

# Reassessment: A Closer Look at “Critical Assessment of Claims Regarding Management of Feral Cats by Trap-Neuter-Return”

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In late 2009, *Conservation Biology* published the essay “Critical Assessment of Claims Regarding Management of Feral Cats by Trap-Neuter-Return” (Volume 23, No. 4, 887–894) by Travis Longcore, Catherine Rich, and Lauren M. Sullivan. The paper was immediately embraced by groups opposing TNR, quickly appearing on various Web sites, including, for example, that of the *American Bird Conservancy*. Careful scrutiny of the author’s claims, however, reveals glaring omissions, blatant misrepresentations, and obvious bias.

What follows is a very brief review of “Critical Assessment,” focusing primarily on the authors’ assertions regarding the impact of free-roaming cats on wildlife, and TNR’s measures of success.

## COUNTING BIRDS

How many birds are killed by cats? It’s one of the most frequently asked questions in the “cat debate.” Longcore et al. summarize some of the best-known studies on the subject, suggesting that the question has largely been answered.

Feral and free-roaming cats are efficient predators, and their abundance results in substantial annual mortality of wildlife. Churcher and Lawton (1987)<sup>1</sup> concluded that cats were responsible for 30% of the mortality of House Sparrows (*Passer domesticus*) in an English village. May (1988)<sup>2</sup> extrapolated their results to an estimated 100 million birds and small mammals killed per year in England. Although this extrapolation is often criticized for the limited geographic scope and number of cats studied, Woods et al. (2003)<sup>3</sup> confirmed and refined this result with a larger sample size and geographic area that included England, Scotland, and Wales. From a survey of cat owners that documented prey returned by 696 cats,

Woods et al. (2003) estimated that the 9 million cats in Britain kill at least 52–63 million mammals, 25–29 million birds, and 4–6 million reptiles each summer. In North America Coleman and Temple (1996)<sup>4</sup> developed estimates of cat densities in Wisconsin and associated mortality of 8–217 million birds per year.

The relationship between cat predation and bird populations is highly complex, though, and our understanding quite limited. It doesn’t help matters that results of small, isolated studies are often extrapolated from rural to urban environments, from one region to another, and so forth. In 1995, Churcher himself cautioned against making such leaps. “I’d be very wary about extrapolating our results even for the rest of Britain, let alone America,”<sup>5</sup> he told *Catnip*, a newsletter published by the *Cummings School of Veterinary Medicine at Tufts University*.

Actually, Churcher went much further, suggesting that the observed predation was compensatory rather than additive: “I don’t really go along with the idea of cats being a threat to wildlife. If the cats weren’t there, something else would be killing the sparrows or otherwise preventing them from breeding.”<sup>5</sup> Although Longcore et al. cite Churcher and Lawton’s now-classic work as evidence of the damage cats can do, they make no mention of Churcher’s later comments, or the distinction between compensatory and additive predation (just one of many examples of their tendency to “cherry pick” from the literature only the bits and pieces that fit neatly into their argument).

## Flawed Studies

Much of the research designed to estimate the number of birds killed by cats—including the studies cited by Longcore et al.—is flawed. Among the numerous factors that cast doubt on their estimates are assumptions regarding the number of cats that actually hunt, the number of cats

\* Adapted from a series of posts at the blog [voxfelina.com](http://voxfelina.com).



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allowed outdoors and their hunting behaviors,<sup>a</sup> cat densities across various habitats, and so forth. Most of these studies also incorrectly use a simple average—or arithmetic mean—to describe populations that are highly skewed, thereby overestimating predation effects. And then, of course, there are the risks inherent in estimating population numbers and characteristics based on small sample sizes.

But Longcore et al. scarcely acknowledge these shortcomings, choosing instead to present as “evidence” figures known to be, at best, highly speculative—and more often, misleading, deceptive, and erroneous. Doing so gives far greater importance to this work than is warranted, not only within the context of their essay, but also in the larger body of literature. This is simply irresponsible (and here, *Conservation Biology* is implicated as well).

The fact that the “English village” study and “Wisconsin Study” (see detailed discussion below) have been so thoroughly discredited raises some unsettling questions about their inclusion in a paper billed as a “critical assessment.” For example: *Are the authors interested enough in rigorous scientific inquiry to look beyond “the usual suspects” in their assessment of the key issues?*

One might also wonder: *Given the important literature that Longcore et al. choose to overlook, ignore, or dismiss, what is their motivation for writing the essay in the first place?* Actually, this question was answered in January, two months after the paper’s publication, when L.A. Superior Court Judge Thomas McKnew decided in favor of an **injunction against publicly supported TNR in Los Angeles** (LASC BS115483). **The Urban Wildlands Group** (for which Longcore serves as Science Director, and Rich as Executive Officer) was the lead petitioner in the case. If “Critical Assessment” is any indication, the case had little basis in science.

