

# The welfare of feral cats and wildlife

David A. Jessup, DVM, MPVM, DACZM

There are an estimated 60 to 100 million feral and abandoned cats in the United States. By any measure, this is an important welfare issue, and the many bodies of free-roaming cats visible along roadsides across the country are mute testimony to the tragedy of their unhappy lives. Many people of goodwill want to see this situation improved. Some believe that feeding feral cats; trapping, neutering, and releasing them; and allowing them to live in colonies is 1 answer to the overpopulation problem. Others believe that, on the whole, such programs are most often unsuccessful at sharply reducing and eventually eliminating feral cat populations. In my opinion, attempting to maintain cats in colonies only compounds the problem by causing massive killing and crippling of native wildlife, jeopardizing biodiversity, undermining traditional animal control, enabling irresponsible people to abandon cats, and sending mixed messages about the veterinary profession's commitment to serve the welfare of all species, including cats and wildlife.

## The Welfare of Wildlife

Free-roaming and feral cats yearly kill hundreds of millions, perhaps as many as a billion, native North American birds, mammals, reptiles, amphibians, and fish.<sup>1,2</sup> The Lindsay Museum of Walnut Creek, Calif, a full-service wildlife rehabilitation facility, received 5,669 small mammals, birds, and reptiles between January 1 and September 14, 2003. Of these, 24% (1,050) of birds, 12% (143) of mammals, and 15% (11) of reptiles were presented because of cat-related injuries or conditions.<sup>a</sup> These animals were brought in alive and do not include those that died or were not found. When raptors and pelagic birds are removed, accession figures reveal that 30.3% (1,015/3,353) of birds were admitted because of cat-related problems. This includes 36 species, many of which are songbirds or locally rare, sensitive, or migratory species; all are supposed to be protected by law from illegal take (Table 1). These figures are from 1 wildlife rehabilitation facility, which serves half of 1 small county in California, for < 9 months.

A recent survey conducted in southern Michigan indicated that free-ranging cats killed from 0.7 to 1.4 birds/wk.<sup>3</sup> Twenty-three species (12.5% of all breeding species) were involved, including 2 species of conservation concern.<sup>3</sup> The authors of that study<sup>3</sup> estimated that cats would kill between 16,000 and 47,000 birds during the breeding season in their 3 study areas and concluded that cat predation "plays an important role in fluctuations of bird populations."

It is in cats' nature to hunt.<sup>4,7</sup> It is part of their telos, a term coined by Aristotle that means "a function, a set of activities intrinsic to an animal, evolu-

Table 1—Data used to calculate the percentage of cat-related accessions to the Lindsay Museum of Walnut Creek, Calif, for all species and for susceptible birds (ie, nonraptors and pelagic birds).<sup>a</sup>

Species	No. of birds accessioned from Jan 1–Oct 14, 2003	No. of cat-related accessions	%
All birds	4,409	1,050	24
All mammals	1,187	143	12
All reptiles	73	11	15
Blackbirds	58	6	10
Bluebirds	5	2	40
Bushtits	49	17	35
Chickadees	24	7	29
Cowbirds	40	7	18
Crows	107	7	7
Doves	720	234	33
Finches	685	209	31
Flickers	9	2	22
Flycatchers	4	0	0
Goldfinches	130	23	18
Grosbeaks	6	0	0
Hummingbirds	209	35	17
Jays	313	104	33
Juncos	18	13	72
Killdeer	14	1	7
Kingbirds	1	1	100
Larks	1	1	100
Magpies	6	1	17
Meadowlarks	5	2	40
Mockingbirds	175	59	34
Nuthatches	6	5	83
Orioles	10	5	50
Phoebes	46	10	22
Band-tailed pigeons	19	2	11
Poorwills	2	0	0
Quails	88	19	22
Robins	202	71	36
Sapsuckers	2	1	50
Shrikes	4	1	25
Siskins	1	0	0
Sparrows	30	19	63
Tanagers	4	2	50
Thrushes	36	16	44
Titmice	17	8	47
Towhees	183	96	52
Vireos	2	0	0
Warblers	15	3	20
Waxwings	49	12	24
Woodpeckers	49	11	22
Wrens	9	3	33
<b>Total susceptible birds</b>	<b>3,353</b>	<b>1,015</b>	<b>30.3</b>

tionarily determined and genetically imprinted."<sup>8</sup> No reasonable refutation of this exists in the literature. Even trap-neuter-return (TNR) advocates admit "that a sizable problem exists" with regard to the killing of wildlife, but offer no plan for mitigation.<sup>9</sup> Providing abundant food for outdoor cats, even overfeeding, does not stop this natural hunting behavior.<sup>4,10,11,b</sup>

From the Marine Wildlife Veterinary Care and Research Center, 1451 Shaffer Rd, Santa Cruz, CA 95060.

