AVMA

Animal Welfare Forum: Overpopulation of unwanted dogs and cats

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The purpose of the third Animal Welfare Forum, sponsored by the AVMA, was to examine the problem of overpopulation of dogs and cats. This is an issue that the AVMA has formally addressed previously. Many of the ideas presented at previous symposia have been implemented for 10 or more years, and we now can observe the successes and failures of those ideas.

The Animal Welfare Committee of the AVMA assembled a group of speakers that we thought would present all sides of the pet overpopulation issue. Although all of us may not agree with the philosophies of the speakers, we consider that all facets of the problem should be examined from all perspectives, so that together we can remedy this ever-present and unacceptable situation.—Dr. Sherbyn Ostrich, Executive Board

The following papers were submitted by the speakers at the 1992 AVMA Animal Welfare Forum, held at the Fairmont Hotel in Chicago. The Forum concluded with the presentation of the 1992 AVMA Animal Welfare Award to Dr. Thomas D. Williams of Monterey, Calif.

Contributions from the following sponsors ensured the success of the Forum: The Cat Fanciers' Association, Inc; Ciba-Geigy Animal Health; Eastman Kodak Company; Friskies PetCare Company; Gaines CYCLE Dog Food; Hartz Mountain Corp; Hill's Pet Products; Hoechst-Roussel Agri-Vet Company; Hoffman-La Roche, Inc; Johnson & Johnson; Merck AgVet; Nabisco Foods Company; Pfizer, Inc; The Procter & Gamble Company; Schering-Plough Animal Health; Mrs. Dona Singlehurst, Waialua, Hawaii; SmithKline Beecham Animal Health; The Upjohn Company; Waltham.

Readers interested in a summary of the remarks of Dr. Bernard Rollin, Colorado State University, from the Forum are urged to consult his commentary, "Social ethics, veterinary medicine, and the pet overpopulation problem" (JAVMA, Apr 1, 1991, pp 1153-1156).

The AVMA Animal Welfare Forum is an annual event that is planned by the AVMA Animal Welfare Committee under the direction of the AVMA Executive Board. For additional information about the Forum or the Animal Welfare Award, please contact the AVMA Division of Scientific Activities.

New developments in small animal population control

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Improved methods for preventing or terminating unwanted pregnancies could reduce the numbers of pups and kittens destined to become abandoned or relinquished in the United States each year. National estimates for numbers of animals euthanatized in US animal shelters were 5.4 to 9.1 million for dogs and 5.7 to 9.5 million for cats in 1990.[1] Methods to prevent or abort unwanted pregnancies will be effective in reducing pet overpopulation only if they are readily used by the pet owner or guardian (ie, are affordable, reliable, safe, and convenient) and are used prior to the birth of any litter of pups or kittens. According to a study of 500 Massachusetts pet-owning households,[a] 73 and 87% of all dogs and cats, respectively, in these homes had been neutered. However, approximately 20% of all neutered animals had been allowed to reproduce prior to neutering. Although neutering an animal decreases the future number of unwanted animals, pet overpopulation can be propagated when "just 1 litter" is allowed to be born.

Two cats producing 8 kittens per year could be the progenitors of 174,760 cats in 7 years (assuming a 50% sex ratio and no kitten mortality), even if each cat is allowed to reproduce for only 1 year. The number becomes even greater (781,250) if female cats are allowed to continue producing 8 kittens per year. Therefore, for any surgical or nonsurgical method of preventing pregnancy to eliminate pet overpopulation, that method must be used on most pets and must be used prior to the birth of any litter. With 11.1 to 18.6 million dogs and cats, some the result of unwanted pregnancies, being destroyed annually, providing owners with reliable abortifacients also may be necessary. Assuming an average litter size of 5 for dogs and cats, 2.2 to 3.7 million pregnancies would need to be terminated annually to prevent the births of pups and kittens destined to become discarded.

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[a]*Massachusetts Society for the Prevention of Cruelty to Animals (MSPCA) spay/neuter survey summary.* Boston, Dorr Research Corp, 1992.

Preventing Pregnancy

Chemical sterilization—When chemical sterilants are injected into the ductus deferens, epididymides, or testes, azoospermia may result. Chlorhexidine gluconate, alone or in dimethyl sulfoxide (DMSO); ethylcellulose in DMSO and formalin; chlorhexidine in ethylcellulose[2,3]; zinc tannate[b]; zinc arginine[c,d]; and acrylic hydrogel N-50 and N-90 dissolved in DMSO[4] have been used as chemical sterilants in male dogs. Serum concentrations of androgens change little when chemical sterilants are injected into the ductus deferens or epididymides. Thus, the risk of developing androgen-dependent disorders (ie, prostatic disease or androgen-dependent tumors), androgen-dependent behaviors (ie, urine marking, mounting animals, fighting, or aggressive behavior toward other males), and gonadal diseases are not reduced. However, production of androgens, as well as of spermatozoa, may be interrupted when chemicals are injected directly into the testes. Intratesticular injection of zinc tannate resulted in azoospermia and decreased testosterone production, effects which were correlated with the administered dose.[b]

Intraepididymal injections of an aqueous solution of chlorhexidine digluconate into the epididymides of cats did not always result in permanent azoospermia.[5] Studies on the effects of intratesticular injection of chemicals in cats have not been reported.

Zona pellucida vaccine—The zona pellucida (ZP) is an extracellular matrix that surrounds the oocyte and has unique biochemical, physiochemical, and immunochemical properties. Under natural conditions, spermatozoa must traverse the ZP before fertilization can be completed. Antibodies to ZP theoretically prevent spermatozoa from binding to the ZP.

[b]Fahim MS, Fahim Z, Harman JM. Chemical sterilant for dogs (abstr). *Arch Androl* 1982;9:13–15.

[c]Bouchard G, Youngquist RS, Fahim M, et al. Chemical sterilization in puppies (abstr), in *Proceedings*. 24th World Vet Congr 1991;172.

[d]Fahim MS, Wang M, Sutcu MF, et al. Chemical vasectomy in sexually mature dogs (abstr), in *Proceedings*. Int Symp Adv Contracept Contragest 1991.

Infertility was induced when bitches were immunized with isolated and solubilized porcine ZP and Freund's adjuvant.[6] Unfortunately, all bitches immunized with the porcine preparation had abnormal estrous cycles, characterized by prolonged proestrus and/or estrus. Serum concentrations of progesterone did not increase during estrus, suggesting ovulation failure; follicular cysts were the most consistent finding in bitches immunized with crude porcine ZP. In a subsequent study,[7] different types of ovarian cysts were found, depending on whether crude ZP or partially purified ZP was used for immunization; this study suggested that the purity of the ZP preparation may have influenced the development of ovarian cysts.

The persistent increases in serum concentrations of estrogens and the prolongation of proestrus/estrus with use of this technique would be undesirable; not only would bitches attract males and have a serosanguineous discharge from the vulva, but they also would be at risk for various disorders. The risk of developing mammary neoplasia is lowest for bitches spayed prior to the first estrus[8]; increased serum concentrations of steroid sex hormones from follicular cysts could increase the risk of mammary cancer. Persistent increases in serum concentration of estrogens could lead to thrombocytopenia, leukopenia, and anemia. Additionally, bitches with functional ovarian cysts may be at risk for developing pyometra. Some studies have suggested that, depending on the type and purity of the ZP immunogen administered and the age and species of the animal inoculated, antibodies that directly inhibit ovarian function may be produced against the ZP. Such an alteration not only reduces the numbers of primary, secondary, and tertiary follicles, but also reduces production of steroid sex hormones.[9] Development of recombinant ZP proteins for vaccinating dogs and cats is currently being attempted.[e] Such a vaccine would seem promising if vaccination of prepubertal animals completely obliterated ovarian function.

Tissue-specific cytotoxins—Permanent contraception in females and males might be achieved by administration of a cytotoxin that is linked to gonadotropin-releasing hormone (GnRH) and that selectively destroys gonadotropin-secreting pituitary cells. Similarly, a cytotoxin linked to antibodies against gonadotropin receptors could be targeted to alter gonadal function. Toxins would need to be carefully targeted to specific cells, yet be safe for all other body tissues.[10]

Steroid-hormone suppression of reproductive function—Various steroid hormones have been shown to suppress ovarian cyclicity and alter spermatogenesis. Suppression of reproductive function is variable, however, and is related to the species, the sex of the animal, and the type of steroid administered.

Progestins—Progestins induce anovulation in bitches and have been marketed in the United States for contraceptive use in dogs. The mechanism of action, however, is still uncertain. Mean serum concentrations of luteinizing hormone (LH) were unchanged in adult Beagle bitches that received medroxyprogesterone acetate (MPA) at a dose of 75 mg, IM, or control vehicle at 3-month intervals.[11] High serum concentrations of LH in ovariectomized bitches also were unaffected throughout 17 months of MPA treatment. Thus, the mechanism whereby MPA induces anovulation in bitches may not relate to changes in serum concentrations of LH. Likewise, progestins may not reliably alter concentrations of LH in male dogs. A synthetic progestin (megestrol acetate) has been reported to be efficacious in treating dogs with benign prostatic hypertrophy/hyperplasia, without resulting in azoospermia.[12] The mechanism of action of progestins in reducing prostatic size in dogs may be through inhibition of 5α-reductase,[13] rather than through suppression of LH. Through this inhibition of 5α-reductase, conversion of testosterone to dihydrotestosterone is decreased. Because dihydrotestosterone is 1 of the primary androgens contributing to benign prostatic hypertrophy/hyperplasia, progestins may reduce prostatic size by interfering with conversion of testosterone to dihydrotestosterone. However, azoospermia was not achieved in dogs treated for 2 to 3 months with MPA, and prolonged suppression of LH was not found.[f]

Megestrol acetate is marketed in the United States as a canine contraceptive, but is not approved for use in cats. However, because of anti-inflammatory properties and limbic effects, megestrol acetate has been used to treat numerous dermatologic and behavioral disorders in cats. Reported adverse effects of progestins in cats include weight gain, polyphagia, polyuria, polydipsia, signs of depression, lethargy, temperament changes, alterations in the pituitary-adrenal axis, alterations in carbohydrate metabolism, cystic endometritis, pyometra, decreased fertility, loss of social order in colonies, suppression of fibroblast and T-cell function, cutaneous atrophy, and alopecia.[14] Additionally, regular administration of progestins is associated with increased risk of mammary carcinomas and benign mammary tumors in queens.[15] Irregular treatment with progestins did not increase the risk for mammary carcinomas or benign mammary tumors in queens. Because of these associated adverse effects, veterinarians in the United States are not likely to recommend progestins as long-term contraceptives for their feline patients.

[e]Lowrey FE. Use of recombinant zona pellucida proteins in developing immuno-contraceptive vaccines for dogs and cats (abstr), in *Proceedings*. 2nd Int Symp Canine Feline Reprod 1992;143.

[f]Paramo RM, Renton JP, Ferguson JM, et al. Effects of a) medroxyprogesterone acetate (MPA) and b) GnRH agonist on suppression of spermatogenesis in the dog, in *Proceedings*. 2nd Int Symp Canine Feline Reprod 1992;140.

Progestins are used more frequently as contraceptives for dogs and cats in Europe.[16,17] These drugs are available as tablets for daily use in bitches or for once-a-week treatment in queens, or as injectable depot preparations (ie, crystalline suspensions). Chlormadinone acetate, delmadinone acetate, MPA, and proligestone are used as crystalline suspensions, and MPA and megestrol acetate are given in tablets. Adverse effects may depend on type of progestin administered, dose, time of treatment, treatment regimen, and age of the animal.[17,18] Long-term, low-dose administration of a progestational compound (lynestrenol) protected Beagle bitches against mammary tumors, whereas treatment with high doses was associated with an increased risk of mammary tumors, including carcinomas.[18] Thus, the reported popularity of progestins as animal contraceptives in Europe, but not in the United States, may depend on differences in type of compound, or on treatment dose and regimen. Perhaps with additional information, progestins could be successfully used, without major adverse effects, on a long-term basis for contraception in animals.

Androgens—Mibolerone, an androgen-derived steroid, is approved and marketed in the United States for long-term suppression of estrus in dogs. Clitoral enlargement, vaginal discharge, epiphora, increased serum concentrations of aspartate transaminase and alanine transaminase and masculinization of female fetuses are reported adverse effects in bitches treated with various doses of mibolerone.[g] Mibolerone is not approved in the United States for use in cats. Early trials failed to establish a minimal effective dose for estrus suppression in cats, and serious adverse effects were observed. Early studies of mibolerone toxicosis in cats revealed increases in thyroid gland weight, accumulation of colloid, and enlargement of thyroid follicles on histologic examination.[g] In chronic toxicosis studies, deaths were observed and were attributed to hepatic disease.[19]

Weekly IM injections of 110 mg of testosterone propionate have been used to prevent estrus in Greyhounds.[20] Oral administration of 25 to 50 mg of methyltestosterone twice weekly inhibits estrus in bitches,[20,21] and daily administration of 50 mg of methyltestosterone to male dogs for 90 days resulted in decreased daily output of spermatozoa and in decreased mean testicular length.[21]

Suppression of reproductive function by gonadotropin-releasing hormone agonists and antagonists—Continuing administration of high doses of a GnRH agonist results in down-regulation of pituitary GnRH receptors and in suppression of secretion of LH and follicle-stimulating hormone. Various agonists have been shown to suppress female reproductive cyclicity and male gonadal function in a variety of species.[22] Much greater interspecies variation in response to various GnRH agonists has been reported for males than for females.[23] When the pituitary-suppressing contraceptive effect of a constant infusion of a highly potent GnRH agonist was studied in anestrous bitches, proestrus and estrus were induced in some bitches, presumably because of an initial gonadotropin release prior to the down-regulation and eventual suppression of LH and follicle-stimulating hormone secretion.[24]

In contrast to GnRH agonists, GnRH antagonists are not associated with an initial increase in gonadotropins (and would not induce estrus) and have an immediate onset of action.[23] Detirelix acetate, a GnRH antagonist, effectively interrupts estrus in bitches and suppresses the pituitary-gonadal axis in male dogs. Unfortunately, the high dose required to prevent estrous cycles and problems in drug delivery may be economic deterrents, precluding further development of these antagonists for use in small animals.

