

From ANIMAL PEOPLE, June 2003:

Where cats belong--and where they don't

KISSEEMEE, Florida--Depending on who you listen to, the Florida Fish & Wildlife Conservation Commission either declared war on feral cats at a May 30 meeting in Kisseemee, or clarified their position that they have no intention of so doing.

Claiming the support of the American Bird Conservancy, National Audubon Society, and National Wildlife Federation, Florida Wildlife Division director Frank Montalbano talked like a man going to war in a March interview with Orlando Sentinel outdoors writer Don Wilson.

"We estimate there are 5.3 million feral and free-ranging domestic cats in the state," Montalbano said. "We're going to take an aggressive policy toward eliminating the feral cat impact on lands this agency manages. Cats roaming free in wildlife management areas will be taken into captive management or euthanized. We may have to get involved in euthanasia," Montalbano reiterated, "in situations where [nonprofit] corporations are maintaining colonies of feral cats near populations of native endangered species."

Montalbano, said Wilson, "was referring to a group of cats kept by condominium owners on Key Largo, home of the Key Largo wood rat."

Montalbano's remarks touched off a furor, especially in south Florida, where trap/neuter/return of feral cats, called TNR for short, has taken hold in a big way.

Data developed separately by the FFWCC and by University of Florida at Gainesville researcher Julie Levy agrees that Florida now has 2.7 million to 2.8 million feral cats, amounting to 44% of the total cat population--about twice as many cats per 1,000 human residents and twice as high a percentage of ferals as the current U.S. norms. The Florida climate enables cats to go through two and even three successful breeding cycles per year, against the norm of one in the snowbelt states.

Yet Florida used to have even more feral cats.

Since local TNR programs began in south Florida during the early 1990s, animal control killing per 1,000 human residents has dropped by half, and reductions in the numbers of cats killed are believed to account for most of the improvement.

In 2001, for instance, all shelters combined in the Fort

Lauderdale/Miami corridor killed 14.1 cats and dogs per 1,000 humans, less than the national average of 15.7, and down from 33.0 per 1,000 as recently as 1997.

In Tampa, where TNR has not taken hold, shelters collectively killed 32.4 cats and dogs per 1,000 humans in 2001. St.

Petersburg, right across Tampa Bay, with several active TNR groups, killed 13.7.

Florida Fish and Wildlife Conservation Commission field biologist Dwayne Carbonneau and northeast regional director Dennis David followed Montalbano in spooking cat people when in mid-May they accidentally left a conversation between them on the answering machine of Alley Cat Allies in Washington D.C.

Neither realized that David's telephone was still connected to the answering machine, after David left a brief message about the May 30 FFWCC meeting.

"Should I wear my uniform when I'm shooting these neighborhood cats?" asked Carbonneau.
"Only after we adopt this policy," David said.

Policy adopted

Softening their initial tone as cat defenders bared their claws, but perhaps using doublespeak, the FFWCC unanimously voted "To pursue staff recommendations and all of the strategies outlined and to oppose TNR only when it is a threat to native wildlife and then in the most socially acceptable way we can."

The approved strategies include:

- * "A comprehensive education program to increase public awareness of the impacts that feral and free-ranging cats present to wildlife," which feral cat advocates read as mounting an anti-cat propaganda blitz.

- * Identifying "ways for cat owners to minimize impacts," meaning keeping cats indoors.

- * Informing "cat owners of laws prohibiting the release or abandonment of cats to the wild," read by many TNR practitioners as an attempt to legally define them as owners and arrest them. This tactic has failed when attempted in other states.

- * Eliminating "the threat cats pose to the viability of local populations of wildlife, particularly species listed as endangered, threatened or of special concern," perhaps hinting at an escalation of catch-and-kill.

- * Prohibiting "the release, feeding or protection of cats on lands managed by the Florida Wildlife Commission and strongly opposing programs and policies that allow the release, feeding or protection of cats on public lands that support wildlife habitat." This much was already public policy and is also the policy of the National Park Service, U.S. Fish & Wildlife Service, U.S. Navy, U.S. Postal Service, and other federal agencies.