As presented by Winter,<sup>11</sup> the negative effects on wildlife populations can be extensive, devastating, and prolonged. Negative effects are particularly severe on islands, in parks where habitats have been fragmented (urban and suburban areas), and for endangered and ground-dwelling species.<sup>6,12-14</sup> In a study<sup>15</sup> of 2 California parks, feral cats selected native species of rodents and birds over introduced (pest) species. In locations where regularly fed feral cat colonies existed, native birds were markedly less abundant and less likely to nest, and ground-foraging species such as California quail and thrasher were entirely absent.<sup>15,c</sup> Native rodents were less abundant, and house mice were more abundant.<sup>c</sup> This makes evolutionary sense in that species of European origin, such as Norway rats, house mice, starlings, and English sparrows, have had many thousands of years to coevolve with *Felis silvestris* and *Felis catus*, whereas North American species have had only several decades to perhaps 200 years.

Feral cats also indirectly kill native predators by removing their food base.<sup>16</sup> Because they are subsidized, feral cats can exist even when prey species have been reduced to far below carrying capacity.<sup>6,7</sup> In some areas of Wisconsin, feral cats outnumber all native mesopredators combined.

Cats' victims (native species) have evolved in and belong in North America and provide ecosystem services.<sup>15,17,18</sup> The loss of these animals reduces biodiversity, even in somewhat degraded ecosystems.<sup>17,18</sup> Loss of their ecosystem services has implications for such basic life processes as insect population dynamics, soil fertility and stability, pollination, and seed dispersal. Removal of cats from native and even degraded ecosystems has no negative and only positive ecologic consequences.

Wild animals are not only killed by cats but are also maimed, mauled, dismembered, ripped apart, and gutted while still alive, and if they survive the encounter, they often die of sepsis because of the virulent nature of the oral flora of cats. Veterinarians working in the area of avian and wildlife rehabilitation see this problem frequently.<sup>a,d</sup> Wild animals experience pain and suffer too. On the basis of compassion alone (for those who can ignore the impersonal nature of wildlife mortality figures and disruption of ecologic processes), the suffering of wildlife must be weighed against the perceived welfare of feral cats.

It is pointless to debate every potential disease and parasite of cats and situation in which they might affect wildlife. Clearly the potential for transmission of diseases and parasites from dense aggregations of feral cats to wildlife exists. Some diseases carried by feral cats are negatively impacting sensitive and endangered wildlife populations. The Alala, or Hawaiian crow, and southern sea otter are being seriously affected by systemic and central nervous system disease caused by toxoplasmosis linked to cat feces.<sup>19,20</sup> In a recent publication, we showed that toxoplasmosis was the primary cause of death for 23% of the threatened southern sea otters (n = 105) we examined during a 3-year period and that it contributed to the death of many others.<sup>21</sup> There is also reason to believe that feral cats may serve as a source of FeLV for cougars and Florida panthers.<sup>22,f</sup>

The following passage from *Animal Rights and Human Morality*<sup>8</sup> represents an ethical viewpoint: "I would not adopt as a universal principle always favoring the 'higher' animal—for example, if the choice came down to a quick death for the higher animal versus a slow, lingering death for the lower animal, one should presumably choose the death of the higher animal."

The first law of medicine is "primum non nocere," or "above all, do no harm." How do we square this most basic law, and the now popular phrase "veterinary medicine is for all species," with this situation? Feral cats and the programs that foster their free-ranging existence do not serve the welfare of individual wild animals or wildlife populations, can cause an alteration of basic biological processes, and have serious potential negative impacts on biodiversity and recovery of endangered and sensitive species<sup>12</sup> in many landscapes.

### The Welfare of Feral Cats

In my opinion, TNR really stands for trap, neuter, and reabandon, and that is how I will define TNR for the purposes of these proceedings. Abandonment of animals cannot be morally justified and is illegal under state humane laws.<sup>23</sup> The California Penal Code goes on to say it is illegal to fail to provide animals with shelter, water, food, and protection from weather.<sup>24</sup> Such conditions often occur at TNR sites. If it is illegal to abandon a cat once, how can it be legal to do it a second time? How can veterinarians justify being party to abandonment, an illegal act of animal cruelty?

Part of the cat's telos is its desire for affection and human companionship and its semidependence on human care and provision. Veterinarians and animal shelter workers in particular know how important human touch and companionship are to a cat. Cats that lose their owners are often bereft and suffer what appears to be depression. Practicing veterinarians often see sick or injured cats begin to heal and thrive when petted and interacted with more frequently.

Some TNR programs do not distinguish between truly feral cats and lost or stray pet cats. Photos are not taken, and cats are not held for owner identification and reunion with their families. In the world of TNR, unless a stray cat has a collar or is microchipped, it is very difficult to distinguish from a truly feral animal. Once trapped, neutered, and marked, these lost cats are much less likely to ever be found and returned to their owners or adopted. Trap, neuter, and reabandonment is a cruel fate for many former pet cats.