Terminating Pregnancy

Pregnancy maintenance in bitches depends on secretion of progesterone from the ovaries throughout gestation[25,26], ovarian progesterone secretion is stimulated by luteotropins.[27,28,h] Earlier studies have suggested that pregnancy maintenance in queens depends on ovarian progesterone secretion for approximately the first 45 days of pregnancy and on placental progesterone secretion for the last 2 weeks of gestation.[29-31] Recent studies,[i,j] however, refute these earlier results and imply that progesterone secreted during the last 2 weeks of gestation in queens also is of ovarian origin. Methods developed to terminate pregnancy must be designed with consideration of the physiologic characteristics of pregnancy maintenance in both species. Potential methods for terminating pregnancy include those that directly or indirectly cause luteolysis, prevent normal attachment and development of the conceptus, or result in evacuation of uterine contents.

Estrogens—The predominant mechanism of estrogens in terminating pregnancy is delaying ovum transit through the uterine tube (oviduct). In a study of pregnancy termination in 24 bitches,[32] efficacy was greatest in the 16 bitches receiving estradiol cypionate IM (22 or 44 μg/kg of body weight) on the fourth day of behavioral estrus or on the second day of cytologic diestrus (these are times

[g]Sokolowski, JH. Evaluation of the safety of mibolerone for the canine (abstr), in *Proceedings*. Symp Cheque Canine Estrus Prev 1978;38–46.

[h]Schaefers-Okkens AC. *Hormonal regulation of the cyclic corpus luteum in the dog*. PhD thesis, University of Utrecht, Netherlands, 1988.

[i]Verstegen J, Onclin K, Donnay I, et al. Progesterone and pregnancy regulation in the cat (abstr), in *Proceedings*. 2nd Int Symp Canine Feline Reprod 1992;41.

[j]Tsutsui T, Stabenfeldt G. Biology of the reproductive cycle of the female cat (abstr), in *Proceedings*. 2nd Int Symp Canine Feline Reprod 1992;26–27.

when ova are present in the uterine tubes); efficacy was reduced when estradiol cypionate was administered to 8 bitches in proestrus. Not all estrogens are equivalent in activity, because diethylstilbestrol (75 μg/kg), given PO for 7 days during proestrus, estrus, or early diestrus, failed to terminate pregnancy in bitches.[32]

Ovum transport also was delayed in 3 of 4 queens given 250 μg of estradiol cypionate, IM, 40 hours after coitus.[33] The delayed ova appeared degenerate.

Although veterinarians have used estrogens for years to terminate canine and feline pregnancies; clinical experience, case reports, and research suggest that adverse effects (thrombocytopenia, leukopenia, anemia, pyometra, cystic endometrial hyperplasia, cystic ovaries, persistent estrus) can develop after treatment. Although cats are considered to tolerate estrogens better than dogs do,[34] experimental data on estrogen toxicosis in cats are lacking. Because of the potential for serious adverse effects, estrogens cannot be recommended as abortifacients for dogs and cats.

Tamoxifen citrate—Antiestrogens, such as tamoxifen citrate, may alter serum concentrations of gonadotropins. Serum concentrations of LH were decreased in bitches given tamoxifen citrate (1 mg/kg, PO, q 12 h for 10 days) for pregnancy termination.[35] Although tamoxifen citrate was efficacious in terminating pregnancy in bitches treated during late proestrus, estrus, and early diestrus, important adverse effects (cystic ovaries, pyometra, and endometritis) were observed. Whether a modified treatment regimen might be developed that would result in fewer adverse effects remains to be determined. The ease of oral administration of such an abortifacient would be advantageous to pet owners.

Prostaglandins—Prostaglandins have been reported to be efficacious in terminating pregnancy in dogs and cats. However, to induce luteolysis and purported pregnancy termination in early diestrus, higher dosages (250 μg/kg, SC, q 12 h for 4 days) of prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$) are required than those given during the last half of pregnancy.[36,37] Additionally, corpora lutea in bitches appear to be refractory to $PGF_{2\alpha}$ prior to day 5 of cytologic diestrus, even when the higher doses are used.[36] Expected adverse effects from the higher dose of $PGF_{2\alpha}$ include hypersalivation, defecation, vomiting, abdominal cramping, and panting. Adverse effects may be reduced in intensity if treated bitches are walked immediately after the $PGF_{2\alpha}$ is administered[37] or if they are treated with atropine before treatment with $PGF_{2\alpha}$.[k] Lower dosages (30 to 125 μg/kg, SC, q 12 h) of $PGF_{2\alpha}$ can be used to terminate canine pregnancies reliably during the last half of pregnancy, with fewer adverse effects.[38,39] Unfortunately, bitches treated during the last half of pregnancy need to be hospitalized, or their owners should be made aware that aborted fetuses will be passed by treated bitches.

Other investigators have reported luteolysis or termination of canine pregnancies after administration of various prostaglandin analogs.[40-43] When analogs are used for terminating pregnancy in dogs, one must be aware that the therapeutic and lethal doses may be lower than those for $PGF_{2\alpha}$.

Earlier studies[44,l] have suggested difficulty in terminating feline pregnancies with prostaglandins. Recently, $PGF_{2\alpha}$ was reported to induce luteolysis and cause abortion in queens.[m] All queens that were treated with $PGF_{2\alpha}$ from day 33 of pregnancy eventually aborted.

Efficacy in terminating pregnancy may increase when prostaglandins are combined with other substances. Efficacy in terminating pregnancy in women increases when prostaglandins are combined with mifepristone, compared with that from administration of mifepristone alone.[45] Preliminary studies[23] also suggested that termination of early pregnancy in dogs might be enhanced by the combination of prostaglandins and a GnRH antagonist.

Prolactin inhibitors—Prolactin inhibitors, such as orally administered dopamine agonists, can terminate canine and feline pregnancies during the last half of gestation. Ten of 11 bitches treated with bromocriptine (20 to 30 μg/kg, q 12 h, for 4 days) after week 6 of pregnancy aborted 3 to 5 days after the onset of treatment.[46] Conversely, 2 of 4 bitches receiving bromocriptine (62.5 μg/kg, PO, q 12 h) failed to abort when treatment was initiated 43 to 45 days after ovulation.[39] Bromocriptine is available in the United States.[n]

Cabergoline, a new and potent prolactin inhibitor, successfully terminated pregnancies in dogs and cats treated during the last half of pregnancy.[47,m] Cabergoline, at a dosage of 5 μg/kg/d, PO, for 5 days, was partially effective during the first half of gestation and was fully effective during the second half of gestation in decreasing luteotropic support in bitches.[47] The only objectionable adverse effect reported was vomiting, which occurred in 3% of all orally treated bitches. Cabergoline (25 μg/d for 5 days or 50 μg/d for 3 days) also was effective in terminating 12 of 14

[k]Sciorsci RL, Lacalandra GM, Lograno MD, et al. Reduction in the bitch of prostaglandin side effects by atropine, anti-H1 and anti-H2 drugs. In vivo and in vitro observations (abstr), in *Proceedings*. 12th Int Congr Anim Reprod 1992;4:1817–1819.

[l]Wyckoff JT, Ganjam VK. Successful termination of pregnancy in cats by the administration of a combination of adrenocorticotrophic hormone (ACTH) and prostaglandin F2-alpha-THAM salt (PGF) (abstr). *Fed Proc Fed Am Soc Exp Biol* 1979;38:5071.

[m]Verstegen J, Onclin K, Silva LDM, et al. Abortion induction in the cat using prostaglandin F2-alpha and a new anti-prolactinic agent cabergoline (abstr), in *Proceedings*. 2nd Int Symp Canine Feline Reprod 1992;195.

[n]Parlodel, Sandoz Pharmaceuticals, East Hanover, NJ.

pregnancies in a feral cat colony.[47] Cabergoline is not available in the United States.

Progesterone antagonists—These antagonists are synthetic steroids that interact with the progesterone receptor, stabilize the receptor's structure, and prevent the biologic effect that occurs when progesterone binds to the receptor.[45] Mifepristone[o] is a progesterone antagonist that is effective in terminating pregnancy in dogs, and possibly, in cats. Beginning on day 32 of gestation, 5 pregnant bitches were treated with mifepristone (2.5 mg/kg, PO, q 12 h, for 4.5 days). Administration of mifepristone resulted in premature termination of pregnancy, without adverse effects, and a decrease in serum concentration of progesterone to < 1 ng/ml by day 40 to 45 after the preovulatory LH peak.[48] The action of mifepristone in terminating pregnancy, however, may not depend on decreased concentrations of progesterone. Ultrasonographic findings from 4 pregnant Beagles treated with mifepristone suggested that fetal fluids were decreased when plasma concentrations of progesterone were adequate for pregnancy maintenance.[49] Thus, fetal death may occur despite adequate serum concentrations of progesterone. The effect of progesterone in maintaining pregnancy, however, may be blocked by the antagonist.

Four pregnancies also were terminated after a single dose of mifepristone (dosage, 8.3 to 40 mg/kg) was given to bitches 26 to 36 days after the first mating. Abortions occurred within 2 to 11 days after treatment, without observed adverse effects.[50] Pregnancy was terminated or delivery occurred in all bitches given mifepristone via a single SC injection (at a dosage of 10 to 22.7 mg/kg). Time of administration ranged from 11 to 56 days after mating.[51] Pregnancy was terminated in only 1 of 6 cats given mifepristone, at a dosage of 20 to 34.3 mg/kg, SC or PO.[51] Thus, preliminary data suggest that progesterone antagonists may be effective in terminating canine pregnancies, but may be less effective in terminating feline pregnancies. Mifepristone is not available in the United States.

Epostane—Epostane is a chemical that has been shown to inhibit steroid synthesis by competitive inhibition of the 3β-hydroxy-Δ^5-steroid dehydrogenase system. This block results in decreased production of progesterone and increased serum concentrations of its precursor, pregnenolone. Preliminary studies suggest that pregnancy can be terminated in bitches when epostane is administered at a dosage of approximately 2.5 to 5.0 mg/kg, PO, for 7 days during diestrus.[p] Progesterone concentrations were decreased in a dose-related manner in all epostane-treated groups, compared with those in bitches receiving excipient.[52,p]

[o]RU 486, Roussel-Uclaf, Romainville, France.

[p]Keister DM. Use of a 3-beta-hydroxysteroid dehydrogenase/delta 4-5 isomerase enzyme inhibitor (Epostane) as a mismating agent in time-bred bitches (abstr), in *Proceedings*. 5th Annu Vet Med Forum 1987;918.

Conclusions

Surgical neutering remains a viable option for preventing and terminating unwanted pregnancies, and can be performed safely in most dogs and cats. Such a procedure should always be offered to clients not desiring offspring from their pets. Ovariohysterectomy not only prevents unwanted pups and kittens from being born, but protects the bitch or queen from future ovarian and uterine disease. If performed early in life, ovariohysterectomy also reduces the risk of mammary tumors in dogs.[53] However, if nonsurgical methods of sterilization, contraception, and abortion that are affordable, reliable, safe, and convenient could be developed for pets, perhaps the number of unwanted dogs and cats destroyed annually might further decrease.

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One generation away from humanity

Roger Caras

I am all for spaying and neutering. I went to work for the Massachusetts Society for the Prevention of Cruelty to Animals (MSPCA) 54 years ago—how could I be against spaying and neutering? I am totally committed to seeing dogs and cats spayed and neutered, whether they are of pet quality, are purebred, or are random bred. Owners must have a very good reason not to spay these animals. I hope the American Kennel Club will foster the plans we have discussed: a bitch should never be bred in consecutive "heats" and should never be allowed to have more than 4 litters. The cat fanciers should do the same. Birth control by any means in any form is absolutely critical to the welfare of companion animals in this country, and anyone who argues against that is living with his/her head in the sand. But, although spaying and neutering constitutes a working tool, that approach is nowhere near the whole answer.

Shelters in this country are probably killing between 10 and 20 million dogs and cats per year. We kill our share at every SPCA in the nation. But we are not killing pups and kittens in any vast numbers. There are seasonal and regional variations, but in general, shelters are not euthanatizing pups and kittens. The North Shore Animal League in New York pays the ASPCA $165,000/yr for the privilege of sweeping through our shelters and taking pups and kittens to adopt out; they cannot find enough. The ASPCA is killing 2-, 3-, 4-, and 5-year-old cats and dogs. We use a triage system. Category 3 represents animals that are absolutely hopeless. We can do nothing with a Rottweiler-Pit Bull cross that is trained to attack anyone who approaches. We have to euthanatize such a dog; we cannot be socially responsible in any sense and adopt it out. A woman dies on 72nd Street. The police call us and say she is without family, the undertaker is on the way to pick up her body, and she has a dog. We go there, and the dog is a 17-year-old Boston Terrier that is incontinent, crippled, blind, deaf, and in pain. What are we going to do with that dog? That dog is in category 3. Category 3 includes abandoned animals, animals without owners and veterinary care, and animals away from human detection, awareness, and concern.

Category 2 represents the animals that we do not feel are necessarily very adoptable. Category 1 represents animals that we think are eminently adoptable, including any pups and kittens we get. I can happily say that, in New York, we are adopting out 82% of the dogs and 92% of the cats in category 1, and 78% of the dogs and 84% of the cats in category 2.

In a shelter in Virginia, a woman came in and said to the woman behind the desk, "I want to have my cat put to sleep." When the shelter worker opened the cage, the young cat inside, in excellent condition, arched its back, purred, and rubbed. It was a sweet and loving cat. Before the shelter worker could ask what was wrong with the cat, the woman said, "I'd like to go to the adoption section and adopt a new cat." The worker asked, "What's wrong with this cat? She's very loving, and she's obviously in very good health." And the woman said, "I had my apartment painted, and the eyes are the wrong color."

Dr. Herb French, a veterinarian, used to practice in East Hampton, NY, where I used to live. Out of the goodness of his heart, he took in dogs and cats and pups and kittens that needed homes. One day, a large Mercedes pulled into the parking lot, and a woman got out with 2 boys, probably 8 and 10 years old. She said to Dr. French, "I understand you have puppies that need homes," and he said, "I always do." She responded, "I'll take a couple, one for each boy." As they were walking back to see the pups, she asked, "What do you charge in the fall to put them down?" Dr. French had a good vocabulary, and he used it, and the woman ran—she did not walk—to her car and got out of the parking lot fast.