- * Providing "technical advice, policy support and partnerships to land management agencies in order to prevent the

release, feeding or protection of cats on public lands that support wildlife habitat," read by TNR practitioners as a mandate for creating an interagency cat extermination force.

* Opposing creation and supporting "elimination of TNR colonies and similar managed cat colonies wherever they potentially and significantly impact local wildlife populations," which some TNR practitioners read as meaning anywhere, although the phrase "potentially and significantly" leaves room for tolerating low-level predation on rodents and common bird species in developed areas, where other predators such as coyotes and gulls are either few or unwelcome.

* Evaluating "the need for new rules to minimize the impacts of cats on native wildlife."

The FFWCC tried to mollify cat defenders by stating that it "is not making drastic plans to kill cats; rather it is looking to employ the least-restrictive methods possible to accomplish the agency's mission to protect wildlife.

The FFWCC also indicated that it would not take the active role that some cat advocates fear in conducting feral cat roundups: "Commissioners agreed that local governments have the primary responsibility for managing domestic animals, including cats, and the FFWCC will concentrate its efforts on coordinating with them and other affected parties."

In other words, catch-and-kill on land not under direct FWC management is still delegated to local animal control agencies, whose policies and activities are still under the direction of local elected officials.

Elaborated FFWCC spokesperson Joy Hill to Associated Press writer Mike Schneider, "We're not forming a cat Nazi-patrol. That's not what this is about. It's about protecting wildlife." Skeptical, Alley Cat Allies challenged the new FFWCC policy with a June 10 lawsuit.

How great a difference the new FFWCC policy will actually make remains to be seen. Although it lends itself to extremes of interpretation, it really does little more than restate the longstanding perspectives and policies of wildlife agencies all over the U.S.

It also marks the first major state level escalation of a policy debate already underway in communities with both active TNR programs and active birders who blame cats for declines of ground-nesting birds and songbirds. Friction over the alleged impact of feral cats on a small reintroduced population of California golden quail in Golden Gate Park has raged for more than a decade.

A similar confrontation in Akron, Ohio, brought the extermination of 969 cats trapped by cat-unfriendly residents during

the latter half of 2002.

While the Florida debate was underway, comparable resolutions were under discussion in Oakland, Michigan, and Richmond, Indiana.

Maverick Cats

Few cities and counties and even fewer states have existing written feral cat policies because historically feral cats were not recognized as a presence, much less a problem. Feral cats were not covered in the model animal control ordinances circulated by national animal advocacy groups as recently as the early 1990s; there is no corpus of common law pertaining to them; and *felis catus*, their species, is not even mentioned in the Bible, even though cats were and are native to the Middle East.

Recognition of the existence of feral cats in great numbers may be traced to the 1982 first publication of *Maverick Cats*, by Ellen Perry Berkeley.

Feral cats at the time were still generally seen--if seen at all--as a rural phenomena, haunting dairy barns where they hunted mice in haylofts and begged for milk.

Urban feral cats were presumed to be strays, and urban cats dumped in rural habitat were believed to have a very low survival rate. At Tilden Park in the hills above Berkeley, California, for example, the ranger lecture given to visiting schoolchildren during the 1960s and early 1970s included inspecting cat bones and hearing about how cruel it was to dump unwanted cats to "give them a chance" because a typical urban cat could not catch enough mice and birds to feed herself.

Discussion of the possible impact of feral cats on rare resident birds and reptiles was added after the passage of the federal Endangered Species Act in 1973.

The Walt Disney film *Lady & The Tramp* (1955) marked the apparent turning point in a battle begun with the passage of the first U.S. animal control ordinances to persuade Americans to confine dogs at home and have them wear identity collars. The popularity of the film apparently accomplished what more than 200 years of municipal dog-catching and 100 years of humane society lecturing had not. Within the next 25 years allowing dogs to run at large passed from being the American norm to being a socially unacceptable act in most parts of the country, but not even Ellen Perry Berkeley seems to have given thought to what the disappearance of free-roaming dogs might mean to feral cats.