## WISCONSIN STUDY

Like so many others interested in blaming cats for declining bird populations, Longcore et al. refer to a 1996 **article** in *Wisconsin Natural Resources* magazine,<sup>4</sup> in which the authors estimate that 8–219 million birds are killed annually by “free-ranging rural cats” in the state. More than any other work, the “Wisconsin Study” (which is actually a series of articles, the first being published in 1993<sup>6</sup>) has been used as evidence against advocates for free-roaming cats in general, and TNR in particular. Among the study’s more notable flaws<sup>b</sup>:

- Its “estimate that 23 percent of [cats’] diet consists of birds” is well above the 7–10.5% figure suggested by Fitzgerald,<sup>8</sup> one of the world’s foremost experts on the subject.<sup>c</sup> In fact, Coleman and Temple suggest that their study corroborates Fitzgerald’s work, making the error all the more egregious.
- Coleman and Temple assume that all cats hunt; in fact, no study has shown this to be the case. O’Keefe has suggested that only 36–56% of cats are hunters.<sup>10</sup> In a pair of related studies, Baker et al. found first that “the majority of cats (51–74%) failed to return any prey,”<sup>11</sup> and later, “an average of 64% of the cats surveyed failed to return any prey.”<sup>12</sup> The prey totals reported by Woods et al. are considerably lower (“Approximately 20–30% of cats brought home either no birds or no mammals during this survey while cats that brought home no prey items at all made up 8.9% of the sample.”<sup>3</sup>), but nevertheless confirm the error in Coleman and Temple’s assumption.
- Coleman and Temple’s figures for cat density have been called “grossly inflated.”<sup>13</sup>

## The Myth Persists

Now 14 years old, the Wisconsin Study has achieved mythical status. Regardless of their dubious origins, its staggering estimates are apparently too tempting for people who see cats as the primary reason for declining bird populations. **James Tantillo**, a Lecturer in the Department of Natural Resources at **Cornell University’s College of Agriculture and Life Sciences**, is right on the money when he refers to Coleman and Temple’s estimate as an example of a “‘mutant statistic’ whose origins and genesis have been greatly lost to the people who cite it.”<sup>14</sup>

Among those who cite it are, of course, Longcore et al. But they failed to include an important follow-up comment by one of the Wisconsin Study’s authors. In a 1994 interview, an “exasperated” Temple told *The Sonoma County Independent*:

The media has had a field day with this since we started. Those figures were from our proposal. They aren’t actual data; that was just our projection to show how bad it *might* be.<sup>15</sup>

More than the media, however, it’s been the wildlife conservationists and bird advocates who have had a field day with the Wisconsin Study. Here are just a few examples:

<sup>a</sup> In fact, Woods et al. go to some lengths to emphasize the limitations of their study, conceding, for example, that they “may have focused on predatory cats.”<sup>3</sup> This is just one of many reasons the authors cite for requesting that their work be treated “with requisite caution”—a request apparently ignored by Longcore et al.

<sup>b</sup> For a more complete critique, see Goldstein, O’Keefe, and Bickel<sup>7</sup> ([www.straypetadvocacy.org/html/wisconsin\\_study.html](http://www.straypetadvocacy.org/html/wisconsin_study.html))

<sup>c</sup> For a detailed account, see Ellen Perry Berkeley’s 2004 book *TNR Past present and future: A history of the trap-neuter-return movement*.<sup>9</sup>

- The American Bird Conservancy (ABC) refers to the study in its brochure *Domestic Cat Predation on Birds and Other Wildlife*. But ABC goes one step further, pointing out that Coleman and Temple's estimate was for *rural* cats, and that "suburban and urban cats add to that toll."<sup>16</sup>
- The **U.S. Fish and Wildlife Service** cites the study's "intermediate" estimate of 39 million birds in its **Migratory Bird Mortality Fact Sheet**.<sup>17</sup>
- A recent **article** in *Audubon Magazine* suggests "cats were annually knocking off somewhere in the neighborhood of 8 million birds just in rural Wisconsin."<sup>18</sup> To the magazine's credit, they used Coleman and Temple's low estimate (a surprise given the overall tone of the piece). Still, *none* of the numbers from the Wisconsin Study are scientifically sound (indeed, one can make a strong argument that none of the work constitutes actual *research*).

