



THE HUMANE SOCIETY
OF THE UNITED STATES

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SELECTED SCIENCE ON COMMUNITY CATS

An update to *Managing Community Cats: A Guide for Municipal Leaders*

In the ongoing and polarized dialogue concerning the role of non-lethal management, including trap-neuter-return (TNR), in managing community cats, reference is often made to studies that demonstrate that this approach does not work. This selected bibliography points to studies that, among others not summarized here, comprise a body of work that shows TNR as a valuable tool in managing cat populations at the local level. Clearly, additional research would help us determine how non-lethal strategies can be best maximized as a tool for controlling cat populations, but we believe that the argument that it is indeed possible is past us now and that it is time to move forward with improving and perfecting this approach.

– Dr. John Hadidian, Senior Scientist, Wildlife Protection, The Humane Society of the United States

TNR Reduces Cat Numbers

An 85% reduction in population over 11 years

Before implementing a TNR program on the University of Central Florida campus, periodic trap and removal efforts tried to keep the population at bay when it increased to nuisance levels. This 11-year study followed a population of 155 free-roaming campus cats from 1991, when the TNR program began, to 2002. No kittens were observed on site after 1995. Additional stray or abandoned cats arrived, but they were neutered and adopted before they could reproduce. The campus cat population

decreased by 85% to 23 cats in 2002, demonstrating that a long-term program of neutering plus adoption or a return to the resident colony can reduce free-roaming cat populations in urban areas (Levy et al., 2003).

TNR can control feral cat populations

Robertson reviewed the scientific literature on feral cats and feral cat control and concluded that there is scientific evidence that, under certain conditions, TNR can control feral cat populations. The practice of TNR on a far greater scale, as well as continued and increased funding and endorsement of TNR by private welfare organizations and municipal and government agencies, is essential for the success of TNR (Robertson, 2008).

In the long run, TNR programs are cost-effective

For many years, Texas A&M University attempted to control its campus cat population with a trap-and-ethanize approach. Two years after a trap-test-vaccinate-alter-return-monitor (TTVARM) program was implemented on campus, there was a 36% reduction in the number of cats and fewer nuisance complaints to the university's pest control service. The authors also note that although the initial costs of starting up TTVARM programs can be substantial in terms of time and money, these costs tend to decrease with time as fewer new cats need to be caught (Hughes and Slater, 2002).

Trap-and-remove efforts can have the opposite effect

To determine the population impact of trap and remove (culling) efforts on two open population

sites in Tasmania, researchers used wildlife cameras and cat counts to track the number of cats at each site. Despite culling efforts, researchers found large increases in cat numbers: one site had a 75% increase, while another had a staggering 211% increase. Researchers suspect that the populations increased because new cats moved into the sites to take advantage of resources that became available when previously dominant cats were removed. Another explanation could be that kittens born to the unsterilized remaining cats had a better survival rate thanks to more readily available resources (Lazenby et al., 2014).

TNR Reduces Nuisance Behaviors and Complaints

Neutered free-roaming males exhibit less aggression

This study compared four free-roaming cat colonies in urban Israel: two that were managed by TNR and two that were not managed at all. Less aggression was observed in the neutered groups, specifically between males, which resulted in reduced fighting and vocalizations. The study concludes that TNR reduced the noise associated with mating and fighting and could lead to fewer nuisance complaints (Finkler et al., 2011).

Reduced nuisance behaviors in reality and perception

Researchers at a federal facility and hospital in Louisiana studied 41 cats in a TNR program. Three years later, 30 of the original cats remained. Their overall health had improved and nighttime vocalizations were greatly reduced, and no new litters of kittens were found. Although cats were seen as a nuisance prior to the program, human attitudes changed by the end of the three-year period (Zaunbrecher and Smith, 1993).

TNR Adoption and Return-to-Field Programs Reduce Shelter Intake and Euthanasia

Dramatically reduced shelter intake, impound and euthanasia numbers

This study examined the impact of a municipal shelter's Return to Field program in San Jose, California. These programs are shelter-based and include sterilizing, vaccinating, ear tipping and returning healthy, impounded community cats to the place they were found, with or without an identified caregiver. Over four years, the shelter's program garnered decreases in cat intakes (from 70% to 23%), cat and kitten impounds (by 29.1%) and euthanasia for Upper Respiratory Disease (by 99%) (Johnson and Cicirelli, 2014).