What happened was that confining dogs opened habitat and diurnal hunting and travel opportunities to a self-sustaining cat population who until then had been confined to places where dogs

could not go, hunting and traveling mostly by night.

Coyotes, foxes, raccoons, deer, and opossums also took advantage of the absence of dogs to claim urban territory, but cats had the dual advantages of already being there, albeit mostly unseen, and of having by far the greatest fecundity, enabling them to rapidly breed up to approximately the same biomass as the dogs whose jobs as refuse raiders and rodent-catchers they took over.

Between 1960 and 1985, available records indicate, the numbers of "stray" cats killed by U.S. animal control agencies approximately tripled, even as dog intake leveled off and began to drop.

In gist, each free-roaming dog weighing 30 pounds on average was replaced by three 10-pound cats.

Feral cats became the most abundant and reproductively prolific mammalian predator/scavenger in the urban environment.

That in turn brought feral cats to the attention of animal advocates and wildlife researchers.

"Fewer than a dozen research papers [about feral cats] had been published by the mid-1970s," recalls Ellen Perry Berkeley in a the new final chapter of a 2001 reissue of *Maverick Cats*. "We now have more than 20 times that number."

Most of the new studies focus on the relatively obvious predatory role of outdoor cats, but a few researchers have also recognized the importance of cats as prey.

Coyotes and foxes often take urban habitat niches from feral cats by force. A 1998 study by the late Martha Grinder (killed in a 1999 car accident) and Paul Krausman, of the University of Arizona in Tucson, found that feral cats were among the main prey of urban coyotes. A 1999 study by Kevin Crooks and Lee McClenaghan, of San Diego State University, affirmed the Grinder/Krausman work by discovering cat remains in 21% of the coyote scats they found in canyons near San Diego.

As hawks, owls, and eagles recovered from the reproductive depression of the 1950s through the 1970s caused by exposure to the pesticide DDT, many species--including bald eagles--surprised ornithologists by thriving as readily in some cities as out in the wild. Cats, it seems, have also become a big part of urban raptors' prey base.

The common view of cats as a top predator in the wildlife food pyramid because they are wholly carnivorous is true of most wild species, but not of *Felis catus*, who shares with coyotes the distinction of being among the few predators with the fecundity of a prey species.

During the peak years of the U.S. government Animal Damage Control coyote-killing campaigns of the 1950s through the 1970s, biologists found that the average coyote litter size in Texas grew

from four pups to seven. This occurred because the intense ADC hunting pressure on coyotes shifted the odds of pup survival from favoring the pups who got the most maternal care to favoring the offspring of the coyote mothers who could produce the greatest abundance of pups, among whom some might elude the killers.

In addition, with food competition artificially reduced, the coyotes wily enough to survive were able to feed more pups. The ancestors of *felis catus* were chiefly the African desert cat, with some apparent genetic input from the Pallas cat of Asia Minor and the closely related Scots wildcat and Norwegian skaukat. All are still capable of hybridizing with *felis catus*, but all normally bear just two kittens. That was also true of the *felis catus* specimens who were mummified by the ancient Egyptians circa 4,000 years ago, and was probably still true of *felis catus* as recently as the 14th century.

Between 1334 and 1354, however, bubonic plague killed up to 75% of the human population of Europe and Asia. Brought to Europe by flea-infested black rats who stowed away aboard the vessels of Crusaders returning from the Middle East, the so-called Black Death attacked most virulently after terrified cities blamed it on "witchcraft" and purged from their midst both the majority of people who had medicinal skill (mostly older women) and their "familiar," mostly the cats who provided rat control.

Cat-eating was first reported in Guangzhou, China, in 1346, putting the Asian population of *felis catus* under similar pressure, continuing in much of China, Korea, and some other Asian nations to this day.

Human predation on cats waned in Europe for several centuries after the Black Death, but resurged during a British purge of "witches" in 1665, just before The Great Plague of London.

Intensive human predation on *felis catus* in the Americas peaked with the height of catch-and-kill animal control in the U.S. during the 1970s--much of it done, then and now, by humane workers who believe they are "euthanizing" helpless abandoned cats to save them from suffering.

