

A Review of Options for Cat Eradication

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Introduction and overview

Trap/neuter/return (TNR) strategies for cat management are sometimes criticized or prohibited on the basis of research suggesting these programs fail to substantially reduce free-roaming cat populations or decrease the associated risks for wildlife or public health. Alternatives to trap/neuter/return include removal and euthanasia by animal shelter programs; extermination of cats via methods other than shelter euthanasia (e.g. poisoning, lethal trapping, or euthanasia carried out by other public agencies); or doing nothing.

Allowing cats to remain at large, unsterilized, clearly confers no population control or risk management benefit over neutering and returning these same cats to their habitat. Therefore, in the absence of large scale public cat eradication programs in the United States, control via euthanasia at animal shelters is generally the implied (or stated) preferable alternative to TNR from a wildlife or public health perspective.

However, any method of control, lethal or non-lethal, must reach some critical threshold to reduce the population. The following analysis suggests that, while either TNR or lethal control can be effective on a local basis when intensively practiced, *neither untargeted TNR nor euthanasia at animal shelters reaches the scale required to control free roaming cat populations overall*. Additionally, euthanasia at animal shelters fails to confer other risk-mitigation benefits of TNR programs, and may destabilize populations and increase risk in some circumstances.

Whether or not eradication of free roaming cats on a large scale would be a desirable goal can continue to be debated. However, both research and decades of effort indicate that even if it is desirable, it is simply not achievable. Meanwhile, there is no question as to the opportunity cost of continued reliance on ineffective strategies. Neither wildlife nor the public is protected by programs of insufficient scale to meaningfully reduce cat populations. Resources invested in these programs, as well as time invested in debating the desirability of unattainable outcomes, would be better used to design sufficiently targeted and supported strategies to achieve the goals of all stakeholders.

The following is a review of the literature related to cat eradication by lethal and non-lethal means, with an emphasis on wildlife considerations

- The population of free-roaming cats in the United States is substantial, estimated at 30-80 million un-owned cats (or ~ 1 for every 3-12 people in community) in addition to ~ 30-70% of the estimated ~ 75 million pet cats allowed outdoors. (Lord 2008, AVMA 2012, Kass 2013, Loss, Will et al. 2013)
- The fact of cat predation has been well-documented across a number of regions and environments. A recent review combined estimates from multiple studies to conclude that cats

kill between 1.4-3.7 billion birds and 6.9-20.7 billion mammals in the United States annually (Loss, Will et al. 2013).

- While the exact numbers continue to be debated, the individual impact of cat predation on their prey is unarguable.
- The negative population impact of cat predation is less predictable. In some cases, eradication of cats from focal areas has had a detrimental effect as it allowed other more harmful species, such as rats and rabbits, to flourish; in other cases, cat eradication benefited vulnerable native species (Nogales, Martin et al. 2007, Rayner, Hauber et al. 2007, Bergstrom, Lucieer et al. 2009, Hanna and Cardillo 2013).
- Although the impact of cat removal is variable, the certainty of predation by cats and the undeniable impact on individual animals has led some authors to suggest that free-roaming cat populations should be reduced or eradicated on a continental as well as local scale (Jessup 2004).
- Programs attempting to reduce or eradicate predators of various species have been well documented. The success of these programs is variable. In many cases, neither non-lethal nor lethal methods have resulted in the desired outcome (long term reduction in predator populations with concurrent increase in prey populations) (Bergstrom, Arias et al. 2013).
- Successful predator eradication by either non-lethal or lethal methods must reflect the natural history of the predator and prey species and must be strategically targeted in space and time. (Knowlton 1999).
- There is an increasing call for scientific evaluation of predator control efforts prior to further investment (Knudson 2012).
- In the United States, Trap/Neuter/Return (TNR) and euthanasia at animal shelters are the two commonly advocated methods for large scale reduction or eradication of free-roaming cat populations (Jessup 2004, Levy and Crawford 2004, Tantillo 2006, Longcore, Rich et al. 2009, Waters 2013).
- Trap/neuter/return has been the subject of intense debate and scrutiny, with a number of scientists and conservationists advocating that it should not be used, and potentially even be prohibited, unless and until it can be proven effective at meaningfully reducing cat populations (Longcore, Rich et al. 2009).
- The literature on TNR is variable with some reports of success, usually as a result of intensive efforts combining TNR with adoption of some cats from a geographically limited region (Hanson, Jolley et al. 2014) (Hughes and Slater 2002, Levy, Gale et al. 2003, Spehar and Wolf 2017).
- Limited or no success has been described in reducing populations across larger regions via TNR (Foley, Foley et al. 2005, Natoli, Maragliano et al. 2006).
- Mathematical models predict success in controlling populations on a larger scale via TNR provided such programs reach 75% or more of cats (Andersen, Martin et al. 2004, Foley, Foley et al. 2005, McCarthy, Levine et al. 2013); however, it has also been suggested that programs on this scale are unrealistic (Foley, Foley et al. 2005).