For Longcore et al. to cite the Wisconsin Study without even a mention of its numerous flaws, or the rather public admission by one of its authors that their estimates "aren't actual data," casts serious doubt on their entire paper. Either the authors didn't know about all the holes in Coleman and Temple's work, or they knew and pressed on—ignoring the facts. Neither approach makes for good science, of course.

## IMPACT OF FREE-ROAMING CATS ON WILDLIFE

Estimating the number of birds killed by cats is difficult enough; demonstrating that their predation is the cause of declining bird populations is an even greater challenge. Nevertheless, Longcore et al. suggest the evidence is both plentiful and compelling. According to the authors, "Comparative field studies and population measurements illustrate the adverse effects of feral and free roaming cats on birds and other wildlife." But a careful review of these studies—as outlined below—reveals a more complex, less direct relationship between cats and wildlife.

### San Diego Canyon Country

*"In canyons in San Diego native bird diversity declined significantly with density of domestic cats (Crooks & Soulé 1999)."* —Longcore et al.

- Longcore et al. fail to mention the density of *people* here—the study site was a "moderately sized fragment (~20 ha) [approximately 49 acres] bordered by 100 residences."<sup>19</sup> Obviously, the development of the area had some impact on the wildlife there.
- The cats included in the study were all pets; it's not clear how their hunting behavior compares to feral cats in general, or managed TNR colonies in particular (the stated focus of "Critical Assessment").
- It's also not clear how sites such as this one, which the authors describe as, "undeveloped steep-sided canyons... habitat islands in an urban sea," correspond to the environment overall. When Longcore and the Urban Wildlands Group sued the City of Los Angeles, it was to put a stop to publicly supported TNR *throughout the city*, not just in areas of particular concern.

### Alameda County Parks

*"In a comparative study in Alameda County, California, a site with a colony of feral cats had significantly fewer resident birds, fewer migrant birds, and fewer breeding birds than a control site without cats... Ground-foraging species, notably California Quail (Calipepla californica) and California Thrashers (Toxostoma redivivum), were present at the control site but never observed at the site with cats. Native rodent density was drastically reduced at the site with cats, whereas exotic house mice (Mus musculus) were more common (Hawkins 1998)."* —Longcore et al.

Hawkins' dissertation<sup>20</sup> is so problematic—and cited frequently enough as evidence of the impact of cats on wildlife—that it warrants a critique of its own. Here, I'll touch on just a few points:

- Hawkins describes the "cat" and "no-cat" areas as being similar enough that a valid comparison is appropriate. But a closer look at the study suggests otherwise. Much of the cat area bordered the park's lake and marina, not far from a number of picnic sites. Hawkins notes that there were more people in the cat area (often twice as many as were observed at the no-cat area), but dismisses the possibility that their presence may have influenced the numbers of birds and rodents he observed there.
- In addition, the presence of pesticides may have played a role. According to a 2002 **report** (the earliest I was able to find) from the East Bay Regional Park District, "The focus of Lake Chabot's weed control efforts are vegetation reduction within the two-acre overflow parking lot, picnic sites and firebreaks around park buildings, corp. yard, service yard, and the Lake Chabot classroom."<sup>21</sup> And it's clear from an article summarizing Hawkins' dissertation that the cat area did include picnic sites: "...over half of the cat scat in this study was collected under and around picnic tables."<sup>22</sup> Now, Hawkins' fieldwork was done in 1995 and 1996, but if there was any pesticide use during the study period, it may have affected the results—especially if the pesticide was distributed differently across the two areas.
- Hawkins writes, "The preference of ground feeding birds for the no-cat treatment was striking; for example, California quail were seen almost daily in the no-cat area, whereas they were never seen in the cat

area.” What’s more striking to me, though, is the fact that *five of the nine ground-feeding species included in the study showed no preference for either area*—a point Hawkins downplays, and Longcore et al. ignore entirely. If, as Hawkins suggests, “the differences observed in this study were the results of the cat’s [*sic*] predatory behavior,”<sup>d</sup> then how to explain their remarkably selective hunting practices? Fitzgerald and Turner, for example, argue that “domestic cats (both house and feral ones) are best described as generalist resident predators, exploiting a wide range of prey, and able to switch readily from one prey to another.”<sup>23</sup>)

