Are TNR Practices Contributing to Human-Coyote Conflicts in Southern California?

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ABSTRACT: Coyotes are among the most successful carnivores in urban and suburban environments, which has increasingly led to conflicts with pets and people in southern California. One possible contributor to high coyote population densities and human-coyote conflicts is an abundance of free-roaming domestic cats subsidized by backyard feeding and trap-neuter-release (TNR) programs. To determine if coyotes regularly eat free-roaming cats, we identified prey items in the stomachs of 311 coyotes between 2015 and 2018; specimens were either road-killed coyotes or coyotes taken as nuisance animals. We used two methods to estimate coyote diet: visual identification of stomach contents and molecular polymerase-chain reaction (PCR) analysis of prey remains in stomachs. A total of 245 coyotes stomachs contained identifiable food items, including 200 (43%) that contained mammalian prey (based on hair, bones, and tissue); 178 of these had sufficient tissue from which DNA could be extracted. Combining the two methods, we found cat remains in 35% (n = 86) of stomachs with identifiable mammalian remains. This makes cats the most common mammalian prey item identified, surpassing rabbits and small rodents, and means cats are likely a more common prey than has been reported previously, including in other areas of southern California. We used a GIS approach to compare landscape characteristics associated with known locations of coyotes that ate cats to the same characteristics around locations determined to be TNR cat colonies based on public shelter records. These characteristics included amount and intensity of urban development, coverage of grassland and shrubland, building density, and the distance to the nearest natural vegetation; these were entered into a principal component analysis (PCA) to create composite variables that described the degree of urbanization around coyote and TNR colony locations. Logistic regression of PCA variables revealed that cat-eating coyotes were significantly associated with landscapes that were more intensively developed, had little natural or altered green space, and a higher building density than coyotes that did not have cats in their stomachs. Locations of TNR cat colonies had similar landscape characteristics, with colonies often located in intensively developed areas such as apartment complexes or industrial or commercial zones that are relatively far from natural areas. The subset of coyotes associated with TNR colonies were also highly likely to have consumed cats. Coyotes that had been removed (vs. roadkill) tended to be cat-eaters, suggesting that consumption of pets may have led to targeting these coyotes for lethal removal. The high frequency of cats in coyote diets, combined with the concordance of landscape characteristics associated with TNR colonies and cat-eating coyotes, support the argument that high cat densities and supplemental feeding attract coyotes. Effective mitigation of human-coyote conflicts in southern California may require a ban on outdoor feeding of cats and wildlife, and the removal of TNR colonies that coyotes apparently exploit as an abundant source of food.

KEY WORDS: *Canis latrans*, free-roaming cats, human-wildlife conflict, southern California, TNR, trap-neuter-release, urban coyotes, wildlife feeding

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