

The development of an on-site spay/neuter facility at a county animal shelter to reduce pet overpopulation as a means of rabies prevention

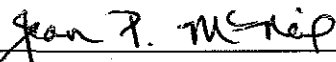
by

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A Master's paper submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Public Health in the School of Public Health, Public Health Leadership Program.

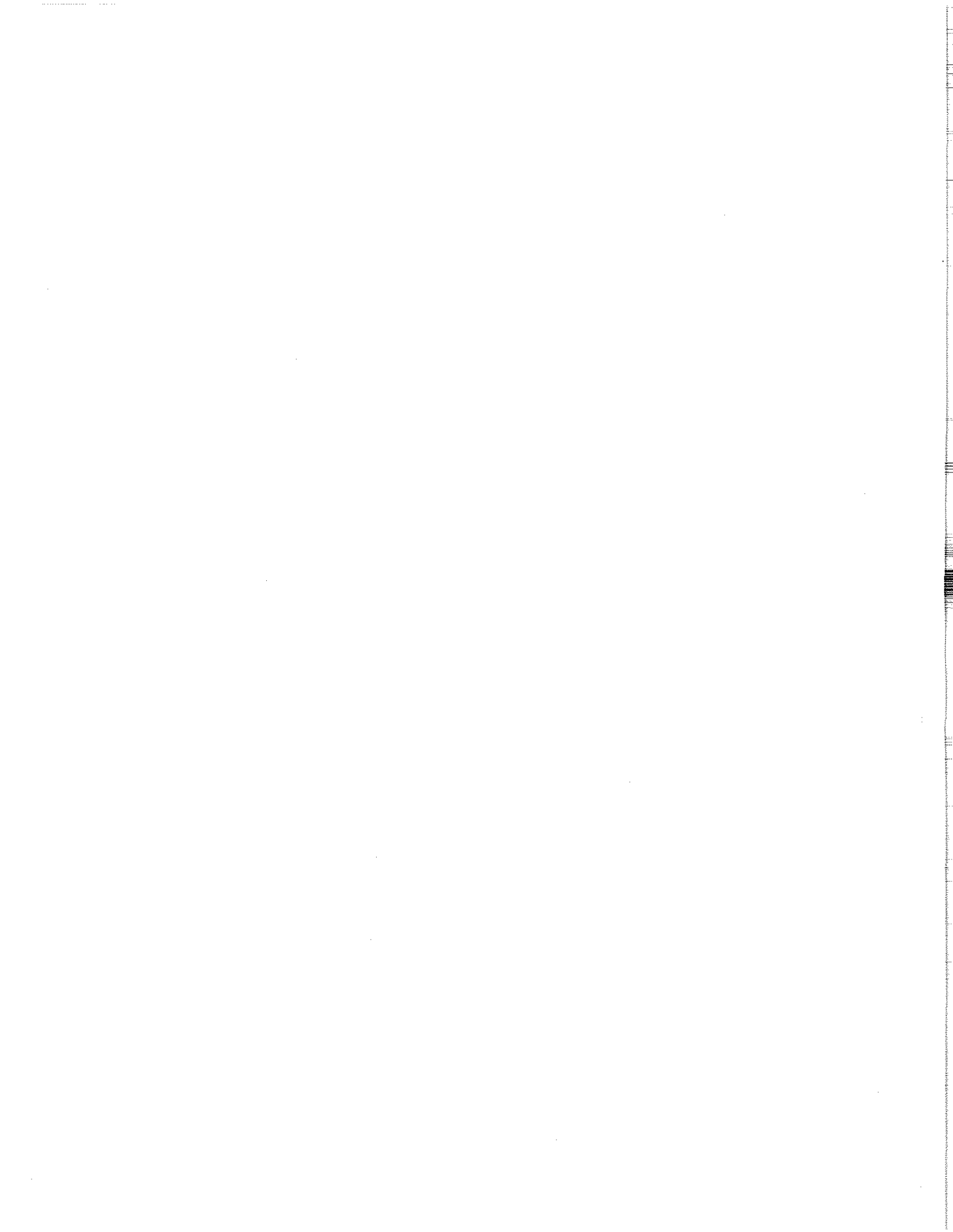
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The goal of this paper is to address the issue of pet overpopulation as a means of preventing rabies in a community, and to describe the process of developing an onsite spay/neuter facility at a county animal shelter to reduce pet overpopulation. Additionally, it is hoped that this project will provide a blueprint for other agencies to develop their own spay/neuter facilities in their quest to reduce, or eliminate, pet overpopulation.

