Alley Cat Allies
The cats' leading advocate

Research

Fact Sheet

THE VACUUM EFFECT: WHY CATCH AND KILL DOESN'T WORK

Removing cats from an area by killing or relocating them is not only cruel—it's pointless. Animal control agencies and city governments have blindly perpetuated this futile approach for decades. But years of failed attempts, scientific research, and evidence from animal control personnel prove that catch and kill doesn't permanently clear an area of cats.

Scientific evidence indicates that removing feral cat populations only opens up the habitat to an influx of new cats, either from neighboring territories or born from survivors. Each time cats are removed, the population will rebound through a natural phenomenon known as the "vacuum effect," drawing the community into a costly, endless cycle of trapping and killing.

The vacuum effect is a phenomenon scientifically recognized worldwide, across all types of animal species.

Well-documented among biologists, the vacuum effect describes what happens when even a portion of an animal population is permanently removed from its home range. Sooner or later, the empty habitat attracts other members of the species from neighboring areas, who move in to take advantage of the same resources that attracted the first group (like shelter and food). Killing or removing the original population does nothing to eliminate these resources; it only creates a "vacuum" that will inevitably draw in other animals living nearby.

Scientific research has observed the vacuum effect across many species—herbivores, carnivores, and omnivores. When studying mountain lions, for example, one researcher noted, "When you remove resident lions that have established home ranges you create a void." He continues, "Other resident lions that have home ranges that may overlap the individual you removed now find that territory empty. This allows them to expand their range, as well as create openings for transient lions to establish a new home range."[1]

Simply put, when mountain lions are removed from their habitat, other mountain lions move in. This behavior has also been documented in possums,[2] badgers,[3] and raccoons.[4]

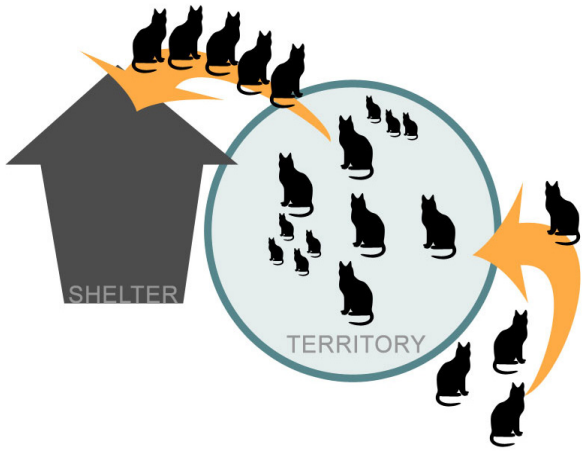
A habitat will support a population of a certain size. No matter how many animals are removed, if the resources remain, the population will eventually recover. Any cats remaining after a catch and kill effort will produce more kittens and at a higher survival rate, filling the habitat to capacity. As one study found, "populations greatly reduced by culling are likely to rebound quickly."[5] Over time, the number of cats in an area where a feral cat colony has been killed or relocated will simply recover and return to its original size.

Removing cats from an area is a futile effort—one that cannot succeed.

The only documented "successful" effort to remove a population of cats occurred in a cruel program on uninhabited,

sub-Antarctic Marion Island. It took two decades and ruthless methods—methods that are impossible to replicate in areas inhabited by people including poisoning, hunting with guns, and introducing disease—to clear the island of cats. As scientists tried each method, they noted "the recolonization of preferred habitats, cleared of cats, from neighboring suboptimal areas…"[6] In other words, like the mountain lions, whenever they killed cats in the best habitats, the cats next door simply moved in. (See sidebar on page 3 for more information: 'Marion Island proves that removing cats from an area is a futile effort that leads to decades of cruelty.')

The Marion Island example proves the vacuum effect while it also proves the impossibility of permanently clearing an area of an entire target population. Municipalities engaged in any type of catch and kill efforts are fighting a cruel, endless, losing battle against nature that is a gross waste of taxpayer dollars and ends hundreds of lives.



Catch and kill is a costly, endless, inhumane cycle.

Years of failed catch and kill policies prove this method's ineffectiveness.

