ABSTRACT


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In recent decades, the effects of urbanization on White-tailed deer (*Odocoileus virginianus*) (hereafter WTD) populations have become a major area of interest to wildlife professionals. However, while a fair amount of studies have compared the population dynamics of urbanized WTD populations (such as movement and survival) on a broad scale, few if any have ever attempted to compare them to a population along a localized gradient at the same place and time. Although the population dynamics of urbanized WTD seem to be consistent throughout literature, management applications may be undermined by inaccurate perceptions of how urban WTD populations respond when applications are based on conclusions from varying populations. By comparing common population dynamics such as movement and survival between adjacent groups of urban and rural WTD within the same general area, biologists can more accurately evaluate the direct impacts of urbanization on WTD within localized populations. This study was conducted in two counties in southern Indiana: Monroe and Brown. The city of Bloomington, Indiana has a healthy population of urban deer. We free darted WTD
from a distance or captured them using dropnets, Clover traps, or suspended net guns. Once immobilized, WTD were equipped with GPS or VHF collars and monitored using satellite or radio telemetry to obtain location data. From January-July 2015-16 a total of 85 WTD was captured consisting of 45 urban individuals and 40 rural individuals. We used Kaplan-meier known fates models to determine survival and dispersal probabilities and occupancy models to determine excursion probability. Parameters of the models were estimated using Bayesian inference in JAGS. Covariates used in model selection included locality, season, and sex. Overall, survival rates were positively correlated between sex and season but not locality. Dispersals were predominately undertaken by males (25% of collared bucks), however they were not positively correlated by season or locality. Our results also suggest that urban WTD were less likely to be observed while on an excursion across all seasons than their rural counterparts, however the influence of sex did not affect excursion probability. Furthermore, both localities had highest excursion probabilities during the fall/winter and winter/spring seasons compared to the summer.