Regardless of motive, the effect on the feral cat population replicates natural predation: the most frequent victims are the very young, the old, the disabled, and the ill. The healthiest animals usually escape to breed up to the carrying capacity of the habitat, if they can.

Responding to the intensified mortality, *felis catus* now bears an average litter of four. Nearly seven centuries of killing cats doubled the fecundity of the species.

Why TNR works

TNR is biologically effective in reducing cat numbers while predation is not because it inhibits the reproductive potential of the survivors. When at least 70% of the potential breeders in any species from viruses to advanced mammals are vaccinated, or sterilized, which amounts to vaccination against pregnancy, the remainder have difficulty reproducing at more than the replacement level. This is because the potentially reproductive population is not only diminished, but also isolated from each other, among specimens of the same species who hold habitat and whose sterility is not evident.

Each vaccination or sterilization above 70% further reduces the reproductive potential of the target species. The species can even be eradicated, as smallpox was during the 1970s (at least outside of laboratories), if there is not a favorable vacant habitat into which the fecund few can expand and resume high-volume reproduction.

If feral cats were to be eliminated from the U.S., hawks, owls, eagles, foxes, and coyotes would eventually capture their prey base--but feral cats reproduce at from two to six times the rate of any of these rival predators. Until the rival predators are numerous enough to eat any feral cats who try to reclaim a vacant habitat niche, the animals most likely to fill open niches are more cats.

Critical to understand is that this is not a matter of cats exercising territoriality. Few predators are more gregarious with each other than *felis catus*. Even dominant toms who drive away rival toms during mating season may befriend them outside of mating season. Feral cats hold habitat niches by consuming the available food supply and occupying the safe cover. They surrender habitat niches to other predators through attrition, as the other predators become able to take the niches away from them.

How many cats?

"Of the 73 million pet cats in the United States," Heidi Ridgely declared in the April 2003 edition of the National Wildlife Federation membership magazine *National Wildlife*, "an estimated 40 million roam outside unsupervised. Throw in feral cats--the unsocialized offspring of discarded or lost pets--and as many as 100 million cats are on the loose. 'These cats could easily be killing 100 million songbirds a year,' says Al Manville, wildlife biologist at the U.S. Fish and Wildlife Service Migratory Bird Management Office."

Ridgely succinctly presented the worst fears of birders and conservationists about feral cats, but much of her information was either outdated or contextually misplaced.

ANIMAL PEOPLE estimated in 1992 that there were about 26 million feral cats in the U.S. at the low end of the annual

population cycle in the depth of winter, and about 40 million at the summer peak of kitten season.

These estimates were projected from information about the typical numbers of cats found in common habitat types, gleaned from a national survey of cat rescuers sponsored by Carter Luke of the Massachusetts SPCA, and were cross-compared with animal shelter intake data.

TNR was then just beginning to be practiced in the U.S., and was not even called TNR yet. After a decade of intensive TNR in much of the country, 40 million is now very close to being the upper-end plausible estimate of all free-roaming cats in the U.S., including both pets and ferals, and then only at the height of "kitten season," when about half of the total feral cat population are still too young to hunt, with approximately a 50% chance of living long enough to ever hunt successfully.

In 1996, based on a follow-up survey of the same cat rescuers who were polled in 1992, ANIMAL PEOPLE estimated that the feral cat population had probably peaked in 1993 or 1994 before beginning a downward trend.

ANIMAL PEOPLE projected the annual rate of decrease in the feral cat population since peak at a maximum of 11% per year, if TNR was performed with uniform vigor throughout the U.S.

ANIMAL PEOPLE also projected the maximum rate of assimilation of feral cats into homes, over and above the historical rate of about 25% found by many other researchers, as also being 11%.

Since 1994 the actual rates of decrease in the feral cat population and of assimilation of feral cats as pets appear to have been about half the maximum, because the maximum potential for using TNR effectively has only been half realized. Thus the winter feral cat population may now be as low as 13 million and the summer peak is probably no more than 24 million.

