

# Residential Attitudes and Perceptions Toward a Suburban Deer Population in Southern Illinois

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## ABSTRACT

Attitudes and perceptions of suburban Carbondale, Illinois residents towards white-tailed deer (*Odocoileus virginianus*) were surveyed in September 1990. To evaluate distribution and intensity of