Animal control officers all over the country have observed the ineffectiveness of lethal methods firsthand through years of misguided policy.

Joan Brown, President and CEO of the Humane League of Lancaster County (PA), says that her organization made the switch to Trap-Neuter-Return when they started to realize that they were never making any headway with catch and kill.

JASON PUTSCHÉ

"I finally went to the board and said, 'Where in our mission statement does it say euthanize? Because all we're doing is taking [feral cats] in to euthanize them…we're not only doing an inhumane thing, we're actually contributing to the problem, creating a vacuum effect that will just be filled again—and probably at a faster rate than when we started,'" says Brown.

Brown says that they noticed it was a never-ending and growing problem, draining their resources and their morale: "At the very least, we were standing still. That was clear, and it seemed as if we were running forward, but actually moving backward."

Other animal control and shelter organizations nationwide have also taken a stand after acknowledging the failed results of their catch and kill efforts. Maricopa County, Arizona's animal control website says, "We have over 20 years of documented proof that traditional ways of dealing with feral cats don't work. The catch and kill method of population control (trap a cat, bring it to a shelter, ask that the cat be euthanized), has not reduced the number of feral cats. The cat may be gone, but now there is room for another cat to move in…So, catch and kill actually makes the problem worse."[7] And the Humane Society of Ochocos (Oregon) agrees: "…[W]e know now, that more than 30 years of trapping and killing cats has done nothing to reduce the feral cat population."[8]

The National Animal Control Association amended its feral cat policy in 2008 to be more supportive of Trap-Neuter-Return, in part because, as then president Mark Kumpf put it, "[i]t's recognizing that in some cases, certain jurisdictions and communities are more interested in maintaining a stable cat population than they are in simply bailing the ocean with a thimble."

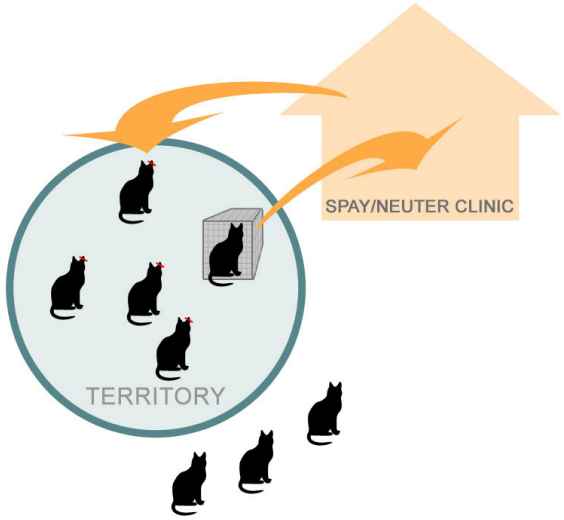
He continues: "What we're saying is the old standard isn't good enough anymore. As we've seen before, there's no department that I'm aware of that has enough money in their budget to

simply practice the old capture and euthanize policy; nature just keeps having more kittens."[9]

If catch and kill had any long-term effect on cat populations, animal control officers nationwide—and their leadership organizations—would have observed it by now. Instead, they are reading the writing on the wall and switching to the method that works.

Trap-Neuter-Return is the responsible, humane method of care for feral cats.

Trap-Neuter-Return stabilizes feral cat populations. The cats are humanely trapped, vaccinated, and neutered, so no more kittens will be born. They are then returned to their original location to live out their lives in their outdoor home. Not only is Trap-Neuter-Return the humane option for feral cats, it also improves cats' lives by relieving them of the stresses of mating and pregnancy. In the end, unlike catch and kill, TNR works.



Trap-Neuter-Return stabilizes feral cat populations.

It's time to stop the killing.

Cities and shelters across America have experienced great success with Trap-Neuter-Return—it is now official policy for feral cats in Washington, DC, Baltimore, and Chicago. It's time to learn from past mistakes and move forward instead of going around in circles—it's time to stop fighting the endless battle of catch and kill and protect cats' lives.

CASE STUDY: Marion Island proves that removing cats from an area is a futile effort that leads to decades of cruelty.