- Finally, it’s not clear how this study constitutes much of an experiment at all. Hawkins chose two sites, one where cats were being fed, and another (approximately two miles away) where cats were not being fed. We have no idea what the cat area was actually like prior to the cats being fed there—Hawkins merely assumed the populations of birds and rodents would have been identical to those found at the no-cat site. We also have no idea what effect the feeding had—what if the cats were present but had to fend for themselves? And we don’t know if the cats were sterilized, or what impact that might have had on the study. In other words, Hawkins didn’t actually know enough about what was going on at the two sites to conclude, as he does, that his findings can be linked directly and specifically to the cats. Or, more broadly, that “it is not prudent to manage for wildlife and allow cat feeding in the same parks.”<sup>20</sup>

#### Urban Cat Density (Bristol, UK)

*“In Bristol, United Kingdom Baker et al. (2005) calculated that the predation rates by cats on 3 bird species in an urban area is high relative to annual productivity, which led the authors to suggest that the area under study may be a habitat sink.”* —Longcore et al.

- The authors’ method for calculating estimated predation rates is problematic. To begin with, they make the all-too-frequent mistake of using a simple average as a statistic to describe a highly skewed distribution (as the authors themselves note, “the majority of cats (51–

74%) failed to return any prey”<sup>11</sup>), thus overestimating the average number of prey killed by each cat. This error is further exacerbated when Baker et al. multiply by 3.3, a factor “to account for the proportion of prey killed that was returned home.” This multiplier comes from a study<sup>24</sup> plagued by very small sample sizes and its own dubious mathematics.<sup>e</sup> Nevertheless, Baker et al. seem to defend the study: “to the best of our knowledge, this is the only study that has managed to quantify this parameter.”

- Also, Longcore et al. fail to mention that Baker et al. concede an important point: “collectively, despite [cats] occurring at very high densities, the summed effects on prey populations appeared unlikely to affect population size for the majority of prey species.”<sup>11</sup>
- In addition, a subsequent study (also conducted in Bristol) involving two of the authors, suggests that much of the predation observed was compensatory rather than additive. That is, many of these birds would have, for one reason or another, died anyhow, whether the cats were present or not. Specifically, the authors found that “birds killed by cats in this study had significantly lower fat and pectoral muscle mass scores than those killed by collisions.”<sup>12</sup> Baker et al. are cautious about these findings, suggesting, “the distinction between compensatory and additive mortality does... become increasingly redundant as the number of birds killed in a given area increases: where large numbers of prey are killed, predators would probably be killing a combination of individuals with poor and good long-term survival chances.” But once again, their estimates of birds killed by cats are inflated by a factor of 3.3, as described above—thereby raising doubts about any level of “redundancy.”<sup>f</sup>

#### Additional Evidence

Clearly, the issue is more complex—not to mention *contentious*—than Longcore et al. suggest. Many researchers have disputed the kinds of broad, overreaching claims the authors make about the impact of cats on wildlife. Consider, for example, the following:

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<sup>d</sup> It should be noted that Hawkins tempered this assertion in his 1999 article summarizing the work: “The differences observed in this study *may have been* due to the cats’ predatory behavior.”<sup>22</sup> (italics mine)

<sup>e</sup> This ratio of 3.3 hinges on the hunting behaviors of just 24 cats—12 that returned prey home, and another 12 (11 pets and 1 feral) that were observed hunting for a total of 181 hours (anywhere from 4.8–46.5 hours per cat). But the key to the calculation is the average time spent outdoors—a highly skewed distribution, something suggested in Kays and DeWan’s own data, and confirmed in other surveys (see, for example, Clancy, Moore, and Bertone<sup>25</sup>). By using a simple average (8.35 hours/day), Kays and DeWan greatly overestimate the potential predation.

<sup>f</sup> Another study to investigate compensatory vs. additive predation was more conclusive. Møller and Erritzøe compared the average spleen mass of birds killed by cats to that of birds killed in collisions with windows found that “small passerine birds falling prey to cats had spleens that were significantly smaller than those of conspecifics that died for other reasons,” concluding that the birds killed by cats “often have a poor health status.”<sup>26</sup> In other words, the birds killed by cats were among the population least likely to survive anyhow.