- Although euthanasia at animal shelters is the primary proposed alternative to TNR for reduction of feral cats in the United States, there has been virtually no scientific debate or scrutiny regarding the potential success of this strategy.
- The success of lethal strategies to control feral cat populations has been variable. Where successful, multiple, intensive strategies have been used in geographically limited regions, most often including leg-hold traps, hunting, and poisoning (Campbell, Harper et al. 2011).
- Mathematical models predict success in controlling populations on a larger scale via lethal methods, provided such programs reach 50% or more of cats (Andersen, Martin et al. 2004); however, no shelter euthanasia program has been documented to reach this level.
- Nationally, the estimated annual rate of euthanasia is only between 3-7% of the total un-owned cat population (Clifton 2012) (Loss, Will et al. 2013).
- The vast majority of shelter euthanasia in the North America is initiated by individual citizens bringing cats to the shelter or requesting pickup, and thus is untargeted in regards to space, time, or risk posed to wildlife or public health by a specific cat.
- Holding, euthanasia and disposal by an animal shelter is substantially more costly than the lethal methods used in successful eradication campaigns.
- No published reports exist of successful control of feral cat populations on a broad scale via shelter euthanasia.
- In other species, lethal control short of eradication has been shown to result in greater food availability for remaining animals and potentially larger litters. For example, mean coyote litter size doubled in removal areas compared to non-removal areas, restoring the population to pre-removal levels in less than a year. (Gese 2005)
- Lethal control of cats short of eradication, replicating what might realistically be attained via shelter euthanasia or a community animal management program, resulted in a paradoxical *increase* in the population of cats by up to 200% at culling sites compared to control locations. (Lazenby, Mooney et al. 2014)
- Removal of cats by lethal control or other means increases home range and migration of remaining cats, resulting in rapid repopulation where adjacent free roaming populations exist. (Palmas, Gouyet et al. 2020)
- Neither untargeted shelter euthanasia nor untargeted TNR is well-supported as a method to protect wildlife or public health by significantly reducing cat populations on a broad scale. TNR, however, has potential benefits for cat welfare, public health (especially if vaccination for rabies is included), and nuisance abatement which may still justify its use.
- Given the lack of scientific evidence or a biologically plausible basis for untargeted shelter euthanasia as a strategy to achieve positive results for wildlife, cats or communities, this activity should be discontinued until and if such evidence is developed.
- Discontinuing reliance on either TNR or shelter euthanasia to protect wildlife and public health on a broad scale will allow a refocusing of energies on methods with greater possibilities of success. These methods may include risk-mitigation strategies unrelated to cats; educational or other initiatives to mitigate pet cat impact; adequately planned, targeted and intensive non-

lethal strategies directed at un-owned cats; or as a last resort when non-lethal options have been exhausted, adequately planned, targeted and intensive lethal control.

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