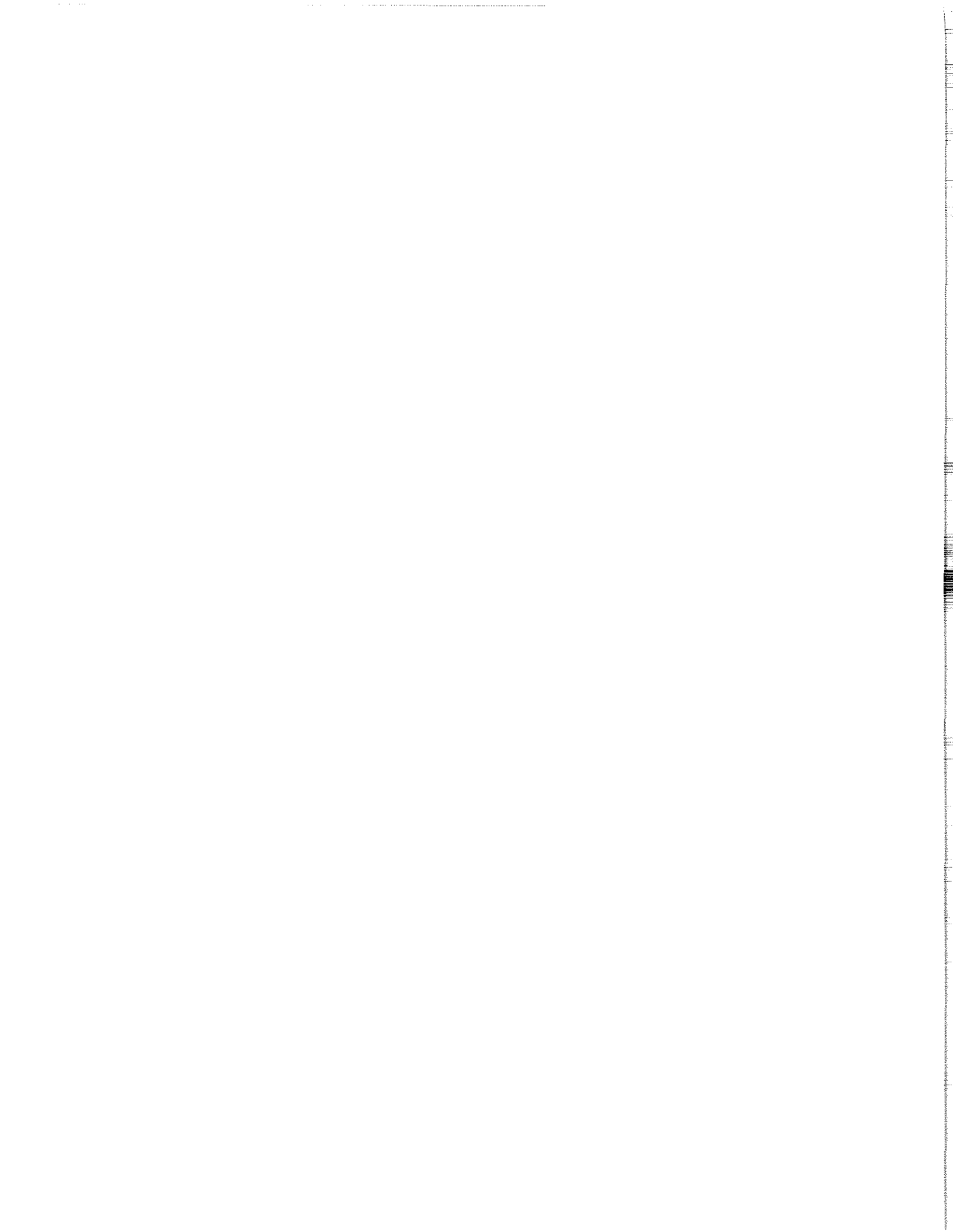


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Introduction

As long as people have had pets, there has existed a need for society to deal with unwanted pet animals. There are many reasons for an animal to end up unwanted, but the bottom line is irresponsible pet ownership. As a result, municipalities have had to develop animal shelters and animal control agencies to deal with this problem. Historically, animal control organizations have typically been seen as either a public health service or law enforcement agency. Times have changed. Although there are strong public health and law enforcement aspects involved in animal control operations, many have adopted a new approach that better addresses societal mandates and to meet the community's expectations of animal welfare and control. This includes a proactive approach to surgical sterilization of adopted animals in order to ensure that they do not contribute to the pet overpopulation problem in the future.