Significant reductions in shelter intake and euthanasia numbers

A two-year program in Alachua County, Florida, was implemented to capture and neuter at least 50% of the estimated community cats in a single zip code. If the cats were friendly, they were adopted out. If not, they were returned to the area. Researchers then compared trends in shelter cat intake from the target zip code to those of the rest of the county. After two years, per capita shelter intake was 3.5 times higher and per capita shelter euthanasia was 17.5 times higher in the non-target area than in the target area. Clearly, high-impact targeted TNR combined with the adoption of socialized cats and nuisance resolution counseling for residents is an effective tool for reducing shelter cat intake (Levy et al., 2014).

TNR's Effects on Community Cats and Disease

Including vaccinations in TNR programs can protect feral cats for many years

A TNR program for feral cats in Florida included vaccinations at the time of sterilization. Researchers were able to compare a cat's antibody titers (a measurement that indicates the strength of the body's immune response to a given disease) before the vaccinations and then 10 weeks post-vaccination. Many cats had an excellent immune response, indicated by the increase in protective antibody titers post-vaccination: panleukopenia (90%), herpes (56%), calicivirus (93%) and rabies (98%). Other studies have shown that post-vaccination immunity persists for a minimum of three to seven years in most cats, which means that many feral cats are protected for much of their remaining lifespan. The authors conclude that TNR programs that include vaccinations are likely to protect individual cats and possibly reduce diseases in feral cats in general (Fischer et al., 2007).

Unowned free-roaming cats don't have higher FeLV infection rates than owned cats

In this study, 1,876 unowned free-roaming cats who were treated in TNR programs in North Carolina and Florida were tested for FeLV infection and FIV antibodies. The results indicate that the prevalence of FeLV infection and FIV antibodies in unowned free-roaming cats are similar to infection rates reported for owned cats (Lee et al., 2002).

The secondary effects of neutering can improve community cat welfare

Body condition scores can help evaluate a cat's overall health and welfare. This study analyzed the body condition of 105 adult feral cats at the time of neutering and found that they were lean (but not emaciated). Fourteen of the original cats were trapped one year later and showed significant increases in

weight and improvements in body condition similar to those of confined pet cats. Caretakers also noted that neutered cats roamed less. The researchers conclude that in addition to halting reproduction, neutering may have other effects that improve the welfare of community cats (Scott et al., 2002).

Despite popular belief, toxoplasmosis is not definitively associated with exposure to cats

According to the authors, the transmission of toxoplasmosis from cats to people rarely occurs from direct contact. They state that people most commonly acquire toxoplasmosis by eating the cyst form of toxoplasmosis in undercooked meat. A case study of toxoplasmosis in pregnant women did not show a significant association with having an adult cat or kitten at home, cleaning the litter box or having a cat who actively hunts. The authors also cite a study of HIV-infected adults that did not show any association of toxoplasmosis with cat ownership or exposure (Kravetz and Federman, 2002).

Public Perceptions

American adults favor the non-lethal treatment of community cats

Adults in a national survey conducted by Harris Interactive were given two options: leave a community cat as-is or catch and kill the cat. More than four out of five people thought it was more humane to leave the cat. The survey then added a twist: what if the community cat would die two years later after being hit by a car? More than 70% of respondents still chose to let the cat remain in the community. The authors conclude that an overwhelming majority of Americans believe that leaving a stray cat outside to live out his life is more humane than having him caught and killed (Chu and Anderson, 2007).

Wildlife management practices should be based on shared opinions

Conflicts over cat management practices often prevent

or delay the implementation of policies that could reduce cat populations, improve animal welfare and reduce risks to wildlife. This study reveals the differences of opinion that lead to these conflicts, specifically among Audubon members, the public and TNR program participants. They also note areas of agreement among the groups and suggest that stakeholders focus on these shared opinions when developing policies. For example, mandatory pet identification, rabies vaccination and non-lethal methods of management could satisfy all groups (Wald et al., 2013).

Wildlife Predation

Opposing parties should compromise on cat management approaches

The authors suggest ways that conflicts between cat colony caretakers and bird conservation professionals can be managed more productively. For example, bird conservation professionals' values could guide cat colony management in high conservation priority areas, whereas cat colony caretaker values could guide management in low conservation priority areas.

The authors conclude that bird conservation professionals must develop innovative and collaborative ways to address threats posed by feral cats instead of advocating for euthanasia in all situations (Peterson et al., 2012).

Current methods of measuring predation rates could be inaccurate

This study found that many cat owners overestimate their cats' predation rates. The authors conclude that surveying predation rates with questionnaires alone isn't sufficient since the self-reported numbers aren't always accurate. They note that further extended studies are needed, especially in large urbanized areas with varied habitat types, cat densities and prey availability. The authors recommend using the "what the cats brought home" method at a larger scale in time and space. At a larger scale, this method would more accurately assess the seasonal variation in predation rates, individual hunting behavior throughout the year and the actual impact of cat predation on prey populations (Tschanz et al., 2011).

Citations

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