In East Hampton, New York, typically on Labor Day, the people from the Animal Rescue Fund sweep the town dump; the one time I was involved, we picked up 27 dogs that had not been there the day before. It was Labor Day weekend, the weekend when people dump their summer pets and go back to Manhattan. They adopt pets in spring and throw them away in autumn.

How pervasive is this attitude? Ben Cardin, a

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congressman from Maryland, introduced a bill that included a section essentially saying that a dog that is purchased from a dealer (a professional breeder, backyard breeder, puppy mill, or pet shop) and, at the age of 2, does not live up to the standards of its breed may be returned. Now there is a message: love a dog for 2 years, let the dog love you for 2 years, and if the dog doesn't win a beauty contest, throw it away. The bill also included a statement that the arbiter of whether or not the dog lived up to the standard of its breed would be a veterinarian, which would automatically make all veterinarians licensed all-breed dog judges.

I doubt whether any people, anywhere, at any time in history, did not live in exceptional or extraordinary times. We think that about our time as well, with all the things that have been happening in the news over the past few years. But cruelty has become an acceptable way of life in a part of the world where there is no justification for it whatsoever. Perhaps in many places, the direct explanation for why cruelty persists is the insanity of war and the human suffering (for example, in what was Yugoslavia). Perhaps the fact that people are not concerned about the welfare of animals in Somalia can be, to some extent, understood, if not excused. There are even places where absolutely staggering prejudices against certain kinds of animals may explain animal cruelty.

But what is happening in the United States and Canada? Why are we still behaving the way we are? What has happened to our culture and our society; where did we go wrong? Why have we not matured here in the United States and Canada, where animals are routinely thrown out of cars along the highway? Why does the ASPCA see 100,000 animals per year in New York City? Because we have an attitude that, in large measure, has evolved as simply "throw it away." I have been married for 38 years, and we fight, have fought, and have loved, but we have stayed married. Today, people get married, and if they disagree on which movie to rent one night, they get divorced. We throw away our spouses, and we throw away our children—if you doubt that, I will show you all the 14- and 15-year-old male and female prostitutes on the streets of New York City, trying to survive. Could your great-grandfather have ever understood what you buy in the drugstore and grocery store today? We buy bags of plastic razors, not blades, that we use once, then throw away; we buy disposable toothbrushes, disposable everything. Somehow, unfortunately, in the midst of all that, we have disposable animals; this is a far bigger problem than not spaying and neutering.

What is the solution? A long list of legislation is being proposed in cities, counties, and states and at the federal level, legislation that the ASPCA sees daily and is asked to sign onto. When we read these bills, we are stunned at how inept and inappropriate they are. They are designed to restrict pet ownership. Veterinarians are going to see their income base eroded, eaten away, by laws that do not help animals, but make some people think they did something good. Such legislation is not the solution.

We are one generation away from having a humane and kind world that really takes animal welfare into account. Teach one generation of American and Canadian children what it means to care, what it means to be responsible, what it means to accept responsibility, what it means to look outside themselves, and they will train their children the same way. What are veterinarians doing about that? Do you have programs in your clinic, and bring in high-school students to see what you do, to see what mercy is like, to see what it is to help and to share in this life? Do you go out into the schools or have the classes come to you, or work with boys' clubs and girls' clubs and church groups? If you do not, you are standing by and watching your income, your career, and your purpose for living being eroded away, because educating our children is the only chance any of us has to see humanity come about. The solution to the problem is not going to come about because of spaying and neutering or because of any technologic device that bans conception; it is going to come about because we got to the hearts and souls of one generation of people and turned them around.

Last hunting season, my then-6-year-old granddaughter and I were going down the road, and we passed a car with the inevitable deer tied to the fender. I decided not to say anything and let little Sarah bring it up after she thought about it, because it was clear that she had seen it. After about 90 seconds, she said, "Granddad, when I see something like that, you know, I think a piece of me falls off and dies." And I thought to myself, she's okay, she's fine.

We know that wanton cruelty on the part of a child is, in all likelihood, a symptom of dangerous things to come. Examination of profiles of violent criminals (eg, rapists and murderers) reveals 3 symptoms: bed-wetting during the teenage years, arson, and animal cruelty; these are the 3 symptoms of a child who is screaming out for help and crashing down the road toward a serious criminal career. But what about children who see cruelty and just stand by? What about children who do not feel it inside? What about children who do not have "a piece that falls off and dies?" If we do not get to them, we are not going to solve this problem.

Something inside of us has to work, it has to work well, and it has to work in synchrony with the needs of our planet. We have a generation of children who have learned words like "ecology," which I never heard until I was an adult. Today, children learn the word "biodiversity" before they get out of grade school. We have a generation of people waking up on this planet to their responsibility and to their needs.

We have the raw materials to turn all the

problems of animal welfare aside. We have the fix. It is the next generation; one generation, that is all it will take, and they will teach their children. I commend you to it, doctors. At this moment, interaction between human beings and animals falls far, far short of any need or consideration that we should permit in our culture. If it is not your responsibility and not your concern, whose is it?

I commend it to you as veterinarians; you have no tricks, there is no genetic engineering, there is not even any litigation that is going to work. Nothing is going to solve the problem of animal welfare except a capacity for human mercy and compassion.

Working with breeders on solutions to pet overpopulation

Dennis F. Cloud, DVM

The pet overpopulation issue is more complex for the purebred dog industry than for any other group. Is this issue a problem of true overpopulation, or is it one of unwanted pets? This question may not be answerable. Unfortunately, the solution to both problems has been the same: euthanasia. The purposes of this report are to offer a hypothesis for the high number of purebred pets euthanatized, to identify the breeding source of purebred dogs, to identify the methods used in selling these pups, and to offer a plan to correct the problem of unwanted purebred dogs.

Euthanasia: The Crisis of the 1990s

Many of the dogs and cats that are destroyed in shelters are purebred, and most of them are young adults. A high percentage are being destroyed because of behavioral problems, which include excessive aggression, housebreaking problems, continuous barking, and destructive habits. If we eliminate the group being destroyed because of behavioral problems, I do not think we have a major overpopulation problem in the purebred dog population.

The 1950s vs the 1990s

Raising a pet is much harder in the 1990s than in previous years. Forty years ago, the pet care scene was different. A typical household in the 1950s consisted of a family unit in which the wife was at home all day. She raised the children, took care of the family dog, and was responsible for housebreaking and training the dog. This household typically had a small, fenced-in yard, so that if the dog had housebreaking problems or destructive habits, it could be kept outside. These environs have changed drastically over the past 40 years. Because of deed restrictions, many homes of the 1980s and 1990s are not allowed to have fenced-in yards. This makes it difficult to keep a dog outside. In addition, apartments and condominiums have become popular permanent residences. Both of these factors (open yards and smaller living units) create intimate living conditions with the family pet, a situation that is perfect unless you are dealing with a pet with behavioral problems. Furthermore, human-pet daily interaction has decreased in modern homes. Because of the economic conditions of the 1980s and 1990s, families in which husband and wife work are common, and pets are left alone all day. Even if 1 spouse is at home, other interests often interfere with daily interaction with the pet (ie, hobbies, travel, going out to eat, sports, and charities). Although these factors were present in the 1950s, they were not as pervasive as they are in the 1990s.

Sources of Purebred Dogs

If we are going to reduce the number of unwanted pets, whether caused by overpopulation or behavioral problems, we need to define and identify the source of production of purebred dogs. The following is a breakdown of the sources.

"Backyard breeders" usually own 1 purebred dog, and breed that dog for 1 or a combination of the following reasons: they want another dog that is an offspring of the bitch, they want the children to be involved in raising a litter of pups, or they have heard that bitches need to have a litter of pups

From the Association of Pet Industry Veterinarians, Rock Road Animal Hospital, 9418 St Charles Rock Rd, St Louis, MO 63114.

before being spayed. These breeders' pups are usually healthy and well socialized. In my experience, half of the litter will be sold through newspapers, a fourth of the litter will be given to friends or relatives, and a fourth will end up in a shelter. These breeders are probably not aware that they are contributing to the overpopulation problem. The good news is that the number of backyard breeders is decreasing in most veterinary practices.

Show breeders are actively involved in the breed and usually belong to a breed club. They are concerned about the parentage and buyers of their pups. These pups are usually sold to other show breeders, by word of mouth, or through breed publications. A few of the pups are sold through newspapers. I think that most of these pups are placed in homes and do not contribute to the overpopulation problem. However, some of these breeders are more concerned about conformation than disposition, which does contribute to unwanted pets.

Commercial breeders make part or all of their income from raising pups. They will have good physical facilities, sanitation, and nutrition; will have average to above-average breeding stock (studs will be very good, frequently bitches will be average); will use veterinary care; and will practice preventive health programs. This breeder will sell pups through breed magazines, pet stores, and private treaties. Often these breeders are not particular enough about to whom they sell and could do better at socializing their pups.

In my opinion, the mission of the pet industry in the nineties has to be to identify and eliminate all disreputable breeders, which include those having inadequate physical facilities, substandard or no sanitation, substandard nutrition, genetically inferior breeding stock, no records or plan of breeding, inhumane treatment of dogs, and no preventive health program. These puppies are sold through pet stores or newspapers, often through an "underground" alias.

"Underground" or Blackmarket Selling of Dogs

Only 7% of dogs registered by the American Kennel Club (AKC) are sold through pet stores. The number of people showing dogs and the number of backyard breeders are decreasing. "Underground" sales to an ignorant public account for many of these AKC-registered pups sold. For example, the future pet owner responds to an ad in the Sunday newspaper: "Beautiful Yorkshire Terriers for sale." The prospective buyer calls the listed number and is relieved to discover that the owners are residents in a local community. When the buyers arrive at the residence, they find 6 "Yorkie" pups. The buyers may not know to ask to see the dam or sire. If they do ask, they will probably get the following answer: "My sister in the country owns the father, and we decided to let the dam have the pups at her house. Because we are weaning the pups, I am leaving the dam there until the pups are sold." What the future owner does not know is that these 6 pups are probably from 3 different litters and may come from a disreputable breeder. This same seller could easily have 6 more Maltese and 8 Cocker Spaniels in the basement, and these pups are in separate advertisements in the newspaper. This scenario is being repeated all over the nation.

A high percentage of these pups originate from disreputable breeders. We know where the kennels and the pet stores are located. We can control them if they are selling inferior puppies. The underground outlets are difficult, if not impossible, to control. Veterinarians can help reduce this problem by educating their clients about these sellers.

Ten-Step Plan

The following is a plan to control the number of unwanted purebred pets.

Permanent identification of all AKC registered pups—You cannot control the problem if you cannot identify it. Microchip identification is available, safe, and inexpensive. I would like all licensed breeders to implant microchips in all their pups.

Early spaying and neutering becoming the norm—We have to educate veterinarians and humane shelters to start early spaying/neutering programs. Getting breeders, kennels, and pet stores to spay/neuter pets early is impossible if veterinarians and humane shelters do not.

Buyer networks and hotlines—These information services would be composed of a network of veterinarians, breeders, and kennels. They would educate clients about various breeds and about what to look for when purchasing a new pup.

Dog training and socialization programs—These would be support groups to help clients train their new pups and avoid behavioral problems. These support groups should be composed of veterinarians, personnel from humane groups, and dog trainers.

Veterinarians changing their attitudes about low-cost spaying/neutering programs—Veterinarians have allowed the spaying/neutering programs to separate them from animal welfare issues. We have allowed other groups to develop spaying/neutering programs to control the overpopulation problem. We have observed, rather than led. I would suggest that our local associations should develop spaying/neutering programs.

Increased limited registration—The AKC has a vehicle in place for breeders to register their pups as nonbreeding dogs. Breeders need to start using this program.

Enforceable breeding laws—If laws against disreputable breeders are going to work, they have to

be definable, measurable, and enforceable. Presently, such laws do not exist.

Redefining and accrediting pet stores—An accredited facility would be staffed by pet professionals who have completed course work designed to help people select and maintain a pet properly. Most pups sold through such facilities would be spayed or neutered and of limited registration. This facility also would act as an outlet for adoption of unwanted pups and kittens from local humane groups.

Redefining and accrediting commercial breeders—Such facilities would meet rigid, enforceable standards. The staff would be trained in companion animal husbandry. Most of the pups produced would have AKC limited registration. Many of the pups would be spayed or neutered prior to sale.

Veterinarians getting involved in animal welfare issues—The pet owning public looks to the veterinary profession for leadership about the health and welfare of the animal kingdom. We have accomplished much in advancing animal health. Unfortunately, we have let others take over animal welfare. We all need to take a more active role in promoting animal welfare.

The preceding 10 steps are possible goals. Throughout the nation, isolated groups are involved in all of these plans. Our mission should be to develop them into a standard for the purebred dog industry.

Early-age neutering of dogs and cats

Peter Theran, VMD

Two and a half years ago, we decided to initiate a study of anesthetic protocols and surgical techniques for neutering dogs and cats between 6 and 14 weeks old. We were aware of conflicting opinions regarding the merit of early-age neutering,[1-7] but felt that unwanted litters could be prevented with this technique and that scientific data was lacking to suggest that neutering at 7 weeks was significantly different from performing this procedure when animals were 7 months old.[8] Furthermore, we wished to acquire information to support the application of early-age neutering in veterinary hospitals as well as animal shelters. This study was a cooperative effort between 2 MSPCA facilities: the Angell Memorial Animal Hospital and the Boston Animal Shelter. The study was implemented at Angell Memorial Hospital by Dr. Michael Aronsohn, director of surgery, and Dr. Alicia Faggella, director of the intensive care unit; and by Ms. Jean Weber, manager of the Boston Animal Shelter.[9,10]

Project Design

During the design of this project, the effect of this procedure on the behavior of pups and kittens was considered. Because 6- to 8-week-old dogs and cats are in the fear-imprinting stage, a stressful and unpleasant experience could have adverse behavioral consequences. We were concerned at the onset of this project that if forceful restraint was used during administration of anesthetics, these young animals would respond with vocalization and vigorous struggling. This distress was thought to be more frightening to these unsocialized, 6- to 8-week-old animals than it would be to older animals that were accustomed to human interaction. To prevent this distress, use of preanesthetic medication was concluded to be important to ensure a gentle, smooth anesthetic induction.