- Biologist C.J. Mead, reviewing the deaths of “ringed” (banded) birds reported by the public, suggests that cats may be responsible for 6.2–31.3% of bird deaths. “Overall,” writes Mead, “it is clear that cat predation is a significant cause of death for most of the species examined.” Nevertheless, Mead concludes that “there is no clear evidence of cats threatening to harm the overall population level of any particular species... Indeed, cats have been kept as pets for many years and hundreds of generations of birds breeding in suburban and rural areas have had to contend with their predatory intentions.”<sup>27</sup>
- Mike Fitzgerald and Dennis Turner come to essentially the same conclusion:<sup>8</sup> “We consider that we do not have enough information yet to attempt to estimate on average how many birds a cat kills each year. And there are few, if any studies apart from island ones that actually demonstrate that cats have reduced bird populations.”<sup>23</sup>
- Merritt Clifton, of *Animal People*, an independent newspaper dedicated to animal protection issues, makes a compelling argument that the population of feral cats in the U.S. is much smaller than is often reported (e.g., Jessup’s<sup>28</sup> 60–100 million figure, which was recently inflated further by Dauphiné and Cooper<sup>29</sup>), and may very well be on the decline.<sup>30</sup> In 2003, Clifton suggested that “the winter feral cat population may now be as low as 13 million and the summer peak is probably no more than 24 million.”<sup>13</sup> If so, the implications for wildlife predation (and other environmental impacts) are significant.

Given the scope of their essay, perhaps it’s understandable that Longcore et al. were unable to cover each aspect of this rather broad topic in a more comprehensive manner. Nevertheless, the amount of research into cat predation and wildlife impacts—a critical piece of the puzzle, to be sure—that was omitted, glossed over, and/or misrepresented suggests a clear agenda. And the three studies cited by Longcore et al.—presumably, the best evidence available—are less than compelling. Close scrutiny reveals a range of issues (e.g., the habitat/fragment specificity of Crooks and Soulé’s work, Hawkins’ flawed approach/conclusions, and the inflated predation estimates by Baker et al.) that challenge the sweeping statements made by Longcore et al.

Read carefully, “Critical Assessment” comes across as not as scientific discourse, but as fodder for a marketing/PR campaign. (And, given the number of wildlife conservation/bird advocacy groups that have posted it on their Web sites—not to mention the L.A. Superior court decision—it’s been effective.)

### Context Is Critical

Many proponents of TNR will acknowledge that the practice is not appropriate for all environments.<sup>9, 13, 31</sup> Crooks and Soulé’s<sup>19</sup> work in San Diego’s canyon country, writes Ellen Perry Berkeley, “suggests to even the most ardent TNR advocate that such a landscape might not be the best place for TNR... The world is a complicated place.”<sup>9</sup> Gary J. Patronek, the former Director of the **Center for Animals and Public Policy at the Cummings School of Veterinary Medicine at Tufts University**, and one of the founders of the **Hoarding of Animals Research Consortium**, goes further: “the release of cats into an environment where they would impact endangered or threatened species, or even into wildlife preserves or refuges, is inexcusable.”<sup>31</sup>

This, I worry, is a slippery slope. Given the current nature of the cat debate, how long would it be before every alley, Dumpster, and abandoned property is deemed a wildlife preserve? And, given the number of endangered and threatened species—and their wide range—would there be *any* environment left for cats? Nevertheless, Patronek’s larger point is an important one:

I do not believe that this is being advocated by cat protectors who see urban, managed colonies as an imperfect but still preferable alternative to the euthanasia of healthy animals. Abandoned pet cats whose own habitat has been reduced to colonies, and the wild species endangered by clear-cutting or beachfront development, are casualties of the same callous disregard for the lives of animals. I see little justification for shifting the role of cats to that of scapegoat.<sup>31</sup>

For Longcore et al., though, there’s simply no place for TNR *anywhere*. But there’s something even more troubling with their argument: they’re attempting to answer the wrong questions. As Patronek puts it so eloquently:

If the real objection to managed colonies is that it is unethical to put cats in a situation where they could potentially kill any wild creature, then the ethical issue should be debated on its own merits without burdening the discussion with highly speculative numerical estimates for either wildlife mortality or cat predation. Whittling down guesses or extrapolations from limited observations by a factor of 10 or even 100 does not make these estimates any more credible, and the fact that they are the best available data is not sufficient to justify their use when the consequence may be extermination for cats... What I find inconsistent in an otherwise scientific debate about biodiversity is

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<sup>8</sup> Their contribution to *The Domestic Cat: The Biology of its Behaviour*<sup>23</sup> is a must-read for anybody interested in the subject.

how indictment of cats has been pursued almost in spite of the evidence, and without regard to the differential effects of cats in carefully selected, managed colonies, versus that of free-roaming pets, owned farm cats, or truly feral animals. Assessment of well-being for any is an imprecise and contentious process at best. Additional research is clearly needed concerning the welfare of these cats.<sup>31</sup>

## MEASURES OF SUCCESS

While I agree with Longcore et al. that there is a need for additional research into the effectiveness and impact (environmental and otherwise) of TNR, I'm not sure any future studies would address their objections or satisfy their apparent standards.