Zero growth

There is indirect confirmation of these numbers from other sources. The American Animal Hospital Association estimated in 1997, based on veterinary client surveys, that there were about 59 million pet cats in the U.S. One year later the American Pet Product Manufacturers Association estimated that there were 63 million pet cats.

The parallel surveys have shown similar increases in the pet cat population ever since. Currently the AAHA projects that there are 78 million pet cats in the U.S., for a 32% rise in six years.

Yet even a decade ago separate studies by the Tufts University Center for Animals & Public Policy, the Massachusetts SPCA, and Karen Johnson of the National Pet Alliance found that the

owned cat population, including cats deliberately bred by the pet industry, appeared to be reproducing at only 70% of their own replacement level.

Even then, up to 85% of all pet cats had already been sterilized, amounting to 60% of the estimated total U.S. cat population of about 100 million.

The pet cat population was maintaining itself and growing only through taming and adoption of ferals. Surveying 20,000 California households in the San Diego and San Jose areas during 1993-1994, Johnson learned that at least 28% of the cats kept as pets were apparently born feral--a slight rise from the findings of the Tufts and MSPCA studies, which were done in 1991, but consistent with the trend reported by other researchers since 1981.

Johnson also learned that about 10% of all the surveyed households fed feral cats, who also amounted to about 10% of the total cat population, and that about 9% of the feral cats had been sterilized.

Overall, 64% of the San Diego and San Jose cats could no longer reproduce, bringing the total cat population close to the 70% threshold for zero growth.

No comparable surveys have been done in the rest of the U.S. yet, but as of 1996, according to American Veterinary Medical Association data, the number of pet cats in the U.S. acquired from all sources and the number of cat sterilization surgeries performed balanced, at 8.4 million of each.

At that point the pet cat population could no longer reproduce at even replacement level. Up to a third of all pet cats now appear to be recruited from the feral population--and the volume of sterilizations performed each year may exceed recruitment.

The bottom line is that while the pet cat population has grown by 32%, the total cat population, ferals included, is still no more than the 100 million who inhabited the U.S. in 1992, and is very likely less.

How many birds?

The estimate of feline predation on birds at about 100 million per year that Al Manville gave to National Wildlife, at approximately one per cat, is probably low. It is certainly a much more conservative projection than most.

In early 2000, in perhaps the most thorough study of cat predation on birds to date, albeit analytically flawed, Carol Fiore of the Wichita State University Department of Biological Sciences put the annual pet cat toll on birds in the U.S. at anywhere from 134 million, if half of all pet cats roam (about 34 million), to 269 million, if every pet cat roams.

Fiore did not try to estimate the numbers of birds killed by feral cats, but even her lower estimate markedly overprojected the number of owned cats who are allowed to roam. This happened because Fiore decided, based on a survey of Wichita residents, that about half of all cat-keepers allow their cats to roam, and presumed that could be extrapolated to mean that half of all pet cats roam.

ANIMAL PEOPLE has much more extensive data about cat-keeping norms on file, from various other studies, which indicates that cat-keepers whose cats do not roam have, on average, from two to three times more cats than those whose cats can roam.

In other words, more than two-thirds and perhaps 75% of all pet cats do not roam. The roaming pet cat population would therefore be no larger than 26 million.

There is a fairly obvious reason for the greater abundance of non-roaming cats, in that cats kept from running at large tend to live much longer, avoiding cars, wild predators, and capture by animal control officers.

Ferals kill fewer

Accordingly, even Fiore's lowest estimate of pet cat predation on birds may be twice too high. If Fiore was correct that free-roaming pet cats kill an average of 4.2 birds per year, the toll by pet cats would be 109 million.

The feral cat toll on birds is unlikely to be more than half as high as the pet cat toll.

First, there may be twice as many free-roaming pet cats as ferals old enough to hunt for a living.

Second, ferals who hunt for a living tend to hunt mice by night, not birds, who are mostly not out at night.

Third, feral cats appear to hunt no more, and perhaps less, than free-roaming pet cats. This is because, like other wild predators, they hunt not for sport but for food, and hunting more prey than they can eat is a pointless waste of energy. Conservation of energy is a critical concern of predators, who typically sleep about twice as much as primarily plant-eating prey species (except when prey species hibernate).