Several physiologic concerns also influenced the design of this study. Young animals have a lower hematocrit than adults, so blood loss must be minimized.[11] These animals also have an immature thermoregulatory process, with decreased ability to shiver, less body fat, and more surface area, compared to body mass, than adults have.[12] Differences between adults and these younger animals also affect uptake, distribution, and action of injected drugs. The liver enzyme systems responsible for metabolism of drugs are incompletely developed at birth, so drugs that are metabolized by the liver may have a longer duration of action in neonates. The renal system functions at less-than-adult capacity at birth as well; glomerular filtration and tubular secretion continue to develop after birth. Renal excretion of drugs therefore may be delayed in neonates. In addition, because neonates have de-

From the Massachusetts Society for the Prevention of Cruelty to Animals (MSPCA), 350 S Huntington St, Boston, MA 02130.

creased protein binding attributable to lower serum albumin concentration, a smaller amount of body fat, a higher percentage of total body water, and a preferential distribution of cardiac output to vascular organs, increased sensitivity to certain drugs can be observed.[12] Neonates are more sensitive to hypoglycemia than are adults during withholding of food; hypoglycemia thus could affect the clinical course between the presurgical withholding of food and the first food intake after recovery from anesthesia. Neonatal pulmonary and cardiovascular function differs from that of adults, so that respiratory depression, hypoxia, and hypotension are greater concerns during neonatal anesthesia.[12]

Initial Study Protocol

Examination and selection process in the shelter—Prior to surgery, all pups and kittens scheduled for neutering were examined by a veterinarian in the shelter. Only those judged to be clinically normal were selected for early-age neutering; these animals were vaccinated against infectious diseases and were given an anthelmentic. As a minimal data base prior to surgery, hematocrit and total serum protein and blood glucose concentrations were measured.

Presurgical examination and preanesthetic medication—On the day of surgery, all animals were examined again by a veterinarian to ensure that only healthy kittens and pups would proceed to surgery. A preanesthetic medication that could be administered simply and had predictable action was given prior to administration of general anesthetics, to ensure a gentle induction.

Monitoring and support measures during surgery—All animals were kept on recirculating warm-water blankets during the entire anesthetic period. Rectal temperature was measured at regular intervals. When possible, an IV catheter was inserted so a balanced electrolyte solution with 5% dextrose could be administered. All animals were intubated so ventilation could be closely monitored. A properly sized (Michael's blade) laryngoscope and uncuffed endotracheal tubes were used. Mechanical dead space in the gas-anesthesia circuit was minimized by using an endotracheal tube having the correct length and by using a nonrebreathing anesthetic circuit (modified Ayre's T-piece or mini-Bain coaxial system) with an oxygen flow rate of 200 ml/kg of body weight/min. Heart rate was monitored carefully; the goal was to maintain the rate between 130 and 170 beats/min.

Study Conclusions

Selection and preparation for surgery—When this study began, shelter staff were enthusiastic because a measure of progress against pet overpopulation was under way, but litters of very young animals are unusual in the surgery department. Two problems surfaced as a result. Some members of the surgery support staff voiced concern for the safety of these animals and questioned the advisability of performing large-scale, elective surgery on very young animals. This concern had to be addressed before everyone felt comfortable with the new program. Another different problem developed when these animals were brought to the surgery department from the shelter on the morning of surgery. The natural tendency of the staff was to fondle the pups and kittens. This caused the animals to become excited, however, and resulted in a variable response to injectable preanesthetic and anesthetic drugs. As a result of this experience, we concluded that littermates should be housed together in a warm, quiet environment prior to surgery.

To avoid hypoglycemia when preparing pups and kittens for surgery, experience with blood glucose monitoring indicated that food should not be withheld for > 8 hours, and food should be withheld from the smallest animals (6- to 10-week-old kittens) for only 3 to 4 hours. After surgery, a small meal should be fed within 1 hour of the time at which the animal was observed to stand.

Anesthetic protocols—Tiletamine/zolazepam (11 mg/kg) was an effective anesthetic for castration in most male kittens.[9] Isoflurane or halothane can be administered with a tight-fitting face mask if supplemental anesthesia is needed. Random leg movements, swallowing, and licking of the lips are commonly seen when kittens are fully anesthetized with this drug combination. These movements are not, by themselves, an indication of inadequate analgesia, which is usually signaled by vocalization, increased respiratory rate, and purposeful movement in reaction to a painful stimulus.

Midazolam (22 mg/kg), mixed with ketamine (11 mg/kg) in the same syringe and given IM was an effective preanesthetic drug combination for use in spaying kittens. Injection of this mixture was followed by endotracheal intubation and administration of isoflurane.[9]

For preanesthetic medication in male pups, atropine, midazolam, and oxymorphone were mixed in the same syringe and were given IM . After 15 minutes, an IV catheter was inserted and propofol was administered IV. If needed, this short-acting anesthetic could be supplemented. After surgery, the effects of oxymorphone were reversed with IV administration of nalbuphine. Pups were usually sternal within 5 to 7 minutes of the nalbuphine injection.[a]

The most effective preanesthetic drug combination used for spaying female pups in our study was an IM injection of atropine and oxymorphone, mixed in the same syringe. After 15 minutes, an IV catheter was inserted and propofol was given to

[a]Faggella AM. Angell Memorial Animal Hospital, Boston, Mass: Personal communication, 1992. Drug dosages are available from Dr. Faggella.

effect. The pup then was intubated, and isoflurane was administered to maintain general anesthesia. When surgery was completed, the effects of oxymorphone were reversed with nalbuphine.[a]

Surgical and postsurgical general considerations—Although the specific techniques for sterilization of very young animals have been described,[10] some general considerations include the following. The surgical site should be prepared with warm chlorhexidine solution diluted with saline solution. The use of alcohol and iodine causes excessive cooling. Neonatal tissues are more delicate and fragile than tissues in older animals are, and must be handled gently during surgery. Hemorrhage should be carefully controlled because small volume loss is important. Skin sutures should not be used to close spay incisions because some neonates will remove them; skin should be closed with a subcuticular layer of sutures. Castration wounds in pups and kittens are left to heal by second intention.[10] After surgery, animals should be kept warm and should be fed within 1 hour of standing. Monitoring blood glucose concentration in animals recovering slowly is advisable, and dextrose should be administered PO or IV, if indicated. The only notable, immediate, postsurgical complications have been irritation or seroma formation at the incision site; more than 350 neonatal animals have been neutered in this study, and serious complications or deaths have not been observed.

The MSPCA study revealed that neutering can be performed safely in 6- to 14-week-old dogs and cats. Furthermore, after the surgery department became accustomed to slightly different instruments and procedures, neonatal neutering was performed as efficiently as was the same surgery on older animals. Therefore, although we acknowledge that further study of long-term effects of prepubertal neutering is warranted, we concluded that early-age neutering is an appropriate sterilization procedure for dogs and cats.

Early-age neutering and pet overpopulation

Before commenting on the value of early-age neutering, I would like to make the point that pet overpopulation needs to be defined with reliable data before specific strategies can be devised to address this problem. In the following paragraphs, data from MSPCA statistics gathered at their 8 shelters during the first 6 months of 1992 and from the October 1991 public opinion study, commissioned by the MSPCA, on neutering of pets in Massachusetts were used to illustrate this point.[b] Conclusions and strategies were developed from these data.

In 1992, MSPCA shelters will have received approximately 30,000 animals. A third of these will have been dogs, and 50% of these dogs will have been euthanatized. Nearly 20,000 cats will have been accepted, and probably 75% will have been euthanatized. Examination of these numbers could lead one to conclude that a serious pet overpopulation problem affecting cats and dogs exists in Massachusetts. Closer examination of the facts, however, reveals that, of the 5,000 dogs that will have been euthanatized, 50% will have been Greyhounds, which have traditionally been brought to the MSPCA in large numbers during a short period, making adoption unlikely. Twenty-five percent of euthanatized dogs will have been considered unadoptable because of temperament and behavioral problems, and an additional 12% could not have been placed in homes because of physical problems. Therefore, if the special problem of Greyhounds were eliminated from our pet-overpopulation statistics, approximately 13% of the dogs that will have been euthanatized in MSPCA shelters in 1992 could have been placed if there had been sufficient demand. To put it differently, if 5,650 adoptable dogs were received by MSPCA shelters in 1992, 5,000 would have been placed in new homes. Except for our busiest times (and excluding Greyhounds), the MSPCA can find a suitable home for most of the dogs brought to their shelters.

The cat adoption picture in MSPCA shelters is different. Approximately 15,000 cats will have been euthanatized in 1992; most of them would have been suitable for adoption. Most of these cats will have come to the shelter between June and September, a period when many households have unwanted litters and are giving kittens away to anyone interested at no cost. The supply of kittens is so high, compared with the demand, that MSPCA shelters can place only a small percentage of cats brought to their shelters during these months. Analysis of these statistics leads one to the conclusion that the MSPCA experiences a pet overpopulation problem that is serious for cats, but minor and seasonal for dogs.

In devising a strategy to address the cat overpopulation problem, information from the 1991 public opinion survey[b] was examined. The professional research group that performed this study found that only 40% of cat owners believed that cat overpopulation existed. Furthermore, this study indicated that 87% of cat owners in Massachusetts have had their female cats spayed, but usually after their cat has given birth to 1 or 2 litters. These litters, from cats destined to be neutered, represent many thousands of kittens each year; this is enough to perpetuate the overpopulation problem in cats. Information from owners who are relinquishing their pets at MSPCA shelters also indicated that only 5% of these owners originally obtained their cat from a shelter. In light of this information, the MSPCA identified the following goals as part of a mission to eliminate pet overpopulation in Massachusetts: focus resources on cats and on education of the general public and the veterinary profession

[b] *Massachusetts Society for the Prevention of Cruelty to Animals (MSPCA) spay/neuter survey summary*. Boston, Dorr Research Corp, 1992.

about the existence of a serious cat overpopulation problem and about the importance of neutering cats before puberty.

Strategies to accomplish these goals included the development of a national campaign to identify 1993 as "The Year of the Cat." During this year, animal-related organizations will be encouraged to participate, in whatever manner they deem appropriate, to increase the status of cats in society. Other strategies were to publish safe and effective methods for anesthesia and neutering of kittens and pups and to recommend early-age neutering to shelters and clinical veterinary practices. Because only 5% of pet kittens in Massachusetts are acquired from shelters, neutering of all kittens prior to adoption from a shelter can have only a minor effect on the cat overpopulation problem. On the other hand, if veterinarians in clinical practice were to recommend neutering kittens at an early age to preclude any births, a major decrease in unwanted cats could result. Therefore, in addition to developing early-age neutering programs at its shelters, the MSPCA plans to present the nature of the cat overpopulation problem to the general public and to the veterinary profession, and to encourage neutering of kittens at an early age.

Another strategy that has resulted from an evaluation of MSPCA shelter statistics regarding pups is related to temperament and behavioral problems. Many owners identify animal behavioral problems as a reason for relinquishment of their pet. Furthermore, a substantial percentage of shelter dogs are considered unadoptable for behavioral reasons. In fact, if the initial statistics collected by MSPCA shelters in their new data collection efforts are reasonably accurate, temperament and behavioral problems are responsible for the death of more dogs in MSPCA shelters than are all the infectious diseases combined. Strategies thus should be focused on the education of new owners and their pups. As the MSPCA's Angell Memorial Animal Hospital develops its new Animal Wellness Center, advice to prospective new pet owners, pup training classes, and owner education about normal and abnormal animal behavior will be given the same priority as is vaccination against infectious diseases. Because only a small percentage of the animals relinquished at our shelters originally came from a shelter, education of pet owners must be implemented by veterinary practices and must be encouraged by vendors of pets, pet supplies, and pet services for this strategy to be effective.

Our strategies are aimed at reducing the number of pets relinquished to the MSPCA's shelter system and are based on data from a local survey and from the shelter system in which the strategies will be implemented. It is critical for the MSPCA, and for any other organization working to reduce the unwanted pet population, that efforts be as focused as possible to conserve limited resources. Monitoring the results of strategies that have been implemented also is important. If data reveal that a strategy is effective, consideration can be given to expansion of that program. On the other hand, if the desired result is not being attained, the strategy must be modified or abandoned. Clearly, an effective data collection system is crucial to the development of focused strategies and to the monitoring of program effectiveness.

A final consideration about the implementation of an early-age neutering program in a shelter is the effect such a program has on the work load and psychologic well-being of shelter staff. Many shelter operations dedicate considerable staff time to postadoption follow-up activities to motivate owners of newly adopted dogs and cats to comply with their agreement to neuter their pet. With an early-age neutering program in effect, all animals would be neutered prior to adoption, and follow-up resources could be directed elsewhere within the shelter program. The psychologic value of an early-age neutering program also is substantial to shelter workers. In the MSPCA's Boston shelter, as many as 30 to 60 kittens are surrendered each day during the busy summer months. Because of the large numbers of kittens available during this time, most of these animals will have to be euthanatized. The shelter staff that is responsible for this intensely negative task is usually motivated to work in a shelter because of their love for animals. Overemphasizing the adverse psychologic impact of euthanasia on shelter personnel is difficult when large numbers of healthy animals are euthanatized on a daily basis. In such a setting, an early-age neutering program assures the shelter staff that none of the pups and kittens they place in new homes will ever produce an unwanted litter. This is a small, but extremely positive, blessing in the midst of a terrible tragedy.

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Veterinary practitioners' role in pet overpopulation

Clayton A. MacKay, DVM

This paper will explain my perception of what has happened during the past 40 years of veterinary practice, and how those changes have impacted on the problem of overpopulation of unwanted dogs and cats. Although the veterinary community certainly did not cause this problem, several factors were relevant to our loss of a leadership role in looking for solutions. The early positioning of low-fee spay/neuter as the only plausible solution to the problem of so many animals being euthanatized never allowed the reasoned evaluation of the root problems.

Historically, veterinarians had been trained as professionals in the livestock and equine industry. Their role was that of a fertility advisor or specialist. The primary job of veterinarians was to aid in rearing better and healthier animals, as part of the agricultural community. Our role was, and still is, to supply wholesome and safe agricultural products in an economically sound fashion, while guarding the welfare of the animals used in these industries. For many years, small animal practitioners may have even been considered by traditionalists as having less than full value in their role as veterinarians. Prior to 1950, few veterinarians actually made a living from strictly small animal practice. As of Sept 30, 1991, according to the AVMA Directory, there were more than 60,000 veterinarians in North America, and > 50% of those, or more than 30,000, listed their occupation as entirely or predominantly small animal practice; 22,920 listed themselves as exclusively companion animal practitioners, compared with 4,122 using the designation of large animal practitioner only.

