

## Study shows feral cat control could benefit from different approach

Vasectomies could be more effective than neuters in population management

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**NORTH GRAFTON, Mass.** (August 15, 2013) – New research from Tufts University scientists shows that feral cats that undergo a vasectomy or hysterectomy could reduce a feral colony's numbers more effectively than the traditional approach of neutering. This may be because vasectomized cats retain reproductive hormones, in addition to not being able to reproduce, and therefore protect their turf from sexually intact competitors.

The findings, derived from a computer-based model and published in the August 15 issue of the *Journal of the American Veterinary Medical Association*, support trap-vasectomy-hysterectomy-release (TVHR) as a better alternative to trap-neuter-release (TNR). While used with success in small colonies and controlled environments, the data is lacking to support TNR's efficacy over large areas, noted Robert J. McCarthy, D.V.M., lead author and clinical associate professor of small animal surgery at the Cummings School of Veterinary Medicine at Tufts University.

“This opens up new conversations,” McCarthy said. “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.”

Even small populations of feral cats can have a negative impact on public health and other wildlife. Neutering, a surgical procedure which involves castration or removal of the uterus and ovaries, is used as an alternative to lethal means in feral cat population control. 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. With vasectomies (leaving the testicles intact) and hysterectomies (leaving the ovaries intact), however, the production of reproductive hormones continues.

“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,” said J. Michael Reed, one of the authors and professor of biology in the Tufts’ School of Arts and Sciences.

Interestingly, 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, said Reed.

Stephen H. Levine, a professor of civil and environmental engineering at Tufts University School of Engineering, developed the computer model to rapidly compare the predicted efficacy of vasectomy (vs. castration) and hysterectomy (vs. ovariectomy). Each computer run simulated the cat population over 6,000 days (a number greater than the typical lifetime of a feral cat), tracking individual cats on a daily basis. New cats were added to the population as they were born and deceased ones removed.

The simulation showed that 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. TVHR, however, could reduce the population by half with an annual capture rate of 35 percent and at that rate could completely eliminate the colony within 11 years. (TNR required capturing 82 percent of the cats in order to eliminate the colony in 11 years.)

The researchers point out that the popularity of TNR in the U.S. has been in part due to a goal of maximizing feral cats’ quality of life (e.g. extended life span, vaccinations, assessment for infectious disease) and reducing undesirable behaviors such as aggression and vocalization while still eliminating colonies over time.

Robert J. McCarthy, DVM, MS, DACVS; Stephen H. Levine, PhD; J. Michael Reed, PhD. “Estimation of effectiveness of three methods of feral cat population control by use of a simulation model.” J Am Vet Med Assoc. Published August 15, 2013.

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