Only the well-fed cat can afford the energy expenditure involved in hunting just for fun-- especially when the prey is not to be eaten, like the lizards, shrews, and chipmunks commonly killed and abandoned by pet cats.

Finally, relatively few cats are even capable of successfully hunting birds.

Perhaps the best-known study of predation by individually monitored cats was published by the British-based Mammal Society in February 1998, based on their Mammal Action Cat Survey. Eight

hundred British cat-keepers recorded their cats' kills for six months: 144,000 cat-days of activity.

The most active feline killer was Missy, with 125 kills in 180 days, including 28 birds. Almost all the rest were mice, voles, and other small rodents.

The runner-up was Kipper, with 82 kills in 180 days, including six birds. The two most predatory cats (by far) among the entire sample base killed only 34 birds between them in 360 cat-days of hunting. They managed to kill birds at a rate amounting to 16% of their total prey, and succeeded in killing a bird on only 9.4% of the days they hunted.

Only about one cat in 10 has the vertical visual acuity to catch a bird who takes flight--a hypothesis easily tested with a wad of paper on a string. Most cats will easily catch the paper when it moves horizontally, like a mouse, but nine of 10 will lose track of it if it is jerked up into the air like a startled bird.

Cats, in short, are rarely the primary cause of the death of the birds they catch. Bird-hunting cats obey the same rules of predation as all other animals who hunt for a living, dispatching primarily the sick, the injured, the elderly, and the very young, especially fledglings who try to fly too soon. Cats also finish birds who become drunk from eating fermented berries, poisoned by pesticide ingestion (typically with recently sprayed insects), or who collide with human-created obstacles.

The ecological role of cats in preventing the spread of bird disease by killing and eating those brought to the ground by infection has barely been studied, but it may be that feline predation is overall more beneficial to birds than harmful.

Examining the spleens of 500 birds who were either caught by cats, flew into windows, or were hit by cars, researchers Anders Moller and Johannes Erritzoe of the Universite Pierre et Marie Curie in Paris reported in June 2000 that the spleens in the cat-killed birds were a third smaller on average, in 16 of 18 species, than in the birds killed in accidents. In part this was because 70% of the cat-killed birds were juveniles; only half of the others were. But a more important factor, Moller and Erritzoe suggested, was that "Birds succumbing to lots of infections, or inundated with energy-sapping parasites, have smaller spleens than healthy birds."

Who killed Cock Robin?

All considered, the Fiore data suggests that contrary to her own conclusions, pet and feral cats combined probably kill no more than 163 million birds per year in the U.S.

By comparison, human hunters shoot at least 74.4 million wild birds per year, including about 35 million mourning doves.

University of Pennsylvania researcher Daniel Klem estimates that about 100 million birds per year die in collisions with window glass, exclusive of birds who hit the glass first and then are caught by cats. Another four million birds per year die in collisions with cellular telephone transmission towers, also exclusive of birds scavenged by cats.

The Dr. Splatt and Strah Poll roadkill counts indicate that about 11 million to 18 million birds whose remains are big enough to be seen from a car and/or cause a road hazard are roadkilled by cars each year.

National Wildlife Federation vice chair and Virginia Wildlife Center director Edward Clark recalls that, "A study done by the U.S. Fish & wildlife Service of pesticide mortality shows that even with a grid search of a field in which dead birds had been planted 24 hours earlier, the discovery was only about 5%, which means that 95% were either removed by scavengers or went unnoticed."

If the same ratio applies to roadkilled birds, the vehicular toll would be 220 million per year.

Interrupted attacks

Clark, an outspoken critic of TNR, told Heidi Ridgley of National Wildlife that the Virginia Wildlife Center treats about 600 cat-injured animals per year, of whom under 20% recover.

"We have no way of knowing if cats are to blame for the orphaned animals we get," Clark added.