People for the Ethical Treatment of Animals (PETA) has called TNR "subsidized abandonment" and states that "feral cats do not die of 'old age.' They are poisoned, shot, tortured by cruel people, attacked by other animals, or hit by cars, or they die of exposure, starvation, or...contagious diseases.... In one feral cat colony, half of 32 cats were shot by a man who claimed that they were attacking his children. Cats in another colony were shot with darts. A loose dog killed several cats in another colony. Ferals often scratch their ears bloody, driven crazy by pain and itching of ear mites and accompanying infections. Others die of blood loss or anemia from worms and fleas. Urinary tract infections, which frequently lead to blockage in male cats,

cause extremely painful, lingering death if not treated. Untreated upper respiratory infections leave eyes and noses so caked with mucus that animals can barely see or breathe."<sup>25</sup>

Many feral cats live short, brutal lives. Figures vary, but the AVMA has used the figure of 2 years as opposed to 10 for the mean lifespan of owned cats<sup>26</sup>; others estimate that feral cats live approximately half as long as owned cats.<sup>27</sup> Mortality rates for feral cats can be up to 80%/y.<sup>27</sup> Feral cats suffer considerably higher rates of injury and disease.<sup>26,27</sup> Many feral cats succumb to vehicle trauma, predation, disease, or severe weather.<sup>27</sup> Winter<sup>11</sup> has presented a number of examples of the dangerous and unsanitary conditions found at feral cat feeding sites. Clearly these conditions and outcomes are not serving the welfare of feral cats.

### **TNR Sends Mixed Messages About the Veterinary Profession**

Is veterinary medicine for all species? The AVMA's Long Range Plan, Goal 1, Objective 6 states in part, "emphasize the concept that veterinarians have a positive influence on the health and well being of all living creatures...."<sup>26</sup> Trap-neuter-return appears to be advantageous to only 1 species (cats) and disadvantageous to many dozens, perhaps hundreds, of other species (Table 1). What kind of ethical message and world view does veterinary support for TNR and feral cat colonies send?

Many wildlife biologists, ecologists, conservation agencies, and bird and mammal lovers strongly oppose TNR and feral cat colonies.<sup>28,29</sup> Most avian and wildlife veterinarians strongly oppose TNR and feral cat colonies.<sup>29,30</sup> What message does veterinary support for TNR send to millions of conservationists and the veterinarians who provide care for birds, native species, and their ecosystems?

The conditions under which feral cats are handled in TNR programs and the level of veterinary care provided may be lower than prevailing local practice standards. In large-scale TNR operations, dozens of cats may be dropped off in the morning for spays and neuters.<sup>31</sup> A history is almost never available, and examination of the cat in the trap is necessarily brief and from a distance. No owner or client is present. How is it possible for a veterinarian-client-patient relationship to exist as required under federal laws regarding the use of veterinary drugs and under the Model Veterinary Practice Act and other AVMA policies and positions if there is no client and no lasting relationship? Neutering is an elective surgery, not an emergency procedure. If a valid veterinarian-client-patient relationship is not necessary for an elective surgery, why is it necessary for clients seeking popular medications? Practitioners who worry about the impact of Pet Med Express should give serious thought to how TNR will effect public perceptions about the value of veterinary services.

Veterinarians involved in TNR programs have told us that in large-scale spay clinics in Florida, cats are spayed for \$12 to \$17 in drugs and supplies.<sup>31</sup> If this is so and widely known to cat advocates, how must they then look at veterinarians who charge \$70, the amount the California Veterinary Medical Association

(CVMA) reimbursed its members,<sup>32</sup> or \$100 to \$150 as is charged in many practices. Consumers, particularly those who read Consumer Reports and are already suspicious of veterinarians, may be left wondering.

Is the \$17 spay done in a sterile theatre with a separate instrument pack? Is ketamine the sole anesthetic? Is postoperative pain relief considered? Is there any substantive postoperative care or surgical follow-up? Are medication and instructions given at the time of examination and spay followed? Vaccinations may or may not be given, but if given, is there any follow-up? If not, this is not in keeping with recommendations in the AVMA's Model Veterinary Practice Act. Is this professionally acceptable or appropriate? How can the veterinary profession provide high-quality medical care for some cats and yet provide and support a much lower standard of care for others? If 2 different levels of care are professionally acceptable standards of practice, how can you deny a client the low-cost version if they know it is available?

Some TNR advocates argue that vaccination is not a good return on investment<sup>31</sup> and that resources should instead be directed toward spaying and neutering. Ninety thousand feral cats were released into California without vaccinating them for rabies, despite bat and skunk rabies being endemic within this state. This was justified on the basis of local practice standards,<sup>32</sup> but the cats in question were not going to homes where they might have some insulation from wildlife rabies carriers or other feral cats. In the face of CVMA support for TNR, only 1 county health veterinarian in California insisted that all TNR cats in his county be vaccinated against rabies. Hopefully, recent cases of rabies in feral cats in Florida and at Kennasau State University in Georgia,<sup>33</sup> which resulted in human exposures, will cause this stance to be reconsidered.