### Adoptions

To begin with, the authors challenge the efficacy of TNR, noting—correctly—for example, that where TNR has proven effective at reducing the size of colonies, success has been “derive[d] in part from intensive efforts to remove cats for adoption as part of the TNR program.” Shouldn't this appeal to Longcore and the Urban Wildlands Group? After all, adoptions lead to fewer free-roaming cats.

It's unclear how a successful adoption program *lessens* the efficacy of TNR; indeed, such efforts are integral to any TNR program. For Longcore et al., however, it's as if adoptions constitute cheating.

### Researchers vs. Volunteers

Another of their assertions, that “programs implemented by researchers are likely to be much more thorough than programs implemented exclusively by volunteers,” could be applied to virtually any conservation effort. Of course the results will be better when the experts are involved directly.

Indeed, while compiling data for the *Atlas of Breeding Birds of Maryland and the District of Columbia*, researchers found Cooper's Hawks in 46% of the areas surveyed, while volunteers reported only a 14% occurrence of this “secretive species that requires special effort.”<sup>32</sup> Here, the experts “performed” more than three times better than well-meaning volunteers with less experience and/or training. Should we therefore discontinue all efforts that include volunteers? Or shut down these programs until the volunteers perform as well as experts? Obviously not.

### Anecdotes of Success

Longcore et al. criticize supporters of TNR for their “anecdotes of success” and “assertions of colony declines often... supported only by reference to Web sites.” By calling the data “anecdotal,” the authors dismiss it out of hand. So, what measures of success would be acceptable?

In general, caretakers of feral colonies—as providers of food, water, shelter, and, often, healthcare—know their cats

quite well. Yet, Longcore et al. suggest that their reports are not to be trusted—trusted to a lesser degree, in fact, than the reports generated by members of the public recruited to watch and listen for birds. Breeding Bird Surveys “annually engage tens of thousands of participants,” and these efforts are now beginning to leverage the power of the Internet via Web-based programs such as **eBird**.<sup>33</sup> All of which sounds very *anecdotal* in nature. So, do the authors question the validity of this work as well?

### Prevailing Conditions

Citing a 2006 study from Rome, Longcore et al. chose to focus not on TNR's rather remarkable success, but on its greatest challenge: “Ten years of TNR in Rome showed a 16–32% decrease in population size across 103 colonies but concluded that TNR was ‘a waste of time, energy, and money’ if abandonment of owned cats could not be stopped.”<sup>34</sup> It must be recognized that TNR is part of a larger mission that includes adoptions (as mentioned above), sterilization of owned cats, and the burgeoning **no-kill movement**.

In any case, what rescue/conservation work *isn't* “a waste of time, energy, and money” when considered in the harsh light of what the authors call “prevailing conditions”? We could, for example, say the same about efforts to save songbirds faced with the elimination and fragmentation of habitat, increased levels of pollution, and the like (indeed, endangered and threatened species are, *by definition*, the victims of prevailing conditions). The fact that such efforts are uphill battles may say something about their underlying moral imperative—but very little about their efficacy.

### Common Ground

Again, it's not clear how *any* research into the efficacy of TNR could hope to meet the standards put forth by Longcore et al. But, strip away their rhetoric, and three key points come through:

- TNR can and does work, though not always as well as one would hope.
- Adoptions are critical, as is training and rigorous record keeping/tracking.
- Abandonment of pet cats—which is, in any case, illegal—should be stopped.

So, how is this any different than what TNR advocates are promoting? Here at least, we would seem to have some common ground. Apparently, what's really at issue is not *how* the success of TNR is defined, but, as Longcore et al. suggest, *by whom*:

For many TNR advocates, success is not defined by elimination of feral cats in an area, but rather by the welfare of the cats... conservation scientists and wildlife veterinarians measure success of a feral cat management program by the decline and elimination of free-roaming cats.