Wrote Heidi Ridgley, citing Clark, "The 'fortunate' few whom people pry out of their cat's claws and turn loose fare no better. With 60 different kinds of bacteria in a cat's saliva, even a tiny puncture packs a lethal punch."

Claimed Clark, "People are woefully mistaken if they think they can turn an injured creature loose and it will survive."

Clark also stressed in discussion with ANIMAL PEOPLE the fate of "those who die from the infections associated with the attack that fails to produce a direct kill. I won't toss around any assumptions about the percentage of success cats have in making direct kills," Clark said, "but if we apply the generally accepted success rate of wild predators of one kill in 4 tries, the number of actual cat victims skyrockets. The true number is certainly much higher than is currently counted. We receive plenty of birds with missing tail feathers who have bite or claw marks consistent with a cat attack."

But Clark missed the obvious: the 600 cat-wounded birds he sees are among the few who are rescued by humans, typically because the humans intervene to break off the cat attack. That changes the predator/prey dynamic. The cat has no opportunity to finish the kill because of the human intervention.

Otherwise, the injuries he described would impair flight, and would lead to a cat meal. These are not failures of predation, but successes, interrupted, comparable to what happens when a hyena chases a cheetah off a half-dead gazelle and appropriates the meal for himself.

The true failures of predation rise into the air and get away unscathed. The Clark hypothesis that large numbers of birds are dying in the wild of cat-inflicted injuries and infections is simply not supported by evidence--whereas, roadkilled birds and the remains of birds who collide with windows, transmission towers, and power lines, as well as those who succumb to pesticides, have all been collected and studied by researchers in bucketloads.

The nonhuman mammal most responsible for declining birds in the U.S. during the past 20 years is not any predator, but rather the gentle-mannered Virginia whitetailed deer, whose main food is "browse," the brushy hardwood forest understory used as nesting habitat by most neotropical migratory songbirds.

From the 1950s through the 1980s most states introduced "buck laws" designed to boost the deer population for the pleasure of human hunters by exempting does from being hunted. Thus the overwintering herd came to have a gender ratio sometimes as high as 20 does to one buck.

Because shooting up to 85% of the buck population each fall made winter browse relatively abundant, more does were able to bear and raise twin fawns.

By the early 1990s the Virginia whitetailed deer population was believed to have exceeded pre-Columbian levels, and it has continued to grow, despite the reintroduction of doe hunting, increased bag limits, and experiments with contraception.

Comparing the range maps of declining neotropical migratory songbird species with deer counts confirms the obvious: deer are eating the birds out of house and home. The only role cats have in the plight of the birds is that birds unable to find good nesting habitat sometimes resort to nesting in more vulnerable locations--where they are exposed to the full range of woodland predators.

Temple & barns

Many of the other common claims about cat predation are comparably weak. Summarized Ridgley of the findings most often cited by foes of ferals, "A University of Wisconsin study in the early 1990s found that the estimated 1.4 million to 2 million cats that range freely in rural areas of the state kill 31.4 million small mammals and 7.8 million birds a year--at a minimum. 'We knew the study would be controversial so we went with the most conservative

estimates,' says biologist Stanley Temple, coauthor of the study."

Actually Temple used grossly inflated estimates of cat numbers. The standard method of estimating the owned cat population, based on AVMA U.S. Pet Ownership & Demographic Sourcebook data, is human population divided by 2.65 (people/household), x .568 (ratio of cats to people).

That would put the owned cat population of Wisconsin in the early 1990s at just under 1.6 million. If feral cats were 40% of the total cat population, the maximum plausible estimate of the total number of cats in all of Wisconsin, not just the rural areas, would have been 1.9 million.

Between ferals and free-roaming pet cats, there were probably not more than 750,000 free-roaming cats in Wisconsin, barely more than half of Temple's low-end estimate.

"In parts of rural Wisconsin," Temple told Ridgley, "roaming cat densities can reach 114 cats per square mile."

Yet if every barn in Wisconsin housed feral cats at the average density of the barn colonies whose populations ANIMAL PEOPLE surveyed in 1992, when barn colonies appeared to be at their peak size, the 68,000 barns in Wisconsin would have housed 816,000 cats, which would work out to 15 cats per square mile.

