

Optimizing outdoor cat management to minimize preventable deaths while reducing populations: Insights from new models

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TNR programs are usually evaluated based on the number of surgeries performed (i.e. “effort”), and less commonly on the extent of population size reduction (i.e. “endpoint”). The cumulative lifesaving impacts of different management approaches, however, are rarely considered. We simulated seven different removal and sterilization management scenarios over 10-year trajectories and tracked the cumulative number of kittens born, the number of kittens surviving to adulthood, and the number of adults removed using lethal control (for applicable scenarios only).

Our results suggested that the number of preventable deaths (comprised of kitten mortality plus any adults removed by lethal management, where relevant) over 10 years was highest in a “no-action” scenario, and lowest for a high-intensity TNR scenario, with a 32-fold difference between these extremes. However, lower-intensity TNR was far less effective at reducing preventable deaths than higher-intensity TNR.

These findings indicate that management intensity and “front-loading” of sterilization effort is important not only to reduce populations more quickly, but also to minimize the number of preventable deaths that occur over time. Thoughtful choice of management strategy coupled with information-driven adaptive management can ensure that both near-term and longer-term lifesaving outcomes are optimized for a given investment of resources.