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Tufts researchers say TNR is not most effective method to control feral cat population

A computer simulation model supports trap-vasectomy-hysterectomy-release.

Sep 23, 2013
By [dvm360.com staff](#)
DVM360 MAGAZINE



Scientists and veterinarians from Tufts University recently developed a computer model to rapidly compare the predicted efficacy of vasectomy and hysterectomy versus the widely accepted trap-neuter-release (TNR) method to reduce the feral cat population. The model showed trap-vasectomy-hysterectomy-release (TVHR) is predictably more effective at reducing the population and requires a small annual capture rate.

Based on a simulated cat population, the model showed TVHR reduced the population by half with an annual capture rate of 35 percent. With TNR, to reduce the population by a quarter, 57 percent of the cats in a colony had to be removed by lethal means or captured, neutered and released. During the course of the 6,000-day simulation (a number greater than the typical lifetime of a feral cat), the virtual cats were tracked on a daily basis, while adding and subtracting cats based on the natural lifecycle of a colony.

Researchers found that with a 35 percent TVHR rate, the colony could be completely eliminated within 11 years. The capture rate would have to reach 82 percent for the colony to be eliminated by TNR in 11 years.

Lead author of the research, titled "Estimation of effectiveness of three methods of feral cat population control by use of a simulation model" and published in the August issue of Journal of the American Veterinary Medical Association, Robert J. McCarthy, DVM, MS, DACVS, clinical associate professor of small animal surgery at the Cummings School of Veterinary Medicine at Tufts University, says data is lacking to support TNR's efficacy over large areas.

McCarthy says in a release from Tufts that this research opens a new conversation about how to control the feral cat population. "The computer model indicates that vasectomy and hysterectomy should be much more effective at reducing or eliminating feral cat populations than the traditional approach of neutering. The next step is to gather evidence on how it actually works in the field."

The paper, also authored by Stephen H. Levine, PhD and J. Michael Reed, PhD, explains where it believes TNR fails. It states dominant males that are castrated in a TNR program become sexually inactive and are replaced in the breeding hierarchy by the next most dominant male. It is also difficult or impossible to capture all resident cats so sexually intact cats that haven't



been captured repopulate an area quickly. Spayed and neutered cats live longer so the population does not decrease as fast as it would otherwise. The implementation of vasectomies and hysterectomies, however, allows the production of reproductive hormones to continue. "With TVHR, a male cat's life span, sexual drive and social status aren't altered with a vasectomy, so he'll fend off competing males who try to intrude into his area even though he can't actually produce offspring," Reed, a professor of biology in the Tufts' School of Arts and Sciences, says. In addition, he says an intact female cat that mates with a vasectomized male enters into a prolonged 45-day pseudo-pregnancy period, which further reduces the chance of fertile mating in the colony.

To view the research, go to avma.org.

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