All of which leaves me wondering: *How much time have the authors spent with people who practice TNR?* Of course practitioners are interested in the welfare of the cats—just as any animal lover is interested in the welfare of the animals they enjoy. But they're also thrilled when "kitten season" comes and goes without any new arrivals in their colonies. More common ground? It would seem so—but if that's the case, one is left to wonder why the Urban Wildlands Group put so much effort into ending publicly supported TNR in L.A.

One thing that *does* seem certain: more cats are reproducing as a result of the injunction. And no doubt more are (or will be) dying, too. It's difficult to imagine the wildlife and environment being any better off, either. So, there are lots of losers here—where are the winners?

### CONTINUING THE CAT DEBATE

In his comprehensive article, "Free-roaming and Feral Cats—Their Impact on Wildlife and Human Beings," Patronek laments the fact that "the debate about free-roaming cats is often framed as pro-cat and anti-wildlife, or vice-versa. This attitude polarizes groups and individuals who otherwise have common concerns about animals and the environment, and is a barrier to developing effective public policy."<sup>35</sup> This, I'm afraid, is precisely how Longcore et al. framed their essay. Worse, however, is the fact that its publication in a respected scientific journal—giving it currency within the scientific community and beyond—further impedes chances for an honest discussion of the issues.

There are legitimate issues to be debated regarding the efficacy, environmental impact, and morality of TNR, but such debate continues to be hindered (if not derailed entirely) by those—including Longcore et al.—who misrepresent the scientific research on the subject. Given all that's at stake, none of us can afford to indulge in such irresponsible behavior.

### LITERATURE CITED

1. Churcher, P.B. and Lawton, J.H., "Predation by domestic cats in an English village." *Journal of Zoology*. 1987. 212(3): p. 439–455.
2. May, R.M., "Control of feline delinquency." *Nature*. 1988. 332(March): p. 392–393.
3. Woods, M., McDonald, R.A., and Harris, S., "Predation of wildlife by domestic cats *Felis catus* in Great Britain." *Mammal Review*. 2003. 33(2): p. 174–188.
4. Coleman, J.S. and Temple, S.A., "On the Prowl," in *Wisconsin Natural Resources*. 1996, Wisconsin Department of Natural Resources: Madison, WI. p. 4–8. <http://dnr.wi.gov/wnrmag/html/stories/1996/dec96/cats.htm>
5. n.a., What the Cat Dragged In, in *Catnip*. 1995, Tufts University School of Veterinary Medicine: Boston, MA. p. 4–6.
6. Coleman, J.S. and Temple, S.A., "Rural Residents' Free-Ranging Domestic Cats: A Survey." *Wildlife Society Bulletin*. 1993. 21(4): p. 381–390.
7. Goldstein, L.D., O'Keefe, C.L., and Bickel, H.L. "Addressing 'The Wisconsin Study.'" 2003. Stray Pet Advocacy. [http://www.straypetadvocacy.org/html/wisconsin\\_study.html](http://www.straypetadvocacy.org/html/wisconsin_study.html).
8. Fitzgerald, B.M., Diet of domestic cats and their impact on prey populations, in *The Domestic cat: The biology of its behaviour*, D.C. Turner and P.P.G. Bateson, Editors. 1988, Cambridge University Press. p. 123–147.
9. Berkeley, E.P., *TNR Past present and future: A history of the trap-neuter-return movement*. 2004, Bethesda, MD: Alley Cat Allies.
10. O'Keefe, C.L. (2003) "Predation Studies Reviewed." Stray Pet Advocacy. [http://www.straypetadvocacy.org/predation\\_studies\\_reviewed.html](http://www.straypetadvocacy.org/predation_studies_reviewed.html)
11. Baker, P.J., et al., "Impact of predation by domestic cats *Felis catus* in an urban area." *Mammal Review*. 2005. 35(3/4): p. 302–312.
12. Baker, P.J., et al., "Cats about town: is predation by free-ranging pet cats *Felis catus* likely to affect urban bird populations?" *Ibis*. 2008. 150: p. 86–99.
13. Clifton, M. Where cats belong—and where they don't. *Animal People* 2003. <http://www.animalpeoplenews.org/03/6/wherocatsBelong6.03.html>.
14. Tantillo, J.A., Killing Cats and Killing Birds: Philosophical issues pertaining to feral cats, in *Consultations in Feline Internal Medicine Volume 5*, J.R. August, Editor. 2006, Elsevier Saunders. p. 701–708.
15. Elliott, J., The Accused, in *The Sonoma County Independent*. 1994. p. 1, 10.
16. (n.a.) *Domestic Cat Predation on Birds and Other Wildlife*. n.d., American Bird Conservancy: The Plains, VA. [www.abcbirds.org/abcprograms/policy/cats/materials/predation.pdf](http://www.abcbirds.org/abcprograms/policy/cats/materials/predation.pdf)
17. (n.a.), *Migratory Bird Mortality*. 2002, U.S. Fish and Wildlife Service: Arlington, VA. [www.fws.gov/birds/mortality-fact-sheet.pdf](http://www.fws.gov/birds/mortality-fact-sheet.pdf)
18. Williams, T., "Felines Fatale," in *Audubon Magazine*. 2009, National Audubon Society: New York, NY. <http://www.audubonmagazine.org/incite/incite0909.html>
19. Crooks, K.R. and Soule, M.E., "Mesopredator release and avifaunal extinctions in a fragmented system." *Nature*. 1999. 400(6744): p. 563–566.
20. Hawkins, C.C. 1998. *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.
21. Brownfield, N.T., *2002 Annual Analysis of Pesticide Use East Bay Regional Park District*. 2003, East Bay Regional Park District. [www.ebparks.org/files/stew\\_pest\\_report\\_02.pdf](http://www.ebparks.org/files/stew_pest_report_02.pdf)