Rabies

The primary mandate of New Hanover County Animal Control Services (NHCACS) is to protect the community from the threat of rabies virus exposure.¹

Rabies is a preventable viral disease of mammals (including humans) most often transmitted through the bite of a rabid animal.² While cats and dogs account for less than 10% of the reported rabies cases, their importance as a vector must be addressed in a community. Pet overpopulation, particularly stray animals that are potential rabies vectors in a community, represents a threat to the members of that community. The public health aspect of rabies prevention, including the implementation of community

animal control services, as well as public education regarding vaccinations, and spaying and neutering, has markedly changed the pattern of rabies in our society. More than 90% of all animal cases of rabies reported annually to the Centers for Disease Control and Prevention (CDC) now occur in wildlife; before 1960 the majority were in domestic animals.³ The cost to society of preventing this uniformly fatal zoonotic disease is staggering. Although human rabies deaths are rare, the estimated public health costs associated with disease detection, prevention, and control have risen, exceeding \$300 million annually.⁴

Virtually every county in North Carolina has had at least one confirmed case of rabies. Figure 1 documents the age of terrestrial rabies by county in the state.⁵ In North Carolina rabies is most common in raccoons, skunks, and foxes, and has also been found in dogs, cats, horses, cattle, bats, and other animals. In recent years, there has been a significant increase in the number of animals found to have rabies in North Carolina.⁶

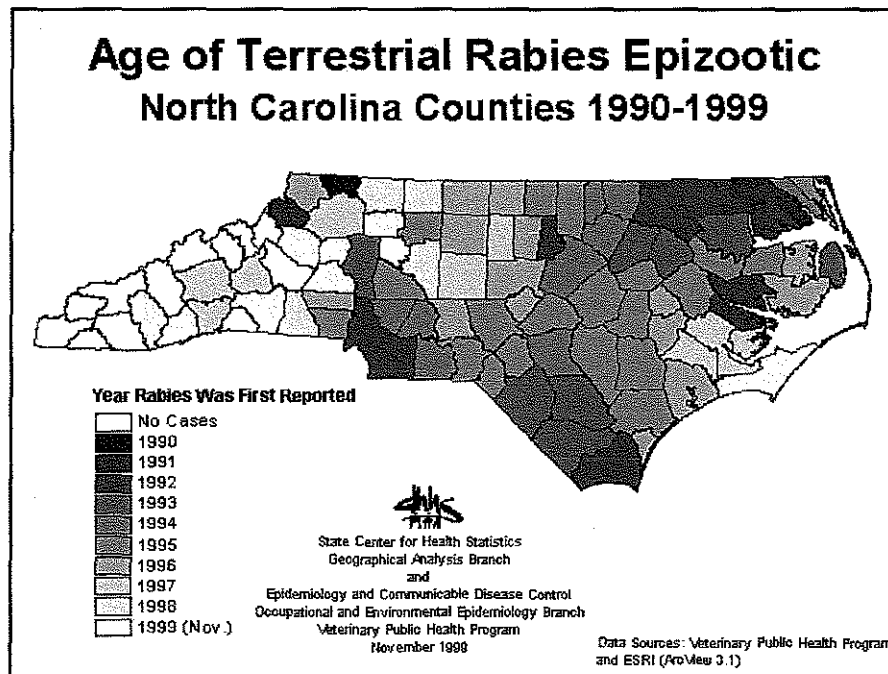


Figure 1. Age of Terrestrial Rabies in North Carolina by County

Pet Overpopulation

Human companion animal overpopulation is a problem of human creation with significant human cost that can only be addressed through human action.⁷ Estimates vary as to the number of pet animals euthanized annually in the United States. According to the Humane Society of the United States (HSUS), 3-4 million dogs and cats are euthanized annually in the United States.⁸ Carter's estimates (1991) run significantly higher, at 13-17 million animals per year.⁹ The cost to society as a result of pet overpopulation is significant, with Baetz (1992) estimating \$500 million spent annually for animal control¹⁰, and according to Rowan (1992), \$1 billion is spent annually for shelters¹¹ by United States cities and counties. According to Frank (2004), one very promising method of addressing overpopulation is increasing spay/neuter rates.¹² While there is conflicting data regarding the effectiveness of low-cost spay/neuter programs, one study by Arkow (1985) correlated the presence of a sterilization program in a community with a significant decline in the number and percentage of the total pet population handled by the shelter there.¹³ Frank (2004) concluded that when compared with increased adoptions and reduced abandonment, spay/neuter was found to be the most effective single method of addressing overpopulation, particularly over long time horizons.¹⁴

