

## MAXIMIZING THE EFFECTIVENESS OF FERAL CAT CONTROL THROUGH WITHIN-YEAR DISTRIBUTION OF CAPTURE EFFORTS

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Management of feral cat populations is a matter of great controversy, with multiple methods of control utilized. Trap-neuter-release (TNR) and trap-elimination (TE) are most frequently recommended, but recently an alternative method, trap-vasectomy-hysterectomy-release (TVHR) has been suggested as likely more effective if decreasing population size is the goal. Regardless of the method utilized, feral cat control programs are often funded by individuals or non-profit organizations and involve travel in addition to a considerable uncompensated time commitment for those involved. Efficacious allocation of limited resources is therefore critical. Cats in temperate zones are seasonal breeders, so time of year a control program is applied may have different effects on population size. To investigate this possibility, a previously described individual-based stochastic simulation computer model was used to evaluate TNR, TE, and TVHR at six different annual treatment probabilities applied at 8 different times of year. Specifically, trap probabilities of 0%, 19%, 35%, 57%, 82% and 97% were applied in early winter, late winter, early spring, late spring, early summer, late summer, early fall or late fall. The outcome measure was “cat days”, which is defined as total number of cats alive each day summed over 4000 days after the intervention is applied. TNR, but not TE or TVHR affects kitten survival rate such that as more individuals in a population become sterile survival increases, and this factor (parameter b) was estimated in the study as either b=0 (no effect), or b=0.6 (effect). As expected, results indicated that TVHR performed better than alternate methods at all but the very highest treatment probability, where TE was most effective. Increased kitten survival predicted with TNR adversely affected population decline. For all methods and at all treatment probabilities cat populations declined most if the intervention was applied in late winter and early spring. Based on these results, resources would best be utilized performing TVHR in the late winter or early spring.