

## Key point:

- The failure of TNR efforts to reduce population has led to increased euthanasia of free-roaming domestic animals by government agencies in response to the decline in endangered wildlife species

Worldwide, many small wildlife species numbers are in massive decline. Cats have been heavily implicated in the wildlife declines worldwide, with studies suggesting that they are the single largest factor in the decline of many wildlife species. The most prominent study was a joint Smithsonian Conservation Biology Institute and U.S. Fish and Wildlife study published in the journal *Nature Communications*, which concluded that free-ranging cats are likely "the single greatest source of anthropogenic mortality for US birds and mammals" (53). The results of this study stated that domestic cats kill up to 4.0 billion birds and 22.3 billion mammals annually in the lower 48 states alone, and that "un-owned cats cause the majority of this mortality". Additionally, the global effect of stray dogs on wildlife is likely underestimated, with domestic dogs involved in 11 vertebrate species extinctions thus far and a known contributor to decreases in populations of at least 188 other IUCN threatened species (54).

Given that wildlife agencies deal with the fundamentals of wildlife biology on a daily basis, any suggestion that spaying and neutering of stray cat and dog populations will solve the problem of wildlife decline is likely to be met with skepticism. This becomes very problematic in the face of TNR advocacy groups electing to wholly deny the involvement of feral domestic animals. Regardless of whether the animal welfare industry as a whole chooses to deny the aforementioned studies, there remains the indisputable fact that feral animals (especially cats) do kill wildlife. Releasing a sterilized feral cat

at the very minimum is allowing a non-native predator back into the environment and is an exchange of the life of the cat for the total number of individual animals that cat will consume in its lifespan.

TNR advocates have publicly decried the Nature Communications journal article but have been unable to produce any accepted data that the conclusion regarding feral cats was wrong. Even if feral cats are truly not responsible for the devastating wildlife losses, the fact remains that wildlife managers well versed in study design and analysis will likely hold a study by biologists from the Smithsonian and U.S. Fish and Wildlife as more scientifically valid than emotional denials by those in the TNR and veterinary communities who have a vested interest in denying the validity of the study. Wildlife agencies tasked with conservation at the state and federal level will look for studies that provide actual data, and faced with the lack of studies from peer reviewed journals validating spay/neuter as a means of populations reduction, have the potential to elect mass euthanasia of free-roaming domestic animals in order to protect native species.

As an example, Australia is currently dealing with a massive decline of its unique wildlife species due to feral non-native domestic animals (27, 55), most specifically the up to 5,600,000 feral domestic cats estimated to free-roam in years with significant rainfall. In response, TNR advocates and university "researchers" funded by US based advocacy groups have actively promoted TNR as the solution. Yet, scientific researchers addressing the feral cat problem in Australia have found the opposite and concluded that "TNR is unsuitable for Australia in almost all situations because it is unlikely to resolve problems caused by stray cats or meet ethical and welfare challenges" (56). Further, Australian researchers also "refute the idea that returning neutered unowned cats to stray populations has any valid role in responsible, ethical, affordable, and effective cat management, or in wildlife conservation" (57).

Researchers instead have suggested that targeted adoption and "responsible pet ownership" would reduce numbers rapidly (56). This is in keeping with "studies" that manipulate data to promote TNR, but in which large percentages of animals are removed from the study

population. The idea of "responsible" pet ownership being the actual prime mover towards feral population declines is keeping with the idea that cultural changes and not spay / neuter explain the historical declines in euthanasia in the shelter system in the USA and not the actual spay / neuter efforts.

The problem again, however, is that outside of Australia, the US, and the western world at large, the availability of homes and responsible pet ownership by these standards is not the reality from a cultural standpoint. To look at it another way, the success of a TNR rate of >70% at the colony level has been heralded by TNR advocates but even if TNR at levels exceeding 70% could be achieved in a wealthy country such as Australia, the idea of manageable colonies does not apply in many places outside of the US with large feral populations of dogs or cats.

Given the potential conflict between government wildlife agencies and domestic animal welfare groups, presenting spay / neuter as the answer to feral population control will ultimately lead to more euthanasia on a large scale when TNR efforts do not produce timely results. Faced with imminent, permanent demise of endangered species, wildlife managers cannot afford the luxury of trusting in a methodology promoted by agenda driven animal welfare groups. If these same groups want to stop euthanasia of feral cats and dogs, a better answer needs to be provided.

TNR advocacy that promotes spay/neuter as an effective tool towards population control thus may have the very real and unintended consequence of mass euthanasia of feral cats and dogs if wildlife agencies determine that TNR programs do not in fact reduce populations and that the veterinary community has not produced a real solution. The lack of documented population reduction, coupled with promotion of >70% surgical TNR rates unachievable on any realistic scale, may lead to a euthanasia scenario that could be avoided by looking for scientific, non-emotionally driven approaches to reducing stray cat and dog populations. This is not a theoretical concept and in fact is already here, as the Australian government in 2019 started its attempts to eradicate feral cats via shooting, trapping,

and poisoning via airdrops. Within the first year of the program, over 211,000 cats had been killed, with a stated goal of 2 million feral cats by the end of 2020 (58). This is the unfortunate but predictable consequence of a failure of the veterinary community to find and promote legitimate, effective means of reducing long term pet overpopulation.