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### PERCEIVED RISKS OF DEER-RELATED VEHICLE ACCIDENTS: INFLUENCE ON DEER POPULATION PREFERENCES OF THE RESIDENTS OF TOMPKINS COUNTY, NEW YORK

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# PERCEIVED RISKS OF DEER-RELATED VEHICLE ACCIDENTS: INFLUENCE ON DEER POPULATION PREFERENCES OF THE RESIDENTS OF TOMPKINS COUNTY, NEW YORK'

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High populations of white-tailed deer (*Odocoileus virginianus*) in much of the eastern United States have increased the probability of deer-related vehicle accidents (DRVAs). These accidents are very costly in terms of vehicle repair and have the potential for serious physical injury to motorists. DRVAs are increasing rapidly in suburban areas, where deer may also cause other types of damage (i.e., to gardens or ornamental shrubs). In these suburban areas, wildlife professionals have limited deer management options. We hypothesized that the peoples' perception of the potential risk posed by DRVAs interacts with the perceived benefits provided by deer, to influence their desired deer population level. We conducted a mail survey of 624 randomly selected Tompkins County, New York residents (68% response rate,  $n = 424$ ), to explore this hypothesis.

Although most respondents (90%,  $n = 382$ ) enjoyed the presence of deer, 60% ( $n = 254$ ) worried about the problems deer might cause. More respondents were concerned about DRVAs than any other type of deer damage, as 83% ( $n = 352$ ) listed DRVAs as a concern about deer. The next highest category of deer problems was the potential transmission of Lyme disease (56%,  $n = 237$ ). There was a high incidence of past involvement with DRVAs, as nearly 25% ( $n = 106$ ) of re

spondents, or a close family member, had been in a DRVA. The impact of DRVAs on preferred deer populations was evident. Overall, only 13% ( $n = 55$ ) of respondents wanted to increase the deer population. However, in the hypothetical absence of DRVAs, nearly 34% ( $n = 144$ ) wanted the deer population to increase. We used a logistic regression to predict desired deer population levels, and found that past involvement with DRVAs, perceived societal probability of DRVAs, and several types of attitudes toward deer had significant effects on preferred population sizes. The resulting equation was able to predict deer population preferences for 79% ( $n = 335$ ) of the respondents.

The relationship between incidence and perceived risk of DRVAs is important for managers to consider as they attempt to provide benefits associated with deer and respond to public perceptions of potential costs that deer may represent. DRVA management strategies can attempt to reduce actual incidence of DRVAs through reductions in deer numbers, or target public perceptions of DRVAs through information campaigns. We developed a matrix of potential social and biological management strategies, the appropriateness of which varies according to the relationship between actual and perceived risk of DRVAs.