The only documented instance of a population of cats being permanently, "successfully" removed from their habitat occurred in an abhorrently cruel program that proves just how impossible, impractical, and inhumane it is to attempt to kill off a target population of cats.

In 1975, scientists set out to kill all of the 2,500 feral cats living on Marion Island—a tiny, uninhabited sub-Antarctic island measuring just 115 square miles, where there was no chance that new cats could move in. In their first attempt, researchers aerially sprayed feline distemper virus over the island. Sixty-five percent of the cats suffered and died painfully, but the other 35% developed immunity and the population quickly rebounded. Compounding this failed effort with further cruelty, they next brought in dogs to flush out the remaining cats. Between 1986 and 1991, the last cats were hunted with guns and, when that also failed, trapped and poisoned.[10]

It took 19 years and ruthless methods to clear Marion Island of cats. That's nearly two decades to kill all of the cats in an environment where no new cats could enter. Even in this extremely isolated environment, scientists noted "[T]he recolonization of preferred habitats, cleared of cats, from neighboring suboptimal areas…"[11] In other words, they still observed the vacuum effect.

The outrageously inhumane methods used to kill the cats of Marion Island were unacceptable 20 years ago and they remain unacceptable today—not only because of their horrific cruelty, but also because they are impossible to replicate in populated areas like cities and towns. Although often held up by opponents of TNR as an example of successful feral cat control, all the Marion Island example proves is the existence of the vacuum effect and the futility of attempting to permanently clear an area of cats by killing them.

[1] McKinney, Billy Pat. "Mountain Lions, Deer and Predator Control." The Role Of Predator Control as a Tool in Game Management - Symposium Proceedings. Kerrville, TX: Texas Agricultural Research and Extension Center, 2001. 70-73.

[2] Ji, W., S. D. Sarre, N. Aitken, R. K. S. Hankin, and M. N. Clout. "Sex-Biased Dispersal and a Density-Independent Mating System in the Australian Brushtail Possum, as Revealed by Minisatelite DNA Profiling." *Molecular Ecology* 10 (2001): 1527-1537.

[3] Killian, Gary, Kathleen Fagerstone, Terry Kreeger, Lowell Miller, and Jack Rhyan. *Management Strategies for Addressing Wildlife Disease Transmission: The Case for Fertility Control.* Staff Publication, Lincoln, NE: U.S.D.A National Wildlife Research Center, 2007.

[4] Rosatte, Rick, et al. "Racoon Density and Movements after Population Reduction to Control Rabies." *Journal of Wildlife Management* 71, no. 7 (2007): 2372-2378.

[5] Killian, Gary, Kathleen Fagerstone, Terry Kreeger, Lowell Miller, and Jack Rhyan. *Management Strategies for Addressing Wildlife Disease Transmission: The Case for Fertility Control.* Staff Publication, Lincoln, NE: U.S.D.A National Wildlife Research Center, 2007.

[6] Bester, M. N., et al. "A Review of the Successful Eradication of Feral Cats from Sub-Antarctic Marion Island, Southern Indian Ocean." *South African Journal of Wildlife* 32, no. 1 (April 2002): 65-73.

[7] Maricopa County Animal Care & Control. "Feral Cats." 2011. http://www.maricopa.gov/pets/pdf/livingwithferalcats.pdf (accessed February 10, 2011).

[8] Humane Society of the Ochocos. "Feral Cat Problem." 2011. http://www.humanesocietyochocos.com/Feral.html (accessed February 10, 2011).

[9] "Taking a Broader View of Cats in the Community," *Animal Sheltering,* September/October 2008. http://www.animalsheltering.org/resources/magazine/sep_oct_2008/broader_view_of_cats.pdf (accessed February 10, 2011).

[10] Bester, M. N., et al. "A Review of the Successful Eradication of Feral Cats from Sub-Antarctic Marion Island, Southern Indian Ocean." *South African Journal of Wildlife* 32, no. 1 (April 2002): 65-73.

[11] *Ibid.*

Graphic illustrations by June Matics.