Veterinary medicine was simply following, as do most occupations, the changes that were taking place in society. Urbanization was becoming the norm, and people were leaving their agricultural roots. Humane societies began to take over animal control in many jurisdictions. Most of the time, this change in animal control was in response to the archaic and brutal conditions often found in pounds and rural dog-catching operations. Large humane shelters soon began to flourish, in many cases because of the increased cash flow from animal-control contracts with major urban areas. This participation in animal control, combined with their normal humane work of sheltering and adoption, brought humane societies greater public acceptance and recognition.

Difficulties arose quickly, however, because although the primary interest of humane societies was animal advocacy, these societies became the agencies that were killing millions more animals than they could possibly sell or adopt. As this information reached the public, it hurt the humane groups, not only in their image as animal shelterers, but also in their ability to attract volunteers, who certainly did not join the humane movement to kill animals.

Although definitive data do not appear to be available, I suspect that the population of unwanted animals at that time was escalating rapidly from several factors operating in combination. The demographics of the population, moving from rural to an urban environment, affected the animal population. Preventive veterinary medicine was established, and previously major epidemics of feline and canine distemper no longer decreased the population. In major urban areas, with the availability of food and shelter and without real threats from predators to their survival, these cats and dogs reproduced almost at will.

In a study of feral cats by Langham and Porter in New Zealand,[1] the density of cats was correlated with the availability and dispersion of resources. Where food is abundant and den sites are common, high densities have been recorded, from 200 to 2,300 cats/km^2. High urban densities develop because the cat's diet consists of plentiful garbage or fish refuse, often supplemented by pet food. In rural environments, where they have to catch a proportion of their food, cats are less abundant, and their numbers probably reflect prey density. On farmland, mean densities of cats ranged from < 1 to about 20 cats/km^2. These factors, compounded by early sexual maturity and multiple births in dogs and cats gave this problem epidemic proportions.

During the late 1960s and 1970s, confronta-

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tions between the veterinary community and humane societies took place over the controversy of whether low-fee spaying/neutering was the best method to stop the problem of cat and dog overpopulation. Humane groups generally decided that having all animals sterilized surgically would solve the problem once and for all. This issue might not have caused the arguments and friction had these groups not decided, without any research, that animals were not being sterilized as a direct result of the fee charged by the veterinarian. The veterinary profession, as already alluded to, was in the process of changing focus, with a larger portion of professional income arising from small animal care. In mixed and small animal practice, spaying/neutering procedures made up most of the regular surgical cases at that time.

To add to this problem, I believe the humane movement misread entirely the economic reality of the veterinary practitioner, with regard to fees for these services. There was, and often still is, confusion about the income status of veterinarians, compared with that of physicians or dentists, because of the common use of the term doctor and the similar or more extensive academic programs. Those individuals who attacked the profession over spaying/neutering fees also had failed to look at the fact that the public, through comparison shopping, had already made this surgery virtually a nonprofit loss leader for the practitioner. Many practices at this time used spaying/neutering as a loss leader to attract clientele, on the assumption that the client would bond to the practice and remain a loyal client for the rest of the pet's care. Therefore, the suggestion from humane and special-interest groups that these fees were inappropriate caused most of the veterinary profession to assume that, regardless of whatever cooperative efforts they might make, only the veterinary practitioner would suffer.

Unfortunately, these issues led to aggressive attacks and counterattacks from both sides, with neither side ever really doing its homework to identify the problem. The fact that one side had decided on a solution, even though it was detrimental to the other party, meant that there was little constructive dialogue. Once the battle lines were established along the issue that veterinary fees for spaying/neutering procedures were the primary reason for overpopulation and the killing of unwanted dogs and cats, discussions had little other substance. Humane groups established or encouraged municipal governments to establish spaying/neutering clinics that were able to charge fees that were less than the actual cost of providing the service in private practice. Direct subsidy of humane group or indirect governmental subsidies through tax relief went largely unexplained to the general public. Veterinarians were naturally upset that this action made it appear that all other services they offered were overpriced, because a routine procedure could be offered somewhere else at such a reduced fee.

The veterinary profession also found, in some cases, that to keep fees down, the quality of practice for the individual pet was compromised for the benefit of the majority. The practitioner was faced with competition for his/her services such that the only response would have been to jeopardize the quality of the work. This response then became one that fed the fires of controversy in the press. Statements made in a 1969 article[2] in a national newspaper in Canada, for instance, quoted a prominent humane-group spokesperson as saying, "The average veterinarian not only overcharges, he almost extorts money from the public via their animals." The same article also mentioned a "maverick" veterinarian who refused to install a gas anesthetic machine in her "unpretentious" practice, claiming that a 10-cent pentobarbital pill could do the "knock-out" job just as well, and for $9.90 cheaper per operation. These incidents may be 25 years old, but they are still heard today in some places.

During the late 1970s and early 1980s, conferences so often deadlocked over these issues that the rest of the animal-welfare community tired of the bickering and rhetoric and went on to other things. The next impetus for movement began during the 1980s, when municipalities started to move aggressively into animal control because humane societies, in some cases, were not willing to carry on the catch-and-euthanatize technique of animal control. What immediately came to municipal attention was the cost of these efforts, and city governments began to investigate methods to prevent the problem, rather than to just continue the status quo.

Fortunately, at that same time, the humane groups and the veterinary profession seemed ready to start over with a fresh approach. This approach will entail, at long last, some of the ideas that have been discussed earlier in this forum. After proper epidemiologic study to obtain some idea of the extent of the problem, we will try to work collectively on the solution. This will take some time, but it will be a more productive effort in the next 10 years than during the turbulent 1970s and early 1980s.

The humane movement has changed considerably, as has the veterinary profession. There will be greater understanding and cooperation because we will try to eliminate the finger-pointing and rhetoric. The problem and its severity must be documented and clarified before the profession can define its role in the solutions.

I believe that once we can comprehend the true nature of the problem, the veterinary profession will follow with solutions. The profession will support mass spaying/neutering programs when adequate legislation and enforcement of licensing and identification are finally brought forward. If all nonbreeding pets were required by law to be sterilized, then the profession could help with some

sort of fee adjustments that would match the increased number of operations performed. In today's modern practices, these services do not account for a great deal of income; therefore, an increase in the number of spayings/neuterings performed for a population that, in the past, has not used regular veterinary care also would allow us to acquaint these people with the benefits of preventive pet health care. This is a "win" situation for both sides, because more surgical sterilizations would be performed, and practices would grow by improving the welfare of the pets receiving care.

Veterinary private practices today supply about 95% of all pet sterilizations in North America (author's estimate), and likely will for a long time. With the pressure on all levels of government to balance their budgets and to be able to insure human health care, I see no evidence that governments are suddenly going to jump into the fray to supply veterinary services to anyone. Veterinary practices, if they are not doing it now, need to be the front line in educating the public on the importance of neutering their pets. Most clients in progressive practices are aware of this issue, and selling the surgery is not difficult. With resistant clients, the practitioner should point out why this surgery is so important. Usually, the explanation of health benefits and the improved behavior of neutered animals have even the most difficult owner agreeing to these procedures. Most practices discuss the cost savings from lower license fees and reduced veterinary services over the life of the animal, compared with that for sexually intact animals that roam, as well as the decrease or elimination of reproductive tract diseases in aging animals.

The practitioner needs more sociologic and cultural data to be able to understand the reluctance of a particular owner to spaying/neutering. Are there problems we are not addressing when we bring up the topic of animal sterilization with the owner? The belief that cost is an important barrier to sterilization has never really been borne out in any major survey. What roles do poor education, lack of understanding of the reproductive cycle, religious beliefs, male chauvinism, the belief that allowing the pet to have a litter is educational for children, the feeling that sterilization is not "natural," and a host of other well-meaning but misguided notions play in this issue?

The area that should be of primary concern to the veterinary profession is the failure of the human/animal bond. As practitioners, we all know that the reason for our existence is this bond. We must be prepared to strive to ensure that this bond is appropriate and lasting. The current killing of unwanted dogs and cats usually does not include pups and kittens. Most shelters and pounds are faced with young adult animals that were given up, abandoned, or picked up as strays. Certainly, at least for those relationships in which we interact, we must develop the skills to cement these bonds, once formed.

The veterinary profession must supply the practitioner with the desire and skills to interact with the pet-owning public, not only to help them choose the pet that would be best for them, but also to be able to educate and to solve the common problem that causes many young animals to be abandoned: unwanted behavior. Surveys reveal that unwanted or misunderstood pet behavior is the most common reason the owner will give for wishing to end this relationship. For most of our academic and practice careers, we have concentrated on the medical and surgical side of our practices and have paid little attention to the behavioral side. Most practitioners have not been trained appropriately or have not understood the necessity of teaching their clients the rudiments of animal behavior to help develop this positive relationship with the pet. These areas now are being addressed at local and national levels via continuing education, and at the student level via undergraduate instruction in animal behavior at most, if not all, veterinary schools.

In my experience, cats often include > 75% of the animals euthanatized in shelters and pounds. Although this may be attributable to a greater reproductive capability and a need for less environmental support to survive, the public seems to have a different attitude toward cats as pets. Most veterinary practices can give examples in which clients readily support preventive health care for their dogs, but bring in cats only for sickness or injury. The owner will often state, "Oh, it's not my cat. It's a stray," when he/she is asked in a medical history, "How long have you had this cat?" When that question is followed with one about the length of time it has been stray, the answer may be, "Three or four years, I think."

Small animal practitioners today owe it to the community and to their practices to be fully aware of the pet overpopulation problem. It is certainly the number-one companion animal issue facing the animal welfare committees of the AVMA and the American Animal Hospital Association. The time is right, and I believe the focus will be getting to the reasons why animals are being killed in large numbers. Several groups have already started to find some of the answers we require to discover why animals are considered part of the "throw-away" society. The California Council of Companion Animal Advocates have held 2 meetings, and the group led by Dr. Patricia Olson has met for the second time. Results of other surveys trying to identify what makes a truly responsible pet owner will soon reach our hands. With the concentration of the lead groups—humane societies, animal control, the pet industry, and the veterinary profession—now beginning to focus on the problem, the future brightens for long-range solutions to this unnecessary killing.

To summarize my thoughts on what must happen to lessen the overpopulation of unwanted dogs and cats, hopefully resulting in a decrease in

death of healthy young animals, I would list the following, in order of importance:

- cooperative approach of all players within the animal-welfare network;
- proper data collection and assessment of information to provide realistic and attainable objectives;
- education of the general public on a grand scale;
- better and consistent legislation on animal control and identification across North America (microchip technology); and
- continuing surgical sterilization until alternatives are found.

Veterinary practitioners can be effective partners in this plan by increasing our knowledge of and participating enthusiastically in all phases of the plan. As front-line people who see the problems arising from the attitude of the "disposable" animal, we must morally and ethically be involved.

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The pet owner and breeder's perspective on overpopulation

Patti L. Strand

From the top, I want to impart to you the credo that pet breeders and pet owners share: the human/animal bond is good. It is good for humans, and it is good for the animals. Pet breeders and owners are committed to preserving and enhancing the human/animal bond.

There are 3 basic categories of breeders, with a lot of overlap among these categories. First are the so-called random or "backyard" breeders, whose mixed-breed or purebred pets produce litters. The reasons given by pet owners for breeding their pets are not generally endorsed by professionals such as commercial and show breeders, but are viewed instead as frivolous or irresponsible. A couple generations ago in more rural settings, the motivations of such breeders were considered to be natural ones. Many show breeders, especially in the days before widespread use of sales contracts that require pet-quality pups to be sold with breeding restrictions, started as backyard breeders who became more interested in dogs or cats over time. Typically, backyard breeders are ignorant about animal welfare problems, because they are operating alone, without club affiliations in which such information is shared.

Commercial breeders represent the second category. They breed purebred animals, with the objective of producing stock that ultimately will be sold in commercial establishments. They work to maintain quality and pay attention to good husbandry practices that will produce healthy animals.

Show breeders represent the third classification. As show breeders, our primary goal is improving the quality of our breeds. We retain our most "breed-progressive" stock for our breeding programs and the show ring and sell our pet-quality pups to the public from our homes.

Show breeders come from every background, and visits to dog- and cat-club meetings reveal that their membership includes virtually every profession and walk of life—artists, doctors, lawyers, shelter employees, housewives, veterinarians, and a host of others. Our diversity has allowed us to grow and change with the times and, surprisingly, also has placed dog and cat clubs among the most enduring institutions in the United States. In my hometown, for example, Portland Kennel Club will celebrate its 100th anniversary in 1993.

The diversity of our club membership and our members' degree of personal involvement with animals is not surprising when you consider our nation's agricultural history. In 1880, 1 of 2 Americans lived on a farm; by 1930, the ratio was 1 of 4, and today it is less than 1 of 50.[1] The growing role of pets can be gauged by observing pet ownership statistics during the same period. Despite

From the National Animal Interest Alliance, PO Box 66579, Portland, OR 97290-6579.

wars, depressions, and other hardships, pet ownership and the purebred sports that mirror pet ownership have grown by proportions that have been as dramatic as has been the decline in other kinds of agricultural participation. People who migrated to the cities over the last hundred years did not leave the farm completely behind them. Today, with numbers similar to the farm figures from 1880, more than 1 of 2 Americans keep pets. As a symbolic testimonial to this transformation and to the role of dog and cat fanciers, the all-breed kennel club to which I belong is the oldest remaining tenant of what used to be the largest livestock exposition and auction facility in the Northwest, the Pacific International. Dog and cat shows held at the Cow Palace in San Francisco reflect the same urban reality.

Dog and cat clubs progressively filled the vacuum created when agricultural interests were displaced by urbanization, and they have given direction to animal welfare issues (ie, issues dealing with humane treatment and responsible use of animals) from the beginning. The show breeders' relationship to animal welfare issues, such as unwanted animals, is a huge dimension of our activity that has remained generally unknown among animal professionals and the public.

Dog and cat exhibitors are bedrock supporters of animal welfare in the United States. The reason is simple: dog and cat clubs licensed by the 2 biggest national registries, the American Kennel Club (AKC) and the Cat Fanciers' Association (CFA), are nonprofit organizations that must donate their profits. The full effect of these contributions is not a matter of public awareness, because these nonprofit clubs are not considered "public benefit" organizations, as are the national animal organizations that are always in the news. Our clubs do not raise funds from the public through direct mail solicitation or publicity campaigns, but raise money by sponsoring successful dog and cat shows.