Diseases and parasites affecting feral cats can have human health implications. Pregnant women; people receiving chemotherapy for immunologic diseases and organ transplants; and those with HIV, AIDS, or other immunologic problems are at increased risk of clinical disease if exposed to toxoplasmosis. Maintaining feral cats where they can deposit cat feces in national, state, county, or city public parks; on campuses; and around schools and hospitals constitutes a public health risk.<sup>34,35</sup> In 1994, 5 Florida children were hospitalized with encephalitis that was associated with cat scratch fever.<sup>35</sup> The daycare center at the University of Hawaii in Manoa was closed for 2 weeks in 2002 because of concerns about potential transmission of murine typhus (*Rickettsia typhi*) and flea (*Ctenocephalides felis*) infestations afflicting 84 children and faculty.<sup>36</sup> The fleas were from a feral cat colony that has grown from 100 to over 1,000 cats, despite a TNR effort.<sup>36</sup> Some of the obvious sanitary, vermin, and parasite problems associated with concentrations of feral cats have been presented by Winter,<sup>11</sup> but wherever cats are concentrated and under minimal care and control, their diseases and parasites are likely to be more abundant. What does support of TNR say about the veterinary profession's commitment to public health in light of the fact that many public health veterinarians strongly oppose TNR?<sup>29,37</sup>

Although most veterinarians donate their skills and attendant costs to spay feral and abandoned animals, substantial funds have been made available recently to subsidize TNR programs. Maddie's Fund provided the CVMA with \$13 million over 3 years to support TNR efforts.<sup>32</sup> Practitioners who were or became members of the CVMA in aggregate received \$12 million, were paid \$70/spay and \$50/castration, and were not required to vaccinate cats or provide other health services (more than 90,000 cats did not receive rabies vaccinations).<sup>32</sup> The CVMA retained \$1 million for arranging and promoting the program.<sup>32</sup> Although money can be a powerful motivator, we do not believe that greed is central to this issue but rather that a large number of veterinarians have been led to believe that TNR is humane and relatively harmless and will help control feral cat populations. I do not believe this is so.

If TNR does not provide high-quality health care for cats; undermines the veterinarian-client-patient relationship; undermines support for high-quality veterinary practice; or shows the veterinary profession as environmentally insensitive, not supportive of biodiversity and conservation, or less than vigilant about public health, then in my opinion, TNR serves neither our profession nor the welfare of feral cats, wildlife, or the public.

### **TNR Does Not Work Under Most Prevailing Circumstances**

Each situation and location where feral cat populations exist and where TNR has been tried is different. Geography and groundcover vary from open and easy to access (campuses and some parks) to steep, broken, and densely vegetated. Feral cats in some locations are semitame and allow approach and handling, and in other locations, they are extremely fearful and flee at the site of people. How "success" (reduction in cat numbers) is defined also varies. The fact that many TNR groups fail or refuse to keep adequate records<sup>11</sup> does not help resolve the issue of success or failure.

Although some TNR programs have succeeded in slowing the growth of feral cat populations and sometimes the number of cats has declined over several years, in most locations where TNR has been tried, it fails to substantially or quickly reduce cat numbers and almost never eliminates feral cat populations.<sup>11,38,b,g</sup> After bad experiences with TNR at both the Mayport Naval Station and Norfolk Naval Shipyard, the US Navy banned TNR from lands under its control. Winter<sup>11</sup> has provided examples of other failures. Even at the original Palo Alto location where TNR was first tried,<sup>39</sup> cat numbers have been unstable and cats have had to be periodically removed to reduce the population to an acceptable level. I believe it is misleading to claim that TNR works in locations where cats are permanently removed periodically for adoption or other reasons. I have personally seen multiple feral cat colonies on state property and park lands and in a number of sensitive habitats on private lands in California where various levels of TNR (from casual to serious efforts) have gone on for many years. None of these efforts, by themselves, eliminated the feral cat population.

Simple population modeling and hands-on experience reveal that TNR is likely to succeed only when numbers of feral cats are small to begin with (30 to 40 or less); when the colony is closed (no immigration) or nearly so; where essentially all female cats in the area can be captured and neutered; where all the terrain is accessible (so pockets of untrapped animals do not remain); and where capture and neutering efforts are early, intense, and prolonged.<sup>38,b,g,h</sup> These circumstances seldom prevail long enough for cat colonies to be eliminated. Exceptions happen when unexpected lethal events occur, such as the mass dog mauling that led to the elimination of 1 study colony.<sup>5</sup> I do not believe that any of us would argue that this is a desirable scenario. In some situations where TNR has been described as successful, cats were all semidomesticated and approachable. Ironically, cats like these are the most likely to be adoptable and to succeed in an enclosed sanctuary. Other feral cat colonies reported to have disappeared under TNR programs were actually moved by their caretakers to other locations.