Animal Shelters and Shelter Medicine

Animal shelters have existed throughout time to provide a place for unwanted animals to be housed, cared for, adopted out, or euthanized. Many began with the statutory requirement of protecting the public from the threat of rabies exposure, such as NHCACS. The very first animal rescue organization was formed in April 1866, when

the American Society for the Prevention of Cruelty to Animals (ASPCA) was born in New York City. Nine days later the first anti-animal cruelty law was approved by the New York legislature, empowering the humane society with the force of the law. This first law was designed to prevent cruelty to farm and work animals, primarily horses. The humane society later succeeded in passing laws to protect cats and dogs from animal cruelty. When the ASPCA was first formed, strays dogs were daily rounded up by the hundreds, placed into a cage, and dropped into the East River to drown. In 1894 the humane society took over animal control duties in New York, and created animal shelters to promote the practice of animal rescue within the city.¹⁵

Today, even while they continue to deal with the euthanasia of unwanted animals, animal shelters are instrumental in the adoption of thousands of pets every day. In addition, animal shelters educate pet owners about the importance of sterilization to prevent unwanted growth in the dog and cat population. Sterilization of dogs and cats, before adoption, helps decrease the number of animal rescues each year. Progressive shelters, such as the one in San Diego, California, have developed Mission Statements such as “To protect the health, safety, and welfare of people and animals,”¹⁶ to reflect their desire to project a positive image. They project being a service provider well beyond the outdated concept of the “dog catcher.”

According to an article that appeared in the *Journal of the American Veterinary Medical Association (JAVMA)*, there has recently been an increase in interest in shelter medicine. The Association of Shelter Veterinarians, formed three years ago, has grown to 420 members—320 veterinarians, 52 nonveterinarians, and 48 students. An increasing number of members are private practitioners who work with shelters in their

communities. The association is focused on elevating the standards of care for shelter animals by disseminating information, providing a venue for networking, and promoting educational opportunities.¹⁷

Additionally, veterinary schools such as North Carolina State University (NCSU) have programs such as Planned Pethood, which is a spay/neuter program started by students there. Planned Pethood is a positive program which develops a stronger bond between the community and NCSU College of Veterinary Medicine, reduces the incidence of pet overpopulation by spaying and neutering shelter animals before they are adopted, teaches pet owners about proper veterinary care and responsible pet ownership to create a lasting human-animal bond, and produces competent veterinarians by providing opportunities to improve leadership, communication, and surgical skills of veterinary students.¹⁸

There is also increased awareness within the veterinary community regarding the promotion of adoption from shelters. Programs such as the ASPCA's Adopt a Shelter Dog Month are designed to raise awareness of community programs and services and promote shelter pets as "the first option for adoption." One of the things veterinarians in private practice can do is direct their clients to shelters when they are looking for a new pet. Additionally, a lot of shelters and humane societies also offer a two-week medical warranty.¹⁹

Recently, a new approach to marketing and promoting animal shelters has been tried, and that is the concept of social marketing. Rather than promoting commercial products or services, social marketers apply these same marketing strategies to "sell" socially responsible behaviors or ideas. First introduced in the early 1970s, social

marketing grew out of the realization that certain techniques used to influence society's purchasing behavior might also be used to encourage other behaviors, specifically, those that improve a person's health or welfare, or the welfare of society.²⁰ Learning about the behavior of those social marketers are trying to influence is the first step towards raising public awareness about the plight of unwanted animals, and increasing the adoption of shelter animals.