The nationwide affiliation of show breeders operates through a network of nonprofit clubs. We may appear to the casual observer to be nothing more than a hobby, like stamp collecting or skiing (because we never seem to make any money), or than a standard, profit-oriented business to the uneducated cynic. A closer look, however, reveals a greatly different character, a community whose every movement exerts a multiplier effect on pet ownership throughout society. The following description of our structure helps explain how the breeder/pet-owner community acts as a fulcrum for animal interests across the United States.

National dog and cat registries such as the AKC and CFA maintain pedigrees and register purebred dogs and cats for breeds that these groups recognize. The AKC recognizes 135 breeds of dogs, and the CFA, 34 breeds of cats. Additionally, AKC licenses approximately 4,000 clubs in the United States, and the CFA, more than 600 clubs. These national groups contribute to causes that benefit animals through financial contributions and program development.

The CFA is currently a cosponsor for a study on the long-term effects of early sterilization in cats. The AKC performs on-site kennel inspections (2,000 in the first 6 months of 1992 alone, which was more than even USDA efforts), and CFA is implementing a progressive cattery-standards program for its members.

The national registries maintain breeder and rescue listings. They also encourage responsible pet ownership through the development of such programs as AKC's Canine Good Citizenship Test. This test requires that dogs have county pet licenses and proof of rabies vaccination to participate, raising public awareness about the responsibilities of pet ownership, while promoting the benefits of having a well-behaved pet. The CFA has contributed hundreds of thousands of dollars to the Robert H. Winn Foundation for feline disease research. The AKC maintains a 16,000-volume library on dogs and initiated a dog museum. The CFA prints excellent educational brochures on the importance of sterilizing pets and on other animal welfare topics. These groups also set policies, in keeping with their own charters, that establish the tone for affiliate club participation in the United States.

The next layer in the dog show breeders' structure is represented by the 135 national breed clubs (the cat club structure is similar). National breed clubs provide educational and ethical guidance through standing committees, workshops, and informational packets. They offer brochures that include information on the care and feeding of a particular breed, and they recommend responsible pet ownership practices such as spaying and neutering, licensing, confining, identifying, and training. They also publish informational magazines.

National breed clubs also sponsor genetic screening clinics for detecting carriers of diseases such as progressive retinal atrophy, hormone disorders, deafness, and other conditions that, contrary to popular myth, also occur in mixed-breed dogs. Club members, through national club leadership, compile scientific information and fund, support, and at times, even contribute animals to research projects. These clubs also educate the public about problems specific to a particular breed. The Dalmatian Club of America, with which I am involved, uses member-distributed position statements in this role to advise shelters, pet stores, and veterinarians that deaf Dalmatians should be euthanatized. National breed clubs provide breeder referral and regional information on national rescue networks. Any person wanting to locate information about a specific breed need only call the AKC in New York for the phone number or address of that breed's national secretary.

In terms of philanthropy and member activ-

ism, all-breed kennel clubs and cat clubs are similar to animal welfare organizations. Our nonprofit status has always required us to donate money. In the last several years, however, the AKC has added an activism requirement to our show approval process: to be approved to sponsor a dog show, which is the fun thing we breeders want to do, clubs have to certify participation in some form of animal welfare activism or public education beneficial to dogs (eg, rescue work; breeder referrals; administering Canine Good Citizenship Tests, which can include mixed-breed dogs; or sponsoring spaying/neutering or rabies clinics).

Profits vary from club to club, depending on individual management and overhead expenses, which are primarily the costs of show-site rental and equipment. For example, our club manages to give $2,500 in veterinary scholarships annually. We contribute $500 to $1,000 each year to 2 or 3 groups such as Canine Companions for Independence, Guide Dogs for the Blind, and Dogs for the Deaf. We donate $500 to $1,000 for nonrecurring disaster relief, such as for Hurricane Andrew, and we routinely contribute to local humane and rescue groups, as well as to the canine defense unit of the local police force. We also provide dog magazines and books to local libraries. My all-breed club's contributions through September 1992 were $4,550, and this figure is lower than usual because of high equipment expenses.

Other clubs throughout Oregon, especially where show-site rental expense is cheaper, have donated much more, adding major contributions to humane societies, fairground restoration, and spaying/neutering funds. In fact, 1 of our local humane societies was founded through a $25,000 building fund donated throughout the late 1950s and early 1960s by the neighboring Vancouver Kennel Club. Club members then served as volunteers at the shelter. Cat clubs, likewise, are well-known for donating tens of thousands of dollars annually to local humane societies, to spaying/neutering funds, and to programs that attempt to treat cats in their habitat.

In our activist role, all-breed dog clubs provide educational workshops for dog fanciers and the public. Dog and cat shows provide educational booth space to other nonprofit animal charities, and cat clubs allow humane societies to bring cats to their shows for adoption. Dog clubs provide breeder-referral services through regular local newspaper listings, to enable direct public contact with breeders who can speak from experience about specific breed requirements.

Obedience clubs promote dog training, and their member/trainers volunteer in communities across the United States to help the public learn how to be better and happier pet owners. Many of these clubs sponsor classes, from basic "house manners" and "puppy kindergarten" through advanced obedience work, for the public year-round for nominal fees that are just high enough to pay for the building rental (ie, members seldom receive any compensation). Because animals are often abandoned because of behavioral problems, the impact that these clubs have on the surplus animal problem is tangible. An innovative program shared by the Deep Peninsula Dog Training Club and the Palo Alto Animal Shelter illustrates 1 positive approach to improving adoptability through cooperative efforts between shelter personnel and dog trainers. In this program, adoptable dogs that are too excited in the shelter environment to appear desirable to potential adopters are allowed to participate in training classes. Such training makes these dogs more appealing, and if adopted, the new owner can finish the training course with his or her new pet.

Local single-breed clubs also contribute money and charitable works. Their treasuries are smaller than all-breed clubs, but their member activism compensates for their lower budgets. At the local level, most of these clubs have rescue committees whose efforts account for a lion's share of the dog rescuing. After rescuing dogs from shelters, committee members are responsible for following through with shelter adoption policies, including spaying and neutering. In some areas where shelter budgets are low, kennel clubs maintain special rescue funds for sterilization and rehabilitation. Rescue clubs are mushrooming now; their ranks number in the thousands nationally. A huge number of them are local breed clubs, and these are among the most reliable.

To put the role of show breeders in perspective, 23 years ago, when I first became involved with the dog fancy, overpopulation of pets was already an animal welfare topic. In the early years of my involvement, most of our efforts revolved around making contributions to groups who were working to solve the problem (shelters, humane groups, and the like). As we learned more about the problem, we added personal activism, such as giving workshops to the public, volunteering to help owners overcome behavioral problems, promoting licensing and identification of pets; and sponsoring spaying/neutering clinics, rabies clinics, and a host of other kinds of public services.

Approximately 15 years ago, national breed clubs began including, in their ethical guidelines and educational materials, a recommendation to their members that pet-quality pups be sold with spaying/neutering contracts. National clubs started providing such contracts for their members, and not too much later, the use of such contracts became standard practice. The AKC created a limited form of registration, which is currently being revised to encourage more participation, for nonbreeding, pet-quality pups. Five to 10 years ago, breed-rescue programs were initiated, and today, most areas have solid breed rescue programs under way. The scope of our efforts has virtually exploded

Table 1—Shelter statistics for Oregon Humane Society, Portland, Ore, from 1973 to 1991

No. of dogs

Year	Total RECD	RECD for adoption	RECD for euthanasia	RECD dead	RECD for county	Euthanatized	Adopted
1973	28,850	24,322	3,768	480	280	11,566	10,324
1974	20,239	17,521	2,007	480	231	9,112	9,134
1975	18,206	15,495	2,225	486	0	8,883	8,534
1976	17,838	15,488	1,937	413	0	7,287	8,123
1977	17,271	15,069	1,506	478	218	6,908	8,227
1978	16,046	13,656	1,715	398	277	5,726	7,655
1979	17,188	11,869	1,413	433	310	4,576	7,293
1980	10,912	9,254	908	435	315	2,671	6,583
1981	9,154	7,248	1,462	465	214	1,991	5,257
1982	9,001	6,635	1,010	1,282	74	3,489	3,096
1983	9,207	6,557	1,134	946	570	4,212	2,415
1984	8,641	5,732	1,224	540	1,145	3,634	1,993
1985	8,187	4,892	1,477	677	1,179	3,176	2,006
1986	7,906	4,239	1,405	586	1,676	2,716	1,735
1987	6,465	3,243	1,254	492	1,476	1,688	1,627
1988	6,128	3,103	1,343	420	1,252	1,343	1,656
1989	5,354	2,797	1,047	473	1,037	1,055	1,787
1990	6,419	2,965	1,168	851	1,435	1,338	1,567
1991	6,665	2,820	1,016	1,422	1,407	1,171	1,492

No. of cats

Year	Total RECD	RECD for adoption	RECD for euthanasia	RECD dead	Euthanatized	Adopted	RECD stray
1973	25,054	22,938	1,962	154	18,297	4,293	NA
1974	20,918	20,206	532	180	19,332	2,846	NA
1975	19,232	18,670	427	135	15,702	3,083	NA
1976	20,115	19,443	555	117	15,967	3,484	NA
1977	17,755	17,151	457	147	12,483	3,513	NA
1978	15,843	15,194	531	118	11,851	3,345	NA
1979	15,899	15,240	516	143	10,727	4,513	NA
1980	12,503	11,596	759	148	7,152	4,444	NA
1981	10,680	9,878	885	155	6,269	3,609	NA
1982	12,390	10,091	683	616	9,472	1,616	NA
1983	11,750	10,459	846	445	8,838	1,639	NA
1984	10,457	8,921	1,249	287	7,196	1,651	3,358
1985	10,792	8,302	2,153	337	6,258	1,974	3,622
1986	12,935	9,429	3,114	392	7,497	1,857	4,185
1987	10,815	7,962	2,475	378	5,710	1,855	4,050
1988	11,373	7,611	3,470	292	4,973	1,991	3,312
1989	8,989	6,920	1,764	305	4,749	1,911	3,388
1990	11,846	8,860	2,605	381	6,594	1,996	4,659
1991	11,260	9,508	1,189	563	7,127	2,079	6,299

RECD = received; NA = not available.

over the past 20 years, but what we do through our club affiliations is so much a background fact of our organizational character, and is so much a labor of love, from the breeding/showing/training aspect to the donating/educating/rescuing aspect, that it had never occurred to any of us, before 1990, that we needed to brag about it.

The change in this decade has occurred because, in many areas, the surplus-animal issue has been radicalized. In some locales, by 1991, the issue was no longer represented by mainstream animal experts who had a vested interest in solving this problem, but by spokespeople for national animal rights organizations. The style of public policy promotion in this radicalized forum is often emotional and antirational and may include scapegoating and distortions. In my opinion, this approach is destructive and polarizing, rather than program-oriented or problem-solving in nature.

In early 1991, while I was attending my county's budgetary hearings to make a statement in support of animal control's budget, I observed a woman whom I vaguely remembered, but could not place. She spoke against animal control's budget and counterproposed a San Mateo-type breeding ordinance, which she stated would make animal control obsolete. She claimed it would allow her rescue group to take over animal control's functions at a great savings to taxpayers. She reported to them that her group had a super new computer that would enable them to match pets with owners in ways that were beyond the capabilities of animal control. Regulating the breeding of dogs and cats was the cornerstone of her program to end overpopulation. When I finally recognized her, I was stunned, because our kennel club had donated to her group the $5,000 that enabled them to buy the computer for statewide rescue. It had sounded like a good idea at the time of the donation, but it was a costly introduction to the ends-

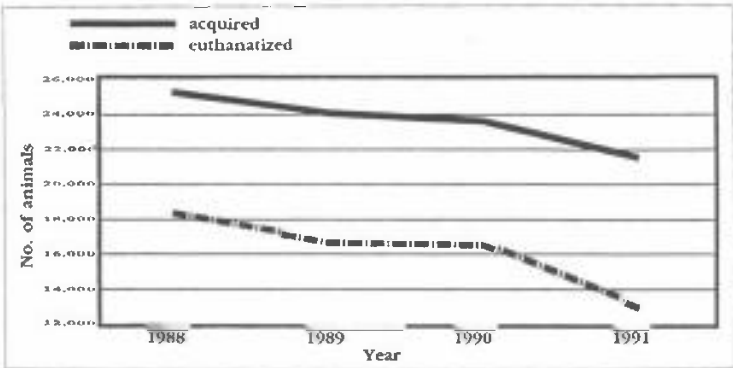

Figure 1—Shelter statistics for King County, Washington.

justify-the-means ethical mind-set. It had just never occurred previously to any of our club members that someone would solicit money from them to initiate legislation against them.

Starting with the San Mateo breeding ban in 1990, breeding bans and/or breeder-licensing ordinances were being promoted around the United States. In King County, Washington; Montgomery County, Maryland; and a score of other places; variations were being introduced. All of these laws had the stated goal of ending pet overpopulation. Statistics quoted by the various groups pushing the ordinances were worse than I had previously heard. Speaking for the breeders, we were genuinely heartsick that, despite all the efforts committed to solving pet overpopulation, it was still out-of-control and getting worse. We were so politically naive then, we blindly accepted the statistics that were quoted as true. After all, overpopulation as a concept had been with us for decades.

Sometime between the budgetary hearing that I mentioned earlier and learning of all the new ordinances being promoted in the United States, I visited my county animal control agency to discover the severity of local pet overpopulation, expecting the worst. But examination of the county records revealed a decrease in pet impoundments of more than 50% over the past 15 years. In fact, canine impoundments at our county animal control shelter decreased from 16,650 in 1976 to 6,881 in 1991, and cat impoundments, from approximately 6,000 to 4,000 over the same period. The shelter's staff confirmed that the trend was representative of the area and that confounding factors such as new shelters were not involved. All other shelters in this region verified the trend, and all agencies confirmed that their impoundments and euthanasias had been decreasing for years, whereas the human population had increased.

