dog as inherently dangerous. Their constitutionality has been challenged because the ordinances raise questions about dog owners' fourteenth amendment rights of due process and equal protection. In addition, the ordinances have been challenged on the basis that it is impossible to identify reliably a dog as a pit bull terrier. Animals known as pit bull terriers (and hence classified as such in bite and dog attack reports) come in a variety of shapes and sizes.

In 1982, the Everglades Pit Bull Dog Club challenged the Hollywood ordinance on the grounds that it was vague, arbitrary and unfair in violating due process rights.

They won their case. In 1987, an ordinance in Lynn, Massachusetts, forbidding the acquisition of pit bull terriers was overturned by a Superior Court Judge but another feature of the ordinance that banned the dogs from roaming the streets was upheld. In other parts of America, specific pit bull terrier ordinances have survived court challenges.

A less contentious and, I believe, a more effective approach to the problem is to take action against all dangerous or potentially dangerous dogs regardless of the breed. For example, the data available on dog bites and severe injuries from dog bites indicates that, if one is going to develop a breed-specific ordinance, the ordinance should include not only pit bull terriers but also St. Bernards, Huskies, G. Shepherds, Chows (and Akitas ?) and perhaps even Cocker Spaniels and Cockerpoos. Ultimately, it does not matter what the breed, if it is dangerous or potentially dangerous then the community should take appropriate action to minimize the danger.

Two states have passed laws regulating vicious or dangerous dogs - Rhode Island (1985, amended 1986) and Washington (1987). In order to own a "dangerous" dog, the owner must obtain a certificate of registration (not applied to police dogs) from the relevant city or county animal control authority. Such a certificate will only be issued if the owner provides evidence that he or she has a "proper enclosure" equipped with a suitable warning sign, that he or she has a surety bond of at least \$50,000 and that he or she has liability insurance of at least \$50,000. If the dangerous dog is outside the proper enclosure it must be muzzled and leashed and under the control of a responsible person. "Potentially dangerous" dogs are to be controlled by whatever local ordinances the community deems to be necessary. Finally, dogs are not to be declared dangerous if the threat or injury was sustained by a person who was committing a trespass, who was intent upon some crime, or who was tormenting or abusing the animal.

The penalties under the statute include confiscation of the dog if the dog is not validly registered or kept in the enclosure. The owner is liable to be guilty of a gross misdemeanor if the dog is outside the proper enclosure and not restrained by the owner. If a dangerous dog of an owner who has a prior conviction under the relevant statute bites any person or animal, the owner is guilty of a class C felony. The owner of any dog that causes severe injury or death to any human shall be guilty of a class C felony.

As can be seen, the Washington statute establishes severe penalties for people who do not adequately control dogs that are likely to bite and cause severe injury. It also provides for the possibility that local communities might wish to restrict dogs that have a proven or suspected tendency to bite. Given the current attitude of

most people, it is likely that pit bull terriers of all types would be included in the "potentially dangerous" category.

However, there are no data evaluating the effectiveness of the Rhode Island or Washington approaches. Recently, an article evaluating the impact of a dangerous dog ordinance in Multnomah County, Oregon (the county in which Portland is situated) was accepted for publication in *Anthrozoös* (Oswald, 1991). Beginning in July, 1986, a dangerous dog ordinance that identified and restricted dangerous dogs according to a 5-part classification scheme was put into effect in Multnomah County. In the three years since, 1,652 dogs were classified as potentially or definitely dangerous (see Table 5). This represents about 0.5% of the dog population each year.

Statistics on the breed distribution were also reported (Table 6) from which one can see that bites from Chows, Rottweilers, Cocker spaniels and Labradors respectively were likely to cause the most severe injuries (categories 3 and 4). In terms of overall numbers, German shepherds were the most likely to be implicated in severe injury while pit bull terriers were surprisingly low on the severity scale given the experience elsewhere.

According to the data, the ordinance has had a very beneficial impact. In the five years prior to the ordinance, 25% of those dogs involved in reported attacks or biting incidents repeated the offence within one year. However, in the three years since the start of the ordinance, one-year repeat offenders have fallen to 7% of the classified animals.