The increase in public awareness concerning the plight of shelter animals and the importance of spaying and neutering received a huge shot in the arm when, in September of 2002, the United States Postal Service (USPS) formally issued a Spay/Neuter Stamp (see Figure 2.). The Postal Service creates issue-specific stamps to raise awareness of important societal concerns. By issuing spay/neuter stamps, the



Figure 2. USPS Spay/Neuter Stamp

USPS is doing its part to promote humane and responsible pet care and to provide a forum for effective collaboration among those who share those goals.²¹ Public response to this stamp was phenomenal; usually 80 million stamps are issued, but because of the degree of interest in this stamp, the quantity was bumped up to 125 million and then to 200 million.²²

Early-age Gonadectomy

Generally, five to six months has been the conventional age for neutering, but it was arrived at using purely anecdotal information.²³ In the past decade, veterinarians—particularly those practicing shelter medicine—have been inclined to surgically sterilize animals at a younger age. Referred to as pediatric, juvenile, or prepubertal neutering (to

avoid the implication that “early” means it is being done too soon), the procedure is performed on animals as young as six to eight weeks old.²⁴ Comprehensive early-age gonadectomy of animals by shelters ensures that no adopted animals will breed and may reduce the incidence of certain medical or behavioral conditions that lead to relinquishment of adopted dogs and cats.^{25 26} Results of a retrospective cohort study by Spain, et al (2004) of 1842 dogs and 1660 cats reveal that gonadectomy before the traditional age of 6 to 8 months offered more benefits than risks, with the exception of female dogs who had an increased risk of urinary incontinence, suggesting a delay until at least three months of age for this group.^{27 28}

The relevance and importance of prepubertal gonadectomy in a shelter environment is clear. Puppies and kittens are the most adoptable animals in a shelter setting and now they can be surgically sterilized prior to adoption, thereby obviating the need for the adoptive parents to be responsible and have the procedure performed at a more traditional age. This prevents adopted animals from further contributing to the pet overpopulation problem in the future.

History of NHCACS Spay/Neuter

The initial adoption policy at NHCACS, which was developed in the mid 1980's, allowed pet owners to take their new family member home at the point of adoption. Surgery appointments were made as their pet was adopted, and a voucher system was used by the adoptive owner to pay for the procedure. However, 50% never made the trip to the veterinary hospital; this discovery was based on a review of certificate redemption.²⁹ NHCACS realized they were as much a part of the problem of pet overpopulation as they hoped to be a part of the solution. As awareness of the pet

overpopulation problem, and potential solutions became available, it became apparent that increasing the spay/neuter rates of adoptees would be critical in reducing the pet overpopulation problem in New Hanover County.

In October 1999, a new program was implemented that established the division at 100% compliance on neutering of adopted pets. A meeting was held with the local veterinarians to discuss the problem. A number of options were considered, including the development of an onsite spay/neuter facility at the shelter. There was much opposition to this by the local veterinary community. It was decided that a compromise solution would be implemented. Animals were adopted at the shelter, but pet owners would then have to wait until the surgical alteration was completed before they were able to carry their pet home. This required NHCACS Officers to transport the pets to the veterinary hospitals daily for the sterilization surgery, thus reducing valuable time for other important duties. An additional drawback to this system was that it was not particularly “adoption-friendly.” When a family made the decision to adopt a new companion animal, in their excitement they often wanted to take the new pet home as soon as possible. Since surgeries are only done at local veterinary hospitals during the week, this could potentially mean a delay of several days before the new pet went home. The downside to this was that it did not encourage adoption of shelter animals.

Management Academy for Public Health

In August of 2001 a team from New Hanover County was assembled to attend the Management Academy for Public Health (MAPH) at the University of North Carolina at Chapel Hill (UNCCH). As a veterinarian, I was invited to participate as the community partner on that team. Our goal was to develop a business plan to implement an onsite

spay/neuter facility at NHCACS. Such a facility would reduce the costs to the county, provide a readily available supply of altered animals for adoption, encourage adoptions by allowing adopters to immediately take pets home, and maintain the 100% compliance with the surgical sterilization of adopted pets.

The MAPH team from New Hanover County worked for the next nine months putting together a business plan for the development of the onsite spay/neuter facility at NHCACS. Utilizing the tools we had been given during our MAPH training, we analyzed financial information, developed a timeline using our project management skills, and produced both written and presentation proposals of our project. We concluded our MAPH stint in April, 2002 when we presented our proposal to the MAPH faculty and our cohorts. As part of our business plan, we developed a rough diagram of a proposed floor plan for our facility. Subsequent to completing our plan, we engaged the services of an architect to design the facility based on our proposed plans. The facility plan went through numerous iterations until we were able to select a design that optimized space, traffic flow, and efficiency utilizing the least amount of resources possible. It was decided that the operating room would have two tables so that the next case could be prepared while the surgeon was operating and he or she could go from one procedure to the next. Another design feature we thought would be beneficial would be to have a central supply of oxygen for the anesthetic machines with a delivery system mounted in the ceiling. This would be much more economical than using the small tanks that attach directly to the anesthetic machines, and would free up space in both the preparation area and the operating room. The preparation area was designed with a “tub-

table” that would facilitate surgical preparation and allow for cleansing of patients should that be necessary.