The largest TNR program in the nation, which neutered and reabandoned 180,000 cats, is not expected, even by its proponents, to reduce the number of feral cats in California.<sup>32</sup> Despite articles claiming success,<sup>40</sup> a follow-up study<sup>h</sup> on one of the largest and most active TNR programs in California has revealed no demonstrable effects at the population level after nearly a decade of effort. The coastal sage scrublands of San Diego County, where this work took place, are among the most imperiled habitats in the world with one of the largest assemblages of endangered animals anywhere. I could find no evidence that this program was carried out with any sensitivity to its potential impacts on wildlife. An ecologic study<sup>10</sup> in these same areas of San Diego County indicated that owned, free-ranging cats bring home 24 rodents, 15 birds, and 17 lizards to their owner's residence yearly and leave an unknown number of other wildlife dead or dying.

Trap-neuter-return's failures are, in part, attributable to its being based on several false assumptions, including the following: rates of abandonment and immigration are relatively low; cats at existing sites will exclude others (in reality, the presence of food attracts others)<sup>11</sup>; feral cats will stay where you put them (you cannot herd cats, well fed or not); all cats can be caught; and populations of cats in colonies will behave in general as if they were isolated and in a closed system. Modeling to guide some TNR efforts that incorporate these assumptions has led to unrealistic conclusions.<sup>h</sup> Suppression of feral cat numbers is possible with great effort, but for the same reasons, it is difficult to exterminate rats and cats on islands by use of lethal means and it is vastly more difficult to accomplish this by use of nonlethal means in open systems. Finally, planning for TNR has almost universally failed to appreciate the reproductive potential of cats (Malthusian Index of 3, similar to that of the rabbit) and the very early onset of breeding in some females.

Since TNR is not sustainable, does not generally reduce feral cat populations in a reasonable period of time (5 years or fewer) in most circumstances where it is used, and almost never results in the elimination of

feral cat colonies, I do not believe it serves the welfare of cats or wildlife.

### **TNR May Be Illegal and Veterinarians Are Not Above the Law**

If well-meaning individual veterinarians or associations found themselves the subject of misdemeanor or felony lawsuits, it would be most unfortunate. The comments in the following section are offered in the interest of avoiding such situations.

It is against the law to take protected species of wildlife, which is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect.”<sup>41</sup> Because cats can and do kill, harass, harm, pursue, and wound endangered species, people who reabandon cats, maintain feral cats, or both and the veterinarians who knowingly provide services (an oral contract exists or in some cases a fee is paid) for animals destined to be so abandoned appear to be in potential violation of the **Endangered Species Act (ESA)**.<sup>42</sup> Under the ESA, citizen suits are allowed and “any person may commence a civil suit...to enjoin any person...who is alleged to be in violation.”<sup>42</sup>

Wild animals and their right to exist are protected under other state and federal laws. The Migratory Bird Treaty Act makes it a misdemeanor or felony to kill or take “any migratory bird.”<sup>43</sup> The act states that “any person, association, partnership or corporation who shall violate any provision...shall be deemed guilty of a misdemeanor...fined not more than \$15,000 or be imprisoned not more than 6 months, or both.”<sup>44</sup>

Most states also have their own endangered species laws (eg, California Endangered Species Act), and in all states, the taking of native species is prohibited, except as allowed under hunting and fishing regulations, which are commonly referred to as game laws. Relatively few species killed by cats can be legally taken for any purpose. Recent actions by several game and fish commissions suggest that states may be starting to take a more aggressive approach to TNR. From a wildlife agency perspective, the release of non-native predators is just as illegal as poisoning or poaching wildlife or bulldozing their habitat.

The federal Migratory Bird Treaty Act and ESA laws are strict liability laws, which means there is no affirmative defense allowed.<sup>42</sup> Telling the judge that “you didn’t mean to,” “didn’t know,” or “it wasn’t as bad as they say” is not an acceptable defense. Repeated or knowing offenses can be tried as felonies in civil and criminal courts. Veterinarians who have been informed in their professional communications and journals and who admit they are aware that illegal taking may occur (what veterinarian can argue he does not know that cats kill birds?) are open to felony prosecution. Even acts that inadvertently take wildlife protected under the federal law, as occurred when veterinarians inadequately disposed of barbiturate-laden carcasses, have resulted in successful prosecution under ESA.<sup>45</sup>

Activities judged to be illegal that result in the taking of wildlife can result not only in legal prosecution, fines, and penalties but also in restoration costs that are often accessed under both state and federal laws. These financial penalties are designed not only to deter future

violations but also to assist species recovery or provide habitat for the species affected. Oil spills and other illegal acts that kill hundreds to thousands of birds often result in legal costs, fines, penalties, and restoration packages in the tens of millions of dollars. To prevail in court, it has not been necessary to have all the animals’ bodies for evidence as models and estimates are used to calculate losses and needs for restoration. Trap-neuter-return programs that release thousands of cats to prey on native wildlife, if adjudicated, could result in similar financial consequences.

As noted, in addition to breaking wildlife protection laws, TNR may result in acts considered illegal under some state humane statutes. Repeated misdemeanors or a felony committed by a veterinarian in many states is sufficient reason for review, suspension of licensure, or both. The AVMA PLIT has been informally asked by the Committee on Environmental Issues what sort of liability they see associated with TNR, and their informal reply has been that insurance does not cover acts deemed to be illegal.<sup>1</sup> Our interpretation is that practitioners should not expect their malpractice insurance to cover their legal costs. Given the widespread participation of veterinarians in TNR, I believe that many practitioners may not understand that their activities may place them in legal jeopardy.