Table 5: Classification of Dogs (7/1986 - 6/1989)

<u>Classification Level</u>	<u>Number</u>	<u>%</u>
<u>1</u> (menace, threat)	808	48.9
<u>2</u> (injures animal)	117	7.1
<u>3</u> (injures person while confined)	155	9.4
<u>4</u> (injures person while at large)	526	31.8
<u>5</u> (causes serious injury)	46	2.8

(0.53% classified per year)

Table 6: RELATIVE HUMAN INJURY RATES FROM DOG ATTACK FOR A FEW SELECTED BREEDS

<u>BREED</u>	<u>BITE SEVERITY (% OF BITES)</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
G. Shepherd (398)	35	53	11	1
Pit Bull (239)	35	58	6	1
Doberman (139)	30	58	11	1
Labrador (130)	39	47	13	1
Hound (68)	32	63	4	1
Terrier (70)	54	43	3	0
Cocker Spaniel (44)	23	61	16	0
Rottweiler (40)	23	60	17	0
Chow (38)	32	47	18	3

-
- 1- Superficial bite
 - 2- Bite required first aid
 - 3- Bite required professional treatment
 - 4- Bite required hospitalization
-

Conclusion

Dog aggression is one urban problem that the public really should not have to worry about. People must be urged or coerced into taking appropriate steps to stop keeping aggressive and, hence dangerous dogs or be required to set up appropriate measures to keep such dogs away from their neighbors. Loew and Fraser (1977) have argued that it is in the interests of responsible dog owners to impress upon irresponsible owners that they must prevent anti-social behavior by their dogs. In one flippant sense the ideal pet dog would be toothless, sterile, silent and constipated to be suited for life in an urban environment. However, one need not proceed to such an extreme. Selective breeding for more appropriate and docile behavior would go a long way toward addressing one real and pressing public health problem - dog bites. As Loew and Fraser (1977) comment:

"Applied ethology has established that heredity affects behavior very considerably and that selective breeding in domesticated animals is capable of modulating their behavior. This basic fact is the ethological long-term answer to many of the problems somewhat unfairly attributed to dogs, now subjected to city life for which man did not breed them, and to society's criticisms."

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APPENDIX: EXCERPTS FROM STUDY BY M MCGUILL ON DOG AGGRESSION

An astonishing number of animals are killed in shelters each year because their owners choose not to live with or resolve their pets' behavior problems. According to animal shelter administrators interviewed for this study, aggressive behavior is the most common behavior problem that leads to people giving up a dog to a shelter. Of the 50,000,000 dogs in the U.S., roughly 8 to 10 %, or 4,000,000 to 5,000,000, are euthanized in shelters. Of this figure, an estimated 5%, or 200,000, are killed because they are considered too aggressive.

Dog aggression, by virtue of its connections with physical harm to humans, seems a more serious behavior problem than one that inconveniences the owner with a dog's toilet problems or causes harm to property. If your neighbor gives away his dog for chewing the rug, you might consider him irresponsible. If your neighbor's dog bites her two-year-old son in the face, you will probably find less fault with her decision to take the dog to the local shelter. Even if an aggressive dog has not bitten, the mere presence of certain behaviors indicates that it might one day bite someone, and the threat of human injury adds to the perceived seriousness of the problem.

Modifying or eliminating aggressive dog behavior is the responsibility of the owner. A variety of animal professionals, including animal behaviorists, trainers, and veterinarians, provide expert counsel for dog owners and therapy for their dogs. If dog aggression becomes a public matter, however, the town or city government must step in.

Several animal professionals were interviewed for this study, including those in the fields of animal behavior, animal shelter administration, and animal control.

Since 1976, Sue Webb has been the Animal Control Officer of Wellesley, Massachusetts, an affluent suburb of Boston. Webb is also the New England regional representative for the National Animal Control Association (NACA). By instituting a variety of public education programs and promoting the passage of several town ordinances, Webb managed to decrease the incidence of dog bites in Wellesley.

Noting that intact male dogs are primary offenders, Webb successfully pushed to increase the licensing fee for such dogs from \$4 to \$20. Second, she strengthened the leash law. Dog owners receive a warning the first time their dog is caught loose, but a second offense incurs a \$50 fine. Third, since 1976, she has worked with public school children at every level to educate them about how to behave

around strange dogs, how to act if a dog becomes aggressive, and how to notify the animal control officer about stray dogs.

When asked how she counsels owners of seriously aggressive dogs, particularly repeat offenders, Webb said she often suggests an either/or approach: seek the help of a professional, such as an animal behaviorist or trainer experienced in correcting behavior problems or have the dog euthanized. Webb counsels these owners against placing the dog elsewhere, especially in a shelter. She recounted the time she argued before the Wellesley Board of Selectmen that a dog, guilty of multiple bites, ought to be destroyed. Instead of taking Webb's advice, the selectmen gave the owners 24 hours to remove the dog from the town's premises. A few days later, out of curiosity, Webb visited an animal shelter in a nearby town. The dog was kenneled there. It had been adopted for a short time but had been returned for biting a member of the adopter's household, a young boy. When Webb checked the shelter's records on the dog, she found that the owners had lied about the dog, saying simply that the dog barked at joggers.