The Process of Developing an Onsite Spay/Neuter Facility

With the development of the business plan by the MAPH team, the first step was to present the plan to the New Hanover County Commissioners. The plan was submitted for review in August of 2002, and the item was placed on the Consent Agenda. This basically meant that the plan would be approved by consent, since none of the commissioners questioned any portion of it. We viewed this as a tremendous compliment, because it indicated that our plan was so thorough that none of the county commissioners questioned any aspect of our proposal.

Once the County Commissioners approved our project, the NHCACS Manager, Jean McNeil, DVM, and I met on a regular basis discussing equipment needs and laying out a timeline for the project of building and equipping the facility.

As a direct result of the MAPH experience, I became interested in the distance learning opportunities at the School of Public Health (SPH) at UNCCH. Subsequent to that, I enrolled in the distance learning Public Health Leadership Program (PHLP) in pursuit of my Masters of Public Health (MPH).

Field Practicum in Public Health

One of the requirements for students in the PHLP is to complete a Field Experience or Practicum in an area of interest related to public health. For my Practicum, I developed and wrote an Operations Manual for the spay/neuter facility at NHCACS. I chose to do this for several reasons. First, planning and construction of the facility was

well on its way, and we were beginning to see the light at the end of the tunnel, so to speak. Second, we knew that the facility would need an operations manual for volunteers and employees to utilize in their training and during the day-to-day operation of the facility. But most importantly, it served as a means of continuing the project that I had started at MAPH and dovetailing it nicely into my PHLP studies. Deciding to write my paper on this whole process was the *fait accompli* to the whole process. As an aside, it is professionally invigorating to reflect on the whole experience. Starting with the business plan in the MAPH which lead me to the PHLP, and now this paper, I would not be where I am today without having begun that initial experience.

Completion of the Facility

During the spring of 2004, construction was completed on the onsite spay/neuter facility and most of the ordered equipment had been delivered by late summer. Using the Operations Manual, we tested equipment and procedures to ensure their proper function. On Wednesday September 22nd, we performed our first surgical procedure—a cat spay—on a kitten the staff had named Smudge. Smudge had been selected because of her gregarious personality and she would eventually serve as the facility mascot. Two weeks later, the New Hanover County Board of Health (NHCBOH), the agency that oversees NHCACS, held their monthly meeting at NHCACS in order to see the onsite spay/neuter facility in operation. I demonstrated several surgeries for them, so that they could see for themselves what an improvement they had ultimately approved.

We continued to surgically alter animals, and fine tune the procedures we had developed. On Monday November 15th, New Hanover County held a ribbon cutting ceremony to officially dedicate the new onsite spay/neuter facility. Many of the County

Commissioners attended, and I performed two surgeries to demonstrate what the facility is all about.