### **TNR as an Enabler**

Trap-neuter-return creates an attractive nuisance and has been hypothesized to act as a classic enabler, encouraging people to abandon cats instead of taking them to animal shelters.<sup>11,46</sup> It should not be surprising that some people, believing that their cat will get veterinary attention, be neutered, and be provided with food and water, choose abandonment over paying fees to relinquish the cat to animal control. Trap-neuter-return advocates admit that posted locations where TNR programs are being conducted regularly experience substantial and repeated influxes of cats.<sup>31</sup> Thus, TNR actually appears to undermine its stated goal of protecting the welfare of cats and fails to educate people as to their legal and moral responsibilities.

Many feeders of cats will not keep records, are not committed to population control, or are not willing or able to aggressively maintain a vigilant TNR effort. How much of a fig leaf does TNR provide for people who just want to have lots of cats?

Some people are compelled to own and care for excessive numbers of cats. This psychologic illness is referred to as “collectors psychosis.”<sup>47</sup> How is the person who must save 25 to 30 cats in their home different from the person who sees themselves as the savior of 25 to 30 cats in a park? Some “cat people” may be “collectors,” and it is possible that TNR is enabling and supporting some people who need psychologic counseling and assistance.

Rollin<sup>8</sup> says that “we also do not wish to prolong a life that is in gross or hideous violation of the creature’s telos, even if the creature is conscious and not suffering.” One can argue whether a feral existence is a gross or hideous violation of a cat’s telos, but it may not be the life for which cats have been genetically programmed or evolved.

The perspective of PETA is, “because of the huge

number of feral cats and the severe shortage of good homes, the difficulty of socialization, and the dangers lurking where most feral cats live, it may be necessary and the most compassionate choice to euthanize feral cats. You can ask your veterinarian to do this, or if your local shelter uses an injection of pentobarbital, take the cats there. Please do not allow the prospect of euthanasia to deter you from trapping cats. If you leave them where they are, they will almost certainly die a painful death. A painless injection is far kinder than any fate that feral cats will meet if left to survive on their own.<sup>25</sup> If even ardent animal rights groups and philosophers can accept euthanasia as part of feral cat control, why can't those advocating for TNR accept it?

If and when TNR programs enable illegal, inhumane, irresponsible, and unhealthy behavior, they do not serve the welfare of feral cats, wildlife, or society.

### **Where Do We Go From Here? What Can We Do About Feral Cats?**

Barrows<sup>50</sup> has stated that we probably all support the "T" and "N" parts of TNR, but we strongly disagree on the details of the "R" part. Our success in controlling populations of feral cats and reducing the suffering of these cats and of wildlife depends on redoubling our collective efforts. We must be practical and strategic in the use of the tools available to us and ensure that all of these tools are used appropriately. We must embrace comprehensive and long-term solutions that manage people in addition to feral cats.

We must do more to prevent abandonment.<sup>49</sup> We must work toward a time when it is just as socially unacceptable to abandon a cat on public or private property as to abandon a horse, cow, or dog. Until there is broad recognition of this and real social stigma and penalties are attached, we will continue to have a feral cat problem in this country.<sup>49</sup> We must educate feeders of cats that keeping large numbers of cats outdoors for years on end is cruel to cats and wildlife, possibly illegal, and unacceptable.

Mandatory spay/neuter laws, if strictly enforced, have the potential to reduce the population of feral cats in many areas. Marin County in California is an example of a community where cats and kittens are sometimes imported from adjacent counties to fill the need for adoptees. In many counties, however, existing pet ownership laws are not enforced or penalties for non-compliance are less than the cost of compliance and thereby ignored.

We must all be more generous and supportive of adoption and fostering programs. The fostering of cats and kittens until they are either healthy or tame enough to be adopted or until local animal shelters have sufficient room for them can spare cats from euthanasia. My family and I have found this to be particularly rewarding. We were able to tame and find homes for 6 feral kittens this year. Even adult and young adult feral cats can be tamed. We have 4 adult cats now, all of whom were feral at one time, and during the past 17 years, we have had 11 such cats. If animal control agencies are to deal effectively with feral cats, they must have the resources they need. This means funding and gratis or low-cost professional ser-

vices. Efforts to undermine animal control programs that do not use TNR as their primary means to manage feral cats must cease.

Just as it is becoming clear in many parts of the United States that "no-kill" shelters are not sustainable,<sup>51</sup> we must acknowledge that TNR has limited applicability. We must accept that euthanasia will remain part of animal control activities for at least the near future and that some cats may indeed have to be humanely killed if other efforts at placement fail. Cats would be better served if we could all agree to support serious and comprehensive efforts to sharply reduce their populations. If cat advocacy groups expect support for limited TNR from those who typically oppose it, they should in turn be supportive of all feral cat animal control efforts, even those that do not focus exclusively on TNR.