Webb described two problems she faces in dealing with owners of aggressive dogs. The main hurdle is getting the owners to admit they have a problem dog. Often dog bite incidents that are reported to an animal control officer are not witnessed by the dog's owners. Consequently, the owners have difficulty believing that their dog, which may be docile and controllable in the home, is capable of vicious behavior outside of it. Even when the owners witness aggression, they may still deny it. In one instance Webb was invited into the home of a vicious dog, sat down, and was promptly bitten on the arm. Immediately, the owner pointed out to Webb that the bite had not broken the skin! Denial may be motivated by a desire for legal protection, since the owners' admission that their dog is vicious may be held against them in court.

Research by animal behaviorists has shed some light on the incidence of different types of aggressive behavior and breeds associated with aggression. Table A contains data on two groups of owners of aggressive dogs - those who sought professional help and those who came to the attention of the authorities in Boston because their animal bit someone.

Table B reports the incidence of dog bites in three Massachusetts communities. Boston and Revere's incidence of reported dog bites per 1000 dogs are roughly three times higher than Wellesley's. One study (Beck et al 1975) theorizes that dog bite is more common in lower socioeconomic regions for several reasons, such as fewer private homes with fencing, greater use of streets for recreation by residents, poorer dog control, and greater ownership of larger animals for protection.

Table A: Comparisons of Two Groups of Owners of Aggressive Dogs

	<u>Owners of Dogs Quarantined for Biting (n=21)</u>	<u>Animal Behavior Clients n=15</u>
Dog's sex	6F, 15M	4F, 11M
Dog's repro status	13 intact (1F, 12M) 8 neutered (5F, 3M)	1 intact (1M) 14 neutered (4F, 10M)
Where obtained dog	8 relative/acquaintance 8 shelter/stray 5 petstore/breeder 1 from litter of owned dog	2 relative/acquaintance 3 shelter/stray 8 petstore/breeder 1 from vet 1 ad in paper
Amount paid for dog	16: <\$50 5: >\$100	6: <\$50 9: >\$100
Most important reasons listed for getting dog	21 wanted companion 20 to give dog a home 12 liked appearance 10 for protection 8 for the children 3 for breeding	11 wanted companion 3 to give dog a home 2 for the children 1 liked appearance 1 for protection 1 for sport or work 1 companion for other dog
Freedom allowed dog outside	7 allowed to run free 14 on leash or under voice control	0 allowed to run free 15 on leash or home under voice control
Frequency of visits to vet	7 saw vet regularly 10 saw vet as needed 2 didn't visit vet	15 saw vet regularly
Respondent's gender	10F, 11M	14F, 1M

Demographics of Dog Ownership in Boston and Two Boston Suburbs with Incidence of Dog Bites

	Wellesley	Revere	Boston
Population	27,209	42,423	562,994
No. of occupied housing units	10,000	16,367	218,457
No. of dogs/household	0.40	0.35	0.29
% households owning dogs	33	25	25
5. estimated number of dogs	4,000	5,700	63,000
6. number of reported dog bites*			
1980	32		
1982			664
1988	13	49	628
7. incidence of reported dog bites per 1000 dogs			
1980	8		
1982			11
1988	3	9	10

* Number of reported dog bites for Wellesley and Revere obtained from animal control officers. For Boston, data obtained from Boston Animal Rescue League.

**FATALITIES CAUSED BY DOG ATTACKS (FROM
PINCKNEY AND KENNEDY, 1982)**

<u>BREED</u>	<u>No. REGISTERED</u>		<u>No. OF DEATHS</u>	<u>FATALITIES/1000 REGISTERED</u>	
	<u>AKC (1976)</u>	<u>AKC + UKC</u>		<u>AKC</u>	<u>AKC + UKC</u>
G. Shepherd	74,723	74,723	16	0.240	0.240
Husky	20,598	20,598	9	0.437	0.437
St. Bernard	17,537	17,537	8	0.456	0.456
Bull Terrier	929	24,429	6	<u>6.458</u>	<u>0.236</u>
Great Dane	19,869	19,869	6	0.302	0.302
Malamute	8,324	8,324	5	0.600	0.600
G. Retriever	27,612	27,612	3	0.109	0.109