The numbers of dogs and cats impounded at Oregon's largest humane society, Oregon Humane Society, located in Portland, give some additional clues to understanding the existing problem (Table 1). In 1973, 11,566 dogs were euthanatized; by 1991, the number had decreased to 1,171. In 1973, 18,297 cats were euthanatized; by 1991, the number had decreased to 7,127. Included in the total received column are animals received for and later transferred to the county animal control shelter. These animals also will be counted in the county shelter's statistics, and could accidentally result in overestimation of the number of abandoned pets in this metropolitan area. The trends of decreasing numbers of pets surrendered to shelters are similar to the national pattern. Such trends suggest that, were it not for the increase in stray cats (which, according to the American Humane Association,[2] are now exceeding the numbers of cats released to the shelter by owners nationally), overall impoundment and euthanasia numbers would have decreased so dramatically in many parts of the United States that humane organizations could finally move toward community education programs that involve the public and away from sheltering animals as their primary role. Evaluation of these trends reveals the growing percentage of unowned or feral cats and suggests a possible need to develop habitat management for cats, such as colony programs, as alternatives to in-house shelter programs.

From Seattle/King County, Washington (Fig 1); to Rockville/Montgomery County, Maryland, where the Montgomery County Humane Society had a decrease in animals handled from 24,696 to 12,119 between 1970-1971 and 1989-1990[3]; to San Mateo County, California, where the number of animals accepted at the Peninsula Humane Society had decreased from 42,965 in 1974 to 15,810 in 1990 (Fig 2); examination of the data confirms a striking downward trend. In each of these counties, however, restrictive breeding ordinances have been promoted by animal rights groups since 1990, on the basis of the premise of out-of-control pet overpopulation. These numbers, when combined with additional statistics, confirm a national downward trend of major proportions.[2] The downward trend reported by American Humane Association (Fig 3) includes dogs and cats; the 40% overall decrease was attributable to a decrease for dogs of approximately 47% and for cats of approximately 32%, from 1985 through 1990.

At the National Animal Interest Alliance, where we have been compiling and standardizing these statistics, we interpret them to mean that the high degree of commitment from various groups work-

ing on behalf of this issue is resulting in enormous payoffs. We believe that the current research indicates greater commitment, pride, care, and ability in pet ownership over time; this view should be encouraging to all individuals who have worked on the problem. Indeed, if successes this striking were being recorded in our war on drugs or on crime or in reducing the national debt, they would be viewed as phenomenal results. We would be so encouraged by our choice of leaders and course of action that congratulations and promotions would be in order.

These nationwide statistical trends in animal numbers are staggering when you consider that the public has been coached into believing that a pet overpopulation of crisis proportions exists and into blithely accepting that radical policies and restrictive regulations must be established to deal with these perceptions.

The French revolutionary, Proudhon, said that in major public policy disputes, opponents are separated at very basic levels by more than the issues at hand; that their arguments are about premises, and that premises derive from systems of belief that function like religions, by providing an integrated way of viewing the world.[4] Because the premise of pet overpopulation (as it has been used in the argument to promote restrictive breeding regulations) assumes as proved the very thing that is being investigated and because "overpopulation" is a catchall phrase that inaccurately describes the problems we are dealing with, considering the beliefs from which the premise emerges may be important in understanding this dilemma. It is this belief system, after all, that moves the issue away from the category of a social problem for which solutions might be found and into the category of a moral one.

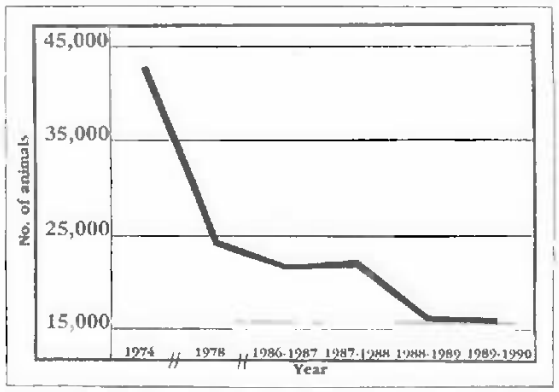

Figure 2—Shelter statistics for San Mateo County, California.

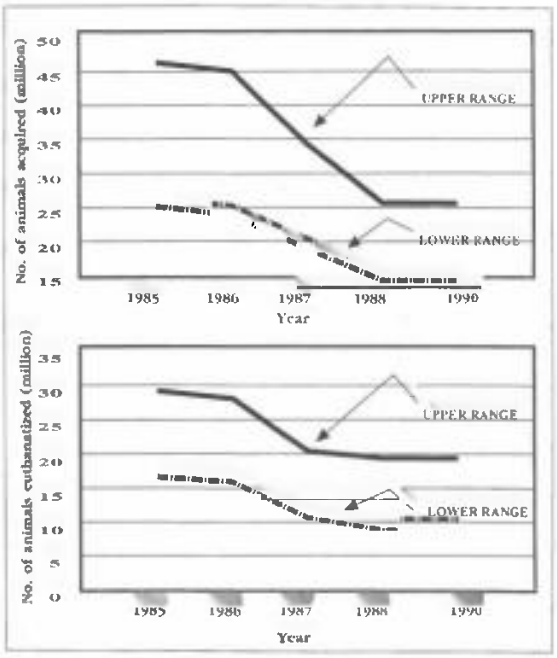

Figure 3—Nation shelter statistics for 1985 to 1990.[2]

My observation over the past 20 years regarding the so-called pet overpopulation issue is that the groups who are working to solve the problem and who should be getting together to jointly work on solutions are instead being singled out and blamed for it. Veterinarians were once blamed because of the myth that they were too greedy to perform reduced-rate spaying that would end the problem. Later, pet shops were blamed because of the myth that their pups (always alleged to be supplied by "puppy mills") wound up in shelters more often than did other pups. Next, backyard breeders, then AKC and CFA show breeders were named as the real culprits. At a meeting I attended in Seattle, breeders were called murderers by a group promoting breeding regulations, because of the current myth that the dogs produced displace, on a 1-to-1 basis, shelter animals that would otherwise be adopted.

Choosing policies on the basis of facts rather than on that of doctrinaire assumptions is an important part of our current challenge. Equally important for an outcome that benefits human beings and pets, we need to choose alternative premises that emerge from a view of the world that is kind and hopeful, rather than angry and pessimistic. If we believe that the world and all of its inhabitants are doomed, then the best scientific models we can devise will not save us; they will not even be tried. Likewise, if we do not strongly affirm that pet ownership, even if imperfect, is a worthwhile relationship for individuals and society, then we will become sidetracked by focusing on the flaws of ownership rather than by supporting its value.

Albert Einstein acknowledged this problem-solving dilemma once when asked what he believed to be the most pressing question facing mankind. He responded not with a scientific formula or symptomatic description such as world hunger or air pollution, but rather with a rhetorical question of his own: the most important question to answer revolves around the issue of whether or not the universe is friendly. In this reply, he was addressing the fact that if preexisting assumptions about the world (or the part of it being studied) are

not "friendly" or if the half-full glass is being viewed as half-empty, then the proposed solutions to problems would lead only to more problems. He was saying that solutions that are driven by negative emotions such as fear, anger, and hatred provide destructive responses to problems. He was acknowledging that if we do not focus on what we love, we risk losing everything.

There are no shortages of scientific approaches that have been successful in solving problems in our individual specialties. No one doubts that the science of veterinary medicine or animal husbandry or behavioral modification will continue to expand our knowledge. The scientific vacuum that challenges us today arises from our lack of interdisciplinary collaboration. In that arena, we are still, quite literally, operating at a preenlightenment stage of development. Pet keeping, no matter how widespread and regardless of how much benefit derives from the human/animal relationship, has remained a background fact of society, rather than a focus for scientific inquiries designed to study and improve its quality and to develop public policy.

The scientific method is designed to test intuitively based premises against existing data. The opposite—to accept what is intuitively believed as fact—leaves animal issues in the realm of mythology, symbolism, and fantasy. It leaves them in the realm of well-meant misinformation, and worse—it places animal issues in the arena of misunderstood and therefore exploitable issues. Left in this mythologic framework, scapegoats understandably will be sought and found, and real solutions to problems will be treated as irrelevant.

In such an environment, pet ownership is not treated as a valuable arrangement by government policy makers. Naturally, they also have difficulty funding it. Sitting through several budget hearings over the past few years, I noticed that those issues that were represented positively were funded, whereas those that were negatively posed had trouble. The opera, for instance, which benefits only a few members of the community, is fully funded, whereas animal control, which serves half of the households in the community, has to beg for every dime it gets. Opera is perceived as valuable; pet ownership, at least at the conscious level, is not.

From shelters to breeders to veterinarians to animal behaviorists, we all suffer from different symptoms and degrees of the same disease; we are needed, but we are not highly valued. The way we are perceived depends on the growth of public knowledge about animal issues. It is critical, therefore, for animal experts to take back representation of animal issues. If we love animals, constantly focusing attention on the "empty half of the glass" is irresponsible and damaging. Reframing our issues positively does not mean that we sweep the problems we are working on under the carpet. Instead, if we believe that pet ownership is truly a worthwhile arrangement for people, animals, and society, then our challenge is to decide how to support what is best in pet ownership while improving areas that need help.

We need an approach that encourages all of the animal-expert participants to use their special talents to create an interdisciplinary science of "animals in society," to fill the void in which only exploitable myths exist today. The problem, though, is that the animal experts have been so busy taking care of animals that they have not yet had time to speak to this pressing need.

Programs that encourage broad-based participation while focusing on the "half-full" glass are pointing the way. The San Francisco Society for the Prevention of Cruelty to Animals has a program to make rental housing available to people with pets; this program supports pet ownership while solving surplus-animal problems. The Western Pennsylvania Humane Society has a foster program for people who want to raise a litter from pregnant shelter animals. Participants get a positive education as they comply with shelter policies, which include making provisions for altering dam and pups or kittens and placing them intelligently. Both groups have extensive community outreach programs; both support the public's need to find help for behavioral problems through training classes and help lines; both have animal programs for senior citizen and children. Both operate spaying/neutering clinics and, in both cases, impoundments are decreasing and the amount of positive public involvement is increasing. These are the types of cooperative efforts that we wholeheartedly support.

It is not merely the breeder/pet-owners' perspective, but rather a fact, that there are people in society who would destroy the human-animal bond in the name of pet overpopulation. Major animal rights leaders who oppose pet ownership have played roles in the current legislative campaign to restrict breeding.[5] We view the prospect of a world without pets with grave concern, for it is only through animals, in countless ways, that we are able to maintain our own delicate humanity. We therefore choose to defend the human/animal bond with all the cooperative resources available.

I conclude with quotes from the former United Nations Secretary General, Dag Hammarskjöld, and Ontario's Attorney General, Roy McMurtry, to illustrate my perspective about our greatest challenges and responsibilities.

From Dag Hammarskjöld:

> The madman shouted in the market place. No one stopped to answer him. Thus it was confirmed that his thesis was incontrovertible.[a]

From Roy McMurtry:

> It is important to answer the madman. It is important because, left unanswered, his lies and his malice can poison the climate. They

[a]Partners in Research newsletter, London, Ont, April, 1988.

can do worse. They can make other men mad. Left unanswered for long enough, they can nourish everything in men and women that is hateful and destructive and murderous. Our end is to ensure that every time the madman shouts in the market place, he is answered.[a]

We are answering. The glass is at least half-full!

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Role of breeding regulation laws in solving the dog and cat overpopulation problem

Kim Sturla, BA

We share our homes, our lives, and many of us, our beds with them. They are our friends, our companions.

Dogs and cats have been around for thousands of years. We began domesticating dogs about 8,000 to 10,000 years ago. Cats, on the other hand, began life with humans just 3,000 to 4,000 years ago.

According to the 1990 Gallup poll, 58% of households have nonhuman animal companions.[1] Eighty-eight percent of these households consider their dog or cat a member of the family, and 65% give their animals Christmas presents.

Understanding that dogs and cats are creatures whom we have created and continue to create, primarily for companionship nowadays, rather than as protectors or hunting partners; is not such a surplus of "man's best friend" ironic? We have a surplus in the millions. We have a surplus that we manage by simply killing the extras. In fact, convenience killing is the single largest cause of death for dogs and cats. I hesitate to call the mass destruction of our homeless animals "euthanasia." When euthanasia is performed, it is done in the best interest of the individual being killed. I do not consider it "euthanasia" when we take the lives of healthy young animals simply because we have too many as a result of our own ignorance. The best that can be said is that we are providing for them a painless death.

According to the 1990 American Humane Association shelter reporting study, between 11.1 and 18.6 million dogs and cats are killed in our shelters every year.[2] These numbers do not include the millions of dogs and cats that our animal control officers scrape off the streets; the unknown number abandoned and left to fend for themselves; those culled from litters because of perceived imperfections; the millions severely neglected or abused; or feral cats, of which the population is estimated to be in the range of 50 to 60 million. The 11 to 19 million represent just those whom we choose to kill each year because they are the surplus, the extra, the unwanted.

Whom are we killing? Are these dogs and cats old, feeble, or poorly socialized? No. The average age is < 2 years. Most are socialized to humans, and most are in good condition.

Killing the surplus has become an acceptable method of controlling the dog and cat overpopulation problem. Society is aware that we kill animals, and society condones the killing. It is almost as though other options did not exist.

Who is the Source?

Unwanted dogs and cats come from many sources. A study[a] conducted in November 1990 by the American Animal Hospital Association revealed that 8% of our dogs and cats come from pet shops, 14% from animal shelters, 25% from friends, 30% from breeders, and 24% from other sources such as newspaper advertisements and the stray population.

Seventy percent of the dogs and cats in the United States will not die in the home in which they

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[a]PR Tips, AAHA Newsletter, Fall 1991.

were first placed.[3] We are a nation that considers its dogs and cats to be disposable. Who are the contributors to this tragedy? I can identify at least 7 main groups.

Irresponsible animal guardians—People who refuse to spay or neuter their animals share a large part of the blame. Some of the reasons people will not alter their animals include that these people simply do not realize the extent of the problem, they do not believe the offspring of their animal are contributing to the problem, they cannot afford the surgery, they are unaware that spaying or neutering their animal is an option, they do not want to have a sterilized animal, and they simply want to breed their animal.

Puppy mills—Puppy-mill operations are defined as "mass-producing kennel operations in which dogs are not socialized, females are bred every season, kennels are poorly maintained, and the care the puppies receive is inadequate."[4] With this group, concern for profit far outweighs concern for animals.