Recently, another option has become available: enclosed sanctuaries where cats can live out their lives protected from weather and most injury. Large and well-known cat sanctuaries exist in Delaware, Massachusetts, New Jersey, New Mexico, Utah, Virginia, and several places in California. Others are being built and operated by individuals and organizations on small and moderate scales similar to other sanctuaries, as described by Winter.<sup>11</sup> This is happening simply because people sense it is the right thing to do. Hopefully, we can all agree this is 1 thing that truly serves the welfare of both cats and wildlife.

Gandhi stated that "the advancement of a civilization can be seen in the way it treats its animals." In my view, trap, neuter, and reabandonment of cats is not the measure of a healthy or mature society. A balanced and multidimensional approach to management of feral cats that is practical, legal, sustainable, effective, and compassionate and that embraces stewardship and responsibility for all species is the measure of a mature society.

<sup>a</sup>Anderson N, Lindsay Museum, Walnut Creek, Calif: Personal communication, 2003.

<sup>b</sup>Jessup DA, California Department of Fish and Game, Sacramento, Calif: Personal observation, 2003.

<sup>c</sup>Hawkins CC. *Impact of a subsidized exotic predator on native biota: effect of house cats (Felis catus) on California birds and rodents*. PhD dissertation, Texas A & M University, College Station, Tex, 1998.

<sup>d</sup>Murray D, Avian and Exotic Clinic, Monterey, Calif: unpublished data, 2003.

<sup>e</sup>AVMA Executive Board, *AVMA long-range plan: improving animal and human health, goal 1, objective 6*. AVMA, Schaumburg, Ill, 2003.

<sup>f</sup>Cunningham EM, Florida Fish and Wildlife Conservation Commission, Tallahassee, Fla: Personal communication, 2003.

<sup>g</sup>Stoskopf MK, North Carolina State University, Raleigh, NC: Personal communication, 2003.

<sup>h</sup>Foley J, University of California, Davis, Calif: Personal communication, 2003.

<sup>i</sup>Beasley V, University of Illinois, Urbana, Ill: Personal communication, 2003.

## **References**

1. Coleman JS, Temple SA, Craven SR. *Cats and wildlife: a conservation dilemma*. Madison, Wis: Cooperative Extension Publications, 1997.
2. Coleman JS, Temple SA. How many birds do cats kill? *Wildlife Control Technology* 1995;Jul/Aug:44.
3. Lepczyk CA, Mertig AG, Liu J. Landowners and cat predations across rural-to-urban landscapes. *Biol Conserv* 2003;115: 191–201.