22. Hawkins, C.C., Grant, W.E., and Longnecker, M.T., "Effects of Subsidized House Cats on California Birds and Rodents." *Transactions of the Western Section of the Wildlife Society*. 1999. Vol. 35, p. 29–33.
23. Fitzgerald, B.M. and Turner, D.C., Hunting Behaviour of domestic cats and their impact on prey populations, in *The Domestic Cat: The biology of its behaviour*, D.C. Turner and P.P.G. Bateson, Editors. 2000, Cambridge University Press. p. 151–175.
24. Kays, R.W. and DeWan, A.A., "Ecological impact of inside/outside house cats around a suburban nature preserve." *Animal Conservation*. 2004. 7(3): p. 273–283.
25. Clancy, E.A., Moore, A.S., and Bertone, E.R., "Evaluation of cat and owner characteristics and their relationships to outdoor access of owned cats." *Journal of the American Veterinary Medical Association*. 2003. 222(11): p. 1541–1545.
26. Møller, A.P. and Erritzøe, J., "Predation against birds with low immunocompetence." *Oecologia*. 2000. 122(4): p. 500–504.
27. Mead, C.J., "Ringed birds killed by cats." *Mammal Review*. 1982. 12(4): p. 183–186.
28. Jessup, D.A., "The welfare of feral cats and wildlife." *Journal of the American Veterinary Medical Association*. 2004. 225(9): p. 1377–1383.
29. Dauphiné, N. and Cooper, R.J., *Impacts of Free-ranging Domestic Cats (Felis catus) on birds in the United States: A review of recent research with conservation and management recommendations*, in Fourth International Partners in Flight Conference: Tundra to Tropics. 2010. p. 205–219 [http://www.abcbirds.org/abcprograms/policy/cats/impacts\\_of\\_free\\_ranging\\_domestic\\_cats.pdf](http://www.abcbirds.org/abcprograms/policy/cats/impacts_of_free_ranging_domestic_cats.pdf)
30. Clifton, M. Roadkills of cats fall 90% in 10 years—are feral cats on their way out? *Animal People* 2003. <http://www.animalpeoplenews.org/03/11/roadkills1103.html>
31. Patronek, G.J., "Letter to Editor." *Journal of the American Veterinary Medical Association*. 1996. 209(10): p. 1686–1687.
32. Robbins, C.S. and Blom, E.A.T., *Atlas of the breeding birds of Maryland and the District of Columbia*. Pitt series in nature and natural history. 1996. University of Pittsburgh Press. p. xx.
33. Sullivan, B.L., et al., "eBird: A citizen-based bird observation network in the biological sciences." *Biological Conservation*. 2009. 142(10): p. 2282–2292.
34. Natoli, E., Maragliano, L., Cariola, G., Faini, A., Bonanni, R., Cafazzo, S., et al. (2006). Management of feral domestic cats in the urban environment of Rome (Italy). *Preventive Veterinary Medicine*, 77(3-4), 180–185.
35. Patronek, G.J., "Free-roaming and Feral Cats—Their Impact on Wildlife and Human Beings." *Journal of the American Veterinary Medical Association*. 1998. 212(2): p. 218–226.