Puppy-mill operations range in size from 5 to 500 dogs, with a mean of 75 to 100 breeding females. We do not know how many puppy mills exist; according to investigators, about 5,000 operations produce a half-million dogs per year.[5] Others say there are that many puppy mills in just a few states.

Pet-supply industry—Advertising is enormously powerful. Dog and cat food commercials feature litters of adorable pups and kittens running across our television screens. What message is being conveyed? Imagine the impact if all dog and cat food commercials ended with the tag "Spay or neuter your companion animal today."

Is this an oversight on the part of the pet-supply companies? Or are they purposefully choosing not to promote spaying and neutering? That question should probably be directed toward the Pet Industry Joint Advisory Council (PIJAC), the lobbying arm of the pet supply industry. The PIJAC takes the dubious credit for single-handedly defeating anti-puppy-mill legislation in California that would have required that pups be at least 12-weeks-old before they could be imported into California for resale. This, of course, would have essentially stopped puppy-mill pups from coming into California. Because the PIJAC actively promotes the selling of animals in pet shops, it vigorously opposed this legislation.

With estimated annual revenues of $8.5 billion, pet supplies are big business in the United States. According to the 1992 *Feedstuffs Reference Issue,* dog and cat food sales alone add up to > $7 billion.[6] There is no denying that a pup in the window is an enticement for shoppers, but it is possible to make a profit and, at the same time, encourage responsible animal guardianship, including spaying and neutering.

A large pet-supply retailer is doing just that. Petmart, which has 34 stores, is not a typical pet-supply store. It does not contribute to the overpopulation problem by purchasing pups from puppy-mill operations. Instead, it works cooperatively with humane societies in finding good homes for animals who are homeless.

The American Kennel Club (AKC)—The AKC is the country's largest registry for purebred dogs. It receives millions of dollars each year from registering litters for breeders, including puppy-mill breeders, though the exact amount of its litter registration income is unavailable. Sources estimate it at 70 to 80% of AKC's total income.[7] The AKC claims it is far lower. In any case, with an annual budget of almost $30 million, it is safe to say that a lot of money is generated from registrations.

The AKC has dragged its feet in taking an aggressive stand against puppy mills. It has not taken the lead in promoting spaying and neutering, and it still does not allow the showing of sterilized dogs in conformation. On the other hand, I am pleased to report that the AKC is supporting pending California legislation that would require all outdoor cats to be sterilized.

The AKC should have an ethical mandate to take the lead in these issues. The results would be dramatic if they would.

Hobby and professional breeders—We all know that "mutts" are not the only dogs who end up at shelters. Purebreds are also victims of the killing room. Because some people are preoccupied with finding the perfect coloring, stance, or tail length, the demand for certain breeds continues.

I fail to understand why some people are infatuated with creating assorted breeds and establishing capricious standards for what they believe represents a perfect specimen. The purposeful breeding of purebreds often results in the culling of "imperfect" specimens as well as in the displacement of homeless animals who are killed in shelters.

Whether they are commercial or hobby breeders and whether they breed AKC-registered dogs or grey tabby cats, breeders contribute to the overpopulation problem. In theory, each animal produced by a breeder provides a death sentence for an adoptable animal at a shelter.

Veterinarians—People look to their veterinarian for guidance on proper care for their companion animals. We could make tremendous headway if all veterinarians would actively promote spaying and neutering. Many do, but not enough. I am not asking veterinarians to provide free sterilization. I am simply calling on the profession to begin actively promoting spaying and neutering and not to oppose efforts of nonprofit organizations to establish low-fee clinics.

The veterinary profession has been fighting the establishment of low-fee spaying/neutering clinics

for more than 20 years. That the profession has not been in the forefront of the effort to stop dog and cat overpopulation is bad enough, but that some veterinarians are obstructing the efforts of others is reprehensible and an embarrassment to the profession. I am pleased, however, to see the AVMA sponsor this symposium.

Additionally, I would like to see veterinary associations aggressively promote early-age spaying and neutering. I am pleased to report that the California Veterinary Medical Association (CVMA) has issued an official position statement supporting early-age sterilization. Further, the CVMA must be commended for attempting to amend California's shelter spaying and neutering bill, which would have shortened to 60 days the length of time a new guardian has to alter a dog or cat adopted from a shelter. Because many shelters place animals as young as 6 to 8 weeks old, the amendment would have mandated that some guardians sterilize their companion before the animal is 4 months old. Unfortunately, the bill was vetoed by the governor.

Animal shelters—If city, county, or private shelters are not taking spaying/neutering deposits on adoption, with aggressive follow-up programs, or altering the animals before they leave the shelter, then they, too, must share the blame for overpopulation. Animal shelters must move toward ensuring that all dogs and cats adopted from their facility are sterilized before leaving, regardless of age. Many shelters are doing this, but they are still in the minority.

We Need to Work Together to Solve the Crisis

If all the groups I have highlighted did more to promote spaying and neutering, to educate the public about responsible animal guardianship, and to eliminate irresponsible breeding, we could solve this crisis. The sad reality, however, is that these groups are not all actively and aggressively promoting spaying and neutering; hence, 11 to 19 million companion animals per year are killed.

Not only are many of these groups not aggressively promoting spaying and neutering, some are aggressively encouraging breeding—when the single largest cause of death for dogs and cats is convenience killing! This is, in itself, disgraceful, and it must change.

This problem has been left to the humane societies and the animal control agencies to clean up, to solve, to deal with. As many of you are aware, they cannot do it alone, nor should they be expected to do so. The other 6 groups I highlighted must start working with shelters to solve this crisis.

How Do We Solve the Problem?

Many of us in the shelter business have done a great deal over the years to try to clean up this mess. We have developed education programs, built low-fee spaying/neutering clinics, initiated and perfected adoption screening policies and procedures, and developed volunteer programs. Many shelters have hired animal behaviorists to assist adopters with integrating their new companion animal into the family.

These programs and others have helped reduce overpopulation, but only to a small degree. We are still killing millions of animals because there are too many of them.

To continue managing populations by killing the surplus is not an ethical, efficient, or cost-effective solution. The high cost of processing and killing animals is borne by everyone. It is time to make it socially unacceptable to indiscriminately breed dogs or cats.

Driving drunk kills, and it is now a crime and is socially unacceptable. Smoking kills, and it is becoming socially unacceptable, and illegal in some cases. Overpopulation kills, and the indiscriminate breeding of dogs and cats also must become socially unacceptable and illegal.

If we are serious about putting a stop to the killing of dogs and cats, we must escalate our efforts in humane education, increase our low-fee spaying and neutering services, ensure adequate funding for animal control services, promote early-age spaying and neutering, and begin regulating the breeding of dogs and cats—meaning people will have to "spay or pay." Further, we must begin recognizing overpopulation for what it is—the number-one killer of dogs and cats.

What would the veterinary profession do if a disease were killing millions of dogs and cats per year? Resources would be channeled into defining the problem and learning about how to prevent or treat it.

Dog and cat overpopulation is no different, except the solution is simple. We are not talking about a complex disease resistant to remedies. We know how to solve dog and cat overpopulation. One way is to spay and neuter these animals. Another is to pass legislation making reproduction control mandatory.

Breeding Regulation Laws

Some view regulating the breeding of dogs and cats as overly restrictive, too extreme, or too radical. I challenge those individuals to name a more extreme solution than killing unwanted dogs and cats. There is no more extreme, costly, or ineffective solution.

If people will not voluntarily stop breeding their animals, then I propose we make it mandatory that many sterilize their animals. Several approaches to breeding regulation have been proposed.

Mandatory spaying/neutering in the absence of a breeding permit—This is the ordinance that I introduced in San Mateo County and that caused all the

controversy.[8] The ordinance, which has since been amended (strengthened and weakened), states that all dogs and cats > 6 months old must be altered unless their guardian purchases a breeding permit or unless their veterinarian states that altering would be detrimental to the animal's health. The cost of the permit is $25 per animal per year. Including the license differential fee with the breeder's permit, the cost for keeping an unaltered dog intended for breeding is $50/yr.

The criteria for the permit are minimal, but reasonable: offspring of the animal for which the breeding permit was obtained may not be sold or adopted until they are 7 weeks old, offspring may not be sold or adopted until vaccinated, the permit holder must keep complete records of the purchaser, the permit holder must assist with placement of a purchased dog or cat if the purchaser can no longer keep the animal, and the permit holder must display the permit number when advertising offspring for sale or adoption.

King County, Washington passed a similar law with stronger language in 1992.[9] Ruidoso, New Mexico modeled their legislation after San Mateo, and it was signed into law in 1992.[10]

Breeders generally oppose these ordinances, although the reasons for doing so are unclear to me. A properly worded breeding-regulation law would work to their benefit. If I were a serious breeder of AKC-registered Rottweilers, for example, I would make sure that both parents were certified free of hip dysplasia. I would be careful not to breed any Rottweiler with unusually aggressive behavior. I would thoroughly screen all adopters. I would insist most of the offspring be spayed or neutered. Further, all the pups would be examined by a veterinarian and be vaccinated before being sold.

One would assume, therefore, that I could easily sell the pups, because they would be healthy behaviorally and physically. But what if someone else also was breeding AKC-registered Rottweilers, without taking the responsible precautions that I took and was selling the pups for a quarter of the price? From whom is the average consumer going to purchase his/her pup? All the consumer sees are 2 people selling AKC-registered Rottweiler pups—one charging $400 each, and the other, only $100.

I am attempting to illustrate that if you require all dogs and cats to be altered unless a breeding permit is purchased and if you develop fair and reasonable criteria for issuing permits, you will not only help prevent overpopulation, but you also will help eliminate the irresponsible "backyard" breeders, those perpetuating behavioral and physical problems in particular breeds.

Mandatory spaying/neutering of outdoor cats—Over the past several years, the number of cats brought to shelters and living on the streets has increased.[2] Some communities are writing legislation requiring that all free-roaming cats be altered. Santa Rosa, California recently passed such a law.[11] In California, I just initiated a state bill that I modeled after Santa Rosa's ordinance. I have a number of organizations endorsing the California legislation, including the CVMA.

Mandatory spaying/neutering for shelter animals—Several states require animal shelters to spay or neuter all dogs and cats before they leave the facility or to take a deposit for the surgery on adoption.[12] Every state should have this law.

Higher impound fees for unaltered animals—Higher impound fees for unaltered animals found running loose are an excellent component of a breeding-regulation ordinance. For example, San Mateo County's ordinance states that on the first impounding, the guardian must pay a $35 spaying/neutering deposit, which is refunded if the animal is altered within 30 days. On the second impounding, the animal will be altered prior to redemption.[8] Some communities are instituting an impounding differential-fee ordinance, without provisions for altering the animal.

License differential—Many communities already have a license differential in place. The differential, however, is usually minimal. Some communities are considering increasing it. For example, Tacoma/Pierce County, Washington, recently passed a law requiring $7 for licensing an altered dog ($3 for altered cats) and $30 for licensing an unaltered dog/cat (which will increase to $50 in 1994).[13] The difference in cost provides incentive for guardians to alter their animal if they are not serious breeders.

Commercial breeding permits—Pacific Grove, California recently passed a law requiring commercial breeders to purchase permits that cost $200/yr for cat breeders and $300/yr for dog breeders.[14] Those who want their animal to engage in "incidental breeding" must purchase a permit that costs $100 per litter for cats and $150 per litter for dogs.

Mandatory spaying/neutering for pet store animals—Because most pups sold in pet stores originate from puppy mills, discouraging the breeding of these dogs makes sense. Many, if not most, breeders strongly support the concept of requiring spaying or neutering of pet store animals. However, the opposition from the pet supply industry renders such legislation virtually impassable at this time. I would love to see the pet supply industry actually sponsoring this legislation.

Cat licensing—A cat licensing program is not a breeding regulation ordinance per se, but it is a good first step toward controlling the homeless cat population. My strong support for cat licensing is based on 3 arguments: the shelter redemption rate for dogs is 16%, and for cats, only 2%[2]; whereas dog guardians subsidize animal control services

through license fees, cat guardians do not; and licensing is a protective measure, and cats should be afforded the same protection as dogs.

These are only a few of the legislative approaches communities are using to begin regulating dog and cat breeding. I see the benefits of regulating breeding as threefold: by reducing the number of animals born, we reduce the number killed in shelters; by reducing the number of animals born, the number brought to shelters will be reduced, which will eventually decrease animal control costs; and fewer homeless animals means fewer animals running loose, which leads to reduced animal-caused traffic hazards, quarantines, bites, fights, noise complaints, and harassment of livestock and wildlife. With a properly worded breeding-regulation ordinance, everybody wins—the animals and the public.

Altering undeniably prevents future suffering by preventing unwanted offspring. The surgery also provides medical benefits, which the veterinary community should emphasize more.

Critics of breeding-regulation ordinances state that these laws are unenforceable. But an appropriately worded breeding ordinance, tailored to its community, is as enforceable as any other animal control law.

I see enforcement of breeding laws as similar to enforcement of license laws. When someone comes into a shelter to claim a lost animal, they must show proof that the animal has a license and is altered or has a breeding permit. A breeding ordinance can easily be incorporated into a licensing program by having a 2-color license-tag system. For example, all altered dogs and cats could have green tags, whereas unaltered animals would have red tags. If a license canvassing program is in place, it can incorporate the breeding permit program. Requiring that the breeding permit number be displayed or published upon sale (as stated in San Mateo's and King County's ordinances) will help with enforcement of the law.

Another argument of the opposition is that breeding-control-law supporters have a hidden agenda to get rid of companion animals. This is nonsense. The only motive is to eliminate homelessness and, therefore, the need to kill animals.

The other argument I hear against breeding regulation is that it penalizes the "responsible" breeder. It does nothing of the sort. As explained earlier, it would, in fact, benefit the serious breeder.

Breeding-regulation laws are an innovative response to the national disgrace and needless tragedy of dog and cat overpopulation. Hundreds of communities across the country are studying and drafting legislation that requires animal guardians to spay and neuter their dogs and cats, or apply for a breeding permit. Some have lost the first round, but are continuing to push, whereas others have succeeded.

We must encourage and support effective new approaches for solving this crisis of dog and cat overpopulation. We must initiate our own ordinances and programs. And we must reject the extreme solution we have used for years—the killing of our companion animals.

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