Where We Are Today

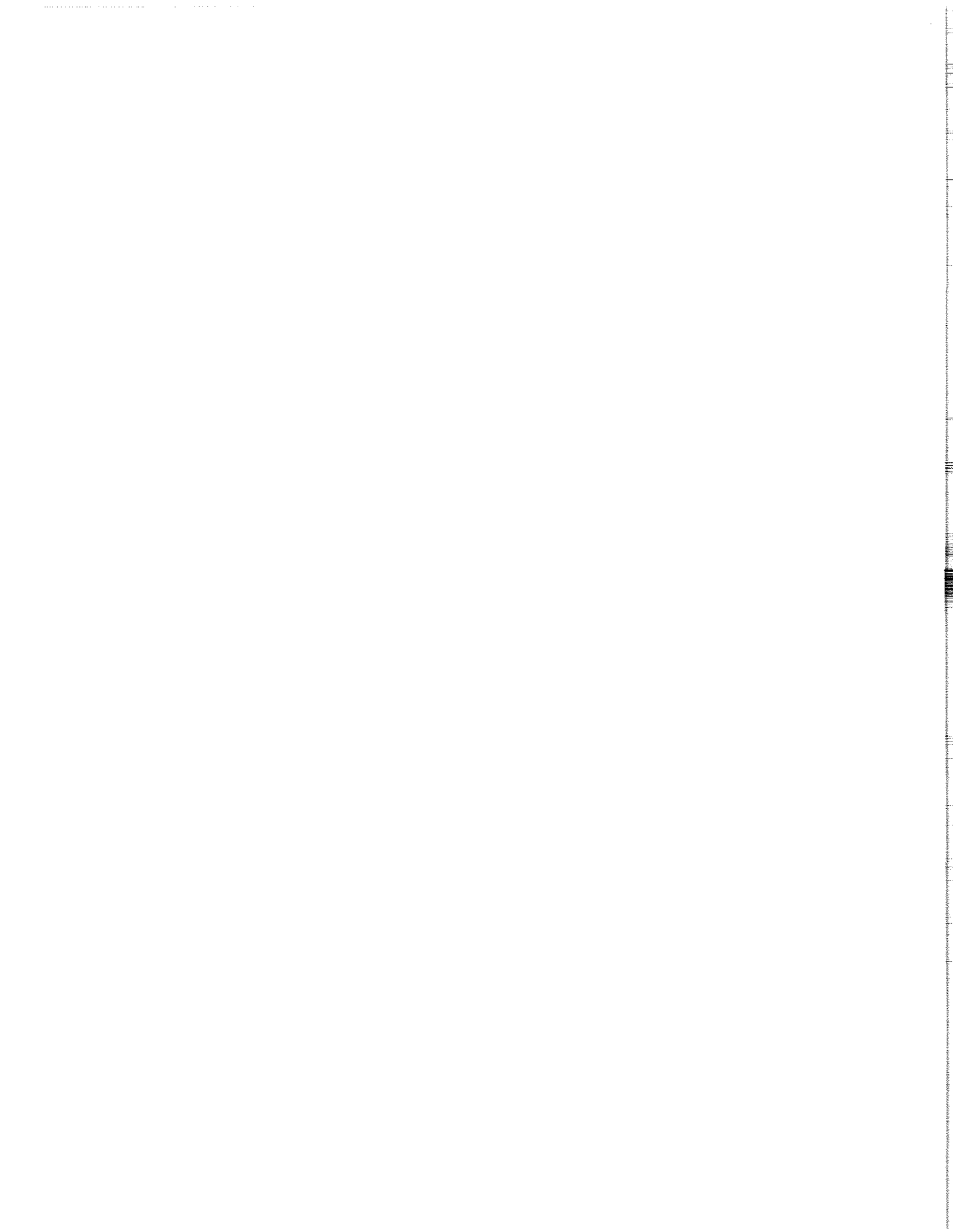
Through March 31, 2005, we have surgically sterilized 371 animals at the NCHACS onsite spay/neuter facility³⁰. According to figures presented to the NHCBOH, adoptions during the period that we have been doing onsite surgical sterilizations have increased to 468 animals. On an annualized basis, this extrapolates to 936 animals, which when compared with the 763 animals adopted during the last fiscal year, demonstrates a 22.7% increase. Remembering that one of our secondary goals was to increase adoptions, I think it is safe to say that we have achieved that mark.

Where We Go From Here

While we are continuing to surgically sterilize animals in the shelter for adoption onsite at NHCACS, a long-range vision is to offer low cost spay/neuter to the general public as a way to promote surgical sterilization of pet animals. Anecdotally, I have heard the figure that potentially fifty percent of the pet animals in our society never see a veterinarian during their lifetime. Accordingly, these animals are more prone to reproduce given their intact sexual status. There are many barriers to adequate veterinary care, including transportation and time issues, but the number one reason is financial. Certain segments of our society do not have the disposable income to provide adequate veterinary care, including surgical sterilization. To ignore their needs—or worse to chastise them for owning a pet that they cannot afford—does not contribute to solving the problem of pet reproduction, and pet overpopulation.