4. Adamec RE. The interaction of hunger and preying in the domestic cat (*Felis catus*). *Behav Biol* 1976;18:263–272.
5. Leyhausen P. *Cat behavior: the predatory and social behavior of domestic and wild cats*. New York: Garland STPM Press, 1978.
6. Lidberg O. Food habits and prey impact by feral and house-based domestic cats in a rural area in southern Sweden. *J Mammol* 1984;65:424–432.
7. Fitzgerald BM, Turner DC. Hunting behavior of domestic cats and their impacts on prey populations. In: Turner DC, Bateson P, eds. *The domestic cat: the biology of its behavior*. Cambridge, UK: Cambridge University Press, 2000;151–176.
8. Rollin BE. Improving the lot of research animals. In: *Animal rights and human morality*. Buffalo, NY: Prometheus Books, 1981; 182.
9. Levy J, Woods JE, Turick SL, et al. Number of owned free-roaming cats in a college community in the southern United States and the characteristics of community residents who feed them. *J Am Vet Med Assoc* 2003;223:202–205.
10. Crooks KR, Soule ME. Mesopredator release and avifaunal extinctions in a fragmented system. *Nature* 1999;400:563–566.
11. Winter L. Trap-neuter-return programs—the reality and the impacts. *J Am Vet Med Assoc* 2004;65:1369–1376.
12. Dickman CR. *Overview of the impacts of feral cats on Australian native fauna*. Canberra, Australia: Australian Nature Conservation Agency, 1996;92.
13. Clarke AT, Pacin T. Domestic cat “colonies” in natural areas: a growing exotic species threat. *Nat Areas J* 2002;22:154–159.
14. Pimmental D, et al. Environmental and economic costs associated with non-indigenous species in the United States. In: Cincotta RP, Engelman R, eds. *Nature’s place: human population and the future of biological diversity*. Washington, DC: Population Action International, 1992;49.
15. Hawkins CC, Grant WE, Longnecker MT. Effects of subsidized house cats on California birds and rodents. *Trans West Sect Wildl Soc* 1999;35:29–33.
16. George WG. Domestic cats as predators and factors in winter shortages of raptor prey. *Wilson Bulletin* 1974;86:384–396.
17. Adams WL, Dove EL. *Wildlife reserves and corridors in the urban environment*. Columbia, Md: National Institute for Urban Wildlife, 1989;91.
18. Blake JG. Species-area relationship of migrants in isolated woodlots in east central Illinois. *Wilson Bulletin* 1986;98:291–296.
19. Work TM, Massey JG, Rideout BA, et al. Fatal toxoplasmosis in free-ranging endangered Alala from Hawaii. *J Wildl Dis* 2000; 36:205–212.
20. Miller MA, Gardner IA, Paradies D, et al. Coastal freshwater runoff is a risk factor for *Toxoplasma gondii* infection of southern sea otters (*Enhydra lutris nereis*). *Int J Parasitol* 2002;32:997–1006.
21. Kreuder CM, Miller D, Jessup L, et al. Patterns of mortality in the southern sea otter (*Enhydra lutris*) from 1998–2001. *J Wildl Dis* 2003;39:495–509.
22. Jessup DA, Pettan KC, Lowenstine LJ, et al. Feline leukemia virus infection and secondary spirochetemia in a free-ranging cougar (*Felis concolor*). *J Zoo Wildl Med* 1993;24:73–79.
23. California Penal Code, §597.1 (a).
24. California Penal Code, §597.1 (b).
25. People for the Ethical Treatment of Animals Web site. Available at: [helpinganimals.com/a-feral.html](http://helpinganimals.com/a-feral.html). Accessed Sep 2, 2003.
26. AVMA. Position on abandoned and feral cats. In: 2003 AVMA directory and resource manual. Schaumburg, Ill: AVMA 2003;73.
27. Santa Clara County Humane Society. Feral cat report. Santa Clara, Calif: Santa County Humane Society, 1995.
28. The Wildlife Society. Policy Statement #25: feral and free-ranging cats. Available at: [www.wildlife.org](http://www.wildlife.org). Accessed Oct 1, 2003.
29. Barrows PL. Professional, ethical, and legal dilemmas of trap-neuter-release. *J Am Vet Med Assoc* 2004;225:1365–1369.
30. American Association of Wildlife Veterinarians. *Resolution on management of feral cats*. Spokane, Wash: American Association of Wildlife Veterinarians, 1995.
31. Levy JK. FeLV, FIV and feral cats: to test or not to test, in *Proceedings*. 139th Annu Conv Am Vet Med Assoc 2002;685.
32. Segna DL, Schumacher R. The success of the California feral cat altering program, in *Proceedings*. 139th Annu Conv Am Vet Med Assoc 2002;690.
33. Paruta H. Rabid cat attacks student: four undergoing treatment for rabies. *The Sentinel* 2003.
34. Council of State and Territorial Public Health Veterinarians and National Association of State Public Health Veterinarians (CSTE/NASPHV) Web site. Available at: [www.cste.org/ps/1997/1997-ID-18.html](http://www.cste.org/ps/1997/1997-ID-18.html). Accessed Sep 3, 2003.
35. Patronek GJ. Free-roaming and feral cats—their impacts on wildlife and human beings. *J Am Vet Med Assoc* 1998;212:218–226.
36. Kliks MM. Feral cats can transmit diseases to humans. *Honolulu Star Bulletin* 2003.
37. AVMA. Position on free roaming, owned cats. In: 2003 AVMA directory and resource manual. Schaumburg, Ill: AVMA, 2003; 74.
38. Castillo D, Clarke AL. Trap/neuter/release methods ineffective in controlling domestic cat “colonies” on public lands. *Nat Areas J* 2003;23:247–253.
39. Zaunbrecher K, Smith R. Neutering of feral cats as an alternative to eradication programs. *J Am Vet Med Assoc* 1993;203: 449–452.
40. Chappell MS. A model for humane reduction of feral cat populations. *Calif Vet* 1999;Sep/Oct.
41. Endangered Species Act, 16USC §1532.
42. Hatley PJ. *Feral cat colonies in Florida: legal and policy considerations*. Gainesville, Fla: US Fish and Wildlife Service, 2002;44.
43. Migratory Bird Treaty Act, 16USC §703-712.
44. Migratory Bird Treaty Act, 16USC §707.
45. O'Rourke K. Euthanized animals can poison wildlife: veterinarians receive fines. *J Am Vet Med Assoc* 2002;220:146–147.
46. Roberto P. Whose right to live? The cat rescue movement vs wildlife defenders. *California Coast and Ocean (Summer)* 1995; 31–40.
47. American Psychiatric Association. *Diagnostic standards resource manual (DSRM) II*. Arlington, Va: American Psychiatric Association, 2003.
48. Wulff R. Free-roaming cats becoming bigger issue (lett). *J Am Vet Med Assoc* 2003;223:607.
49. Levy J. Suggests TNR programs follow AVMA policy better (lett). *J Am Vet Med Assoc* 2002;221:1102.
50. Barrows P. Final letters for now on feral cats (lett). *J Am Vet Med Assoc* 2002;221:1547.
51. Foster JT. Reader’s Digest special report: are these shelters really humane? *Reader’s Digest* 2000;Jul:103–108.