NOTE: One death was caused by a Rottweiler, of which there were 1,400 registered, giving a fatalities per 1,000 figure of 0.714

Dog License Numbers, Impoundments and Bites by Breed, Pinellas County, Florida (from Miller, 1986)

<u>Breed</u>	<u>Number</u>		<u>Impounded</u>		<u>Bites</u>		
	<u>Licensed</u>	<u>% Total</u>	<u>Number</u>	<u>% Total</u>	<u>Number</u>	<u>% Total</u>	
<i>Boxer</i>	503	1.4	12	1.1	1	0.5	--
<i>Chihuahau</i>	1,211	3.3	17	1.5	3	1.4	-
<u>Chow &</u>							
<i>Chow Mix</i>	782	2.1	29	2.6	11	5.1	
<i>Cockerpoo</i>	1,338	3.6	29	2.6	7	3.3	
<i>C. Spaniel</i>	2,171	5.8	33	2.9	8	3.7	-
<u>Collie &</u>							
<i>Mix</i>	981	2.6	34	3.0	3	1.4	--
<i>Dachshund</i>	2,236	6.0	21	1.9	5	2.3	-
<i>Doberman</i>	2,518	6.8	114	10.1	20	9.3	
<i>G. Retrieval</i>	1,392	3.7	36	3.2	3	1.4	--
<i>Husky</i>	632	1.7	40	3.5	4	1.9	-
<i>Ir. Setter</i>	570	1.5	24	2.1	0	0.0	--
<i>Labrador</i>	1,683	4.5	92	8.1	10	4.7	-
<i>Lh. Apso</i>	1,409	3.8	16	1.4	3	1.4	-
<u>Pit Bull</u>							
<i>& Mix</i>	1,378	3.7	111	9.8	38	17.8	
<i>Schnauzer</i>	1,834	4.9	23	2.0	1	0.5	--
<u>G Shepherd</u>							
<i>& Mix</i>	6,825	18.3	346	30.6	79	36.9	
<i>Shih Tzu</i>	976	2.6	10	0.9	1	0.5	-
<i>Terrier</i>	1,622	4.4	55	4.9	11	5.1	

Multnomah County: Classification of Dogs (7/1986 - 6/1989)

<u>Classification Level</u>	<u>Number</u>	<u>%</u>
<u>1</u> (menace, threat)	808	48.9
<u>2</u> (injures animal)	117	7.1
<u>3</u> (injures person while confined)	155	9.4
<u>4</u> (injures person while at large)	526	31.8
<u>5</u> (causes serious injury)	46	2.8

(0.53% classified per year)

(From Oswald, M. 1991. Report on the Potentially Dangerous Dog Problem: Multnomah County, Oregon. Anthrozoos 4:247-254.)

**RELATIVE HUMAN INJURY RATES FROM DOG
ATTACK FOR A FEW SELECTED BREEDS - Multnomah
County (From Oswald, 1991 - see above)**

<u>BREED</u>	<u>BITE SEVERITY (% OF BITES)</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
G. Shepherd (398)	35	53	11	1
Pit Bull (239)	35	58	6	1
Doberman (139)	30	58	11	1
Labrador (130)	39	47	13	1
Hound (68)	32	63	4	1
Terrier (70)	54	43	3	0
Cocker Spaniel (44)	23	61	16	0
Rottweiler (40)	23	60	17	0
Chow (38)	32	47	18	3

-
- 1- Superficial bite
 - 2- Bite required first aid
 - 3- Bite required professional treatment
 - 4- Bite required hospitalization

PALM BEACH COUNTY ANIMAL CONTROL, 1985-1986 DOG BITES
(Dennis Moore - Personal Communication, 1990)

<u>BREED</u>	<u>REGISTERED</u>	<u>BITES</u>	<u>% OF REGIST.</u>	<u>BITES BY</u>	<u>% REGIST.</u>
<u>ANIMALS</u>					
G. Shepherd	6,102	398	6.5	239	3.9
Poodle	4,044	*	*	*	*
Lab Retriever	3,621	121	3.3	65	1.7
Doberman	3,181	139	4.3	49	1.5
Cocker Spaniel	2,273	44	1.9	33	1.4
Pit Bull Terrier	1,802	230	12.3	120	6.4
Golden Retriever	1,849	*	*	*	*
Terriers	1,758	70	3.9	34	1.9
Dachshund	1,335	*	*	*	*
Lhasa Apso	1,138	*	*	*	*
Rottweiler	958	40	4.1	32	3.3
Chow	332	38	11.4	22	6.6