While providing low-cost surgical sterilization to the general public will certainly meet with resistance from the local veterinary community, we have to remember that the ultimate goal is to reduce pet overpopulation. In a recent message board on the Veterinary Information Network (VIN), there was discussion about low cost spay/neuter facilities operating as not-for-profit organizations. One comment by a practicing veterinarian, when addressing the potential for competition from a not-for-profit facility, really summed up the essence of the feeling by the veterinary community. “This is exactly what every hard working veterinarian looks forward to, a non-profit entity to compete with. The non-profits don't pay taxes, often use volunteer labor, use any method they can to reduce costs (asking for donations of money, hospital goods) and destroy the practitioner's client base.”³¹ This demonstrates how much of an uphill battle it will be to win the support of the local veterinary community.

It has been paraphrased that “the sum of the whole is more than the individual parts.” Accordingly, getting local veterinarians to buy into a low-cost spay/neuter program would be very beneficial. To do so, we will have to craft strategies to encourage the local veterinarians to support our efforts to promote spaying and neutering. We will have to get them to invest in the concept that preventing pet overpopulation is good for the overall community, and not a drain on their income-producing ability. Veterinarians are generally caring, concerned, and compassionate individuals. The job before us is to devise a way for them to get onboard and help us as we promote surgical sterilization to reduce pet overpopulation as a means of rabies prevention in our community. Such a task will not be easy. However, in the end, if we are successful, then our community will be a healthier, safer place to live.



End Notes

- ¹ New Hanover County Animal Control Services Mission Statement
- ² <http://www.cdc.gov/ncidod/dvrd/rabies/Introduction/intro.htm>
- ³ Ibid
- ⁴ Ibid
- ⁵ <http://www.epi.state.nc.us/epi/rabies/agerabiesepizootic.html>
- ⁶ <http://www.epi.state.nc.us/epi/rabies.html>
- ⁷ Frank, Joshua (2004). An interactive model of human and companion animal dynamics: The ecology and economics of dog overpopulation and the human costs of addressing the problem. *Human Ecology*, Vol. 32. No. 1. 107.
- ⁸ <http://www.hsus.org/ace/11830>
- ⁹ Carter, C. N. (1990). Pet population control: Another decade without solutions? *Journal of the American Veterinary Medical Association* 197: 192-195.
- ¹⁰ Baetz, A. (1992). Why we need animal control. In *First National Urban Animal Management Conference*. Brisbane, Australia. 1992
- ¹¹ Rowan, A. N. (1992). Shelters and pet overpopulation: A statistical black hole. *Anthrozoos* 5(3): 140-143.
- ¹² Frank, Joshua. op cit. 109.
- ¹³ Arkow, P. S. (1985). Animal control, birth control and community education: Impacts on Colorado Springs pet population. In Wilson, A. K., and Rowan, A. N. (eds.). *Proceedings of a Workshop on Animal Control*. Tufts Center for Animals. Boston. 30-48.
- ¹⁴ Frank, Joshua. op cit. 125.
- ¹⁵ <http://www.animal-shelters-and-adoption.com/html/articles.php3/artID=99&at=s>
- ¹⁶ <http://www.sddac.com/>
- ¹⁷ <http://www.avma.org/onlnews/javma/may04/0405011.asp>
- ¹⁸ <http://www.avma.org/noah/members/savma/intervet/vol35is8/planpet.asp>
- ¹⁹ <http://www.avma.org/onlnews/javma/oct00/s1015001.asp>
- ²⁰ Animal Sheltering. HSUS. January-February 1999.
http://www.hsus2.org/sheltering/magazine/currentissue/jan_feb99/jan_feb99.html
- ²¹ <http://www.avma.org/onlnews/javma/jul02/020715g.asp>
- ²² Ibid
- ²³ Arden, D. (2002). Early spay/neuter: How young is too young? *Dog World*. March 2002. 51.
- ²⁴ Ibid 50
- ²⁵ Spain, VC., Scarlett, JM, and Houpt, KA.(2004). Long-term risks and benefits of early-age gonadectomy in cats. *Journal of the American Veterinary Medical Association* Vol. 224. No. 3. 372.
- ²⁶ Spain, VC., Scarlett, JM, and Houpt, KA.(2004). Long-term risks and benefits of early-age gonadectomy in dogs. *Journal of the American Veterinary Medical Association* Vol. 224. No. 3. 380
- ²⁷ Spain, et al. op cit. 372
- ²⁸ Spain, et al. op cit. 380
- ²⁹ Jean McNeil, DVM. NHCACS Director. Personal communication
- ³⁰ Jean McNeil, DVM. NHCACS Director. Personal communication
- ³¹ Veterinary Information Network. Message board posting.