"The billboard effect"

There is support, however, for the view of San Francisco quail advocate Alan Hopkins that TNR encourages cat abandonment--a view shared by DELTA Rescue sanctuary founder Leo Grillo, who believes that any visible presence of feral cats or feeding stations creates a "billboard effect" which encourages people to drop cats off to "give them a chance," rather than take them to a shelter where they may be killed.

Overall, pet abandonment was at an all-time high circa 1970, when U.S. shelters were killing 115 dogs and cats per 1,000 human residents, about half of them picked up at large. Cats were about 40% of the toll.

By 2002, shelter killing of dogs and cats was down to 15.7 per 1,000 human residents. Cats now account for about two-thirds of the toll, but the total number of cats killed has fallen from circa 10 million per year to three million per year.

Clearly, the advent of TNR and no-kill sheltering have reduced abandonment--but not at all sites. Complaints about TNR programs typically begin when the numbers of cats fail to visibly drop after several years, and perhaps even increase. Challenged, the TNR program administrators usually blame abandonment, but resist the suggestion that the site may be too conspicuous for TNR to succeed.

A second valid claim of TNR critics is that the practice of feeding feral cats changes their hunting behavior from that of wild predators to that of pets. Birders are often correct in asserting that the cat toll on wildlife increases after a TNR program starts in a park or conservation area, partly because feeding the cats means they need no longer conserve energy, and partly because taking cats out of the breeding cycle reduces wandering that puts them at risk from other predators and vehicular traffic.

This means each cat can not only hunt more, but can also hunt longer--and is among the biggest reasons why ANIMAL PEOPLE has recommended since 1992 that TNR should not be practiced in sensitive wildlife habitat.

The Prime Directive

ANIMAL PEOPLE publisher Kim Bartlett was instrumental in introducing TNR to the U.S., beginning in 1991 with a seven-month trial of the method in northern Fairfield County, Connecticut. Several cats who were removed from inappropriate habitat are still part of the ANIMAL PEOPLE household.

From the beginning, the goal was to reduce the feral cat population at the target sites to zero as rapidly as possible.

There are two preconditions for zeroing out a feral cat colony through TNR, and both were stringently observed:

- 1) At least 70% of the cats and preferably 100% must be sterilized. Before the 70% figure is reached, there will be no net reduction. ANIMAL PEOPLE made every effort to trap and sterilize 100% of the cats at each site as rapidly as they could be identified.

- 2) The colonies must be monitored to ensure that all newcomers are identified, caught, and sterilized.

In addition, Bartlett stipulated as fundamental humane considerations that "All cats and kittens who can be socialized for adoption should be; no ill, elderly, or disabled cats should ever be released; all cats should be properly vaccinated"; and, as the Prime Directive for practicing TNR successfully without rousing politically problematic opposition, "no cat should be released into hostile habitat," such as places of high vehicular traffic, places where the cats will be obvious to the public and will therefore attract abandonments, places where the TNR practitioner does not have permission of the property owner to work, and places where the neighbors may shoot, poison, or otherwise harm the cats.

"The impact of feral cats on wildlife cannot be ignored," Bartlett added in her post-project review, "and should be a major concern. Feral cats may fit as predators, especially in the urban environment, taking the place of those long gone, but the balance is delicate. I'm not at all sure how to compare a cat to a fox, but

I suspect the cat will kill many more animals than the fox, mostly for sport. I'm certain that the predator/prey ratio is askew in virtually all feral cat colonies. A feral who lives alone would be a more natural fit."

Between the Connecticut experiment, which handled 338 cats in all, and the findings from our 1992 survey of rescuers, ANIMAL PEOPLE projected that TNR might be suitable in only 12% of the locations where feral cats are found-- but, largely because the 12% were hospitable to feral cats, they included nearly half the feral cat population.

The Florida conflict, and many like it, seem to have resulted from disregard of the Prime Directive. The outcome of trying to "save" cats in unsuitable locations may be that not only those cats but many more will be caught and killed.

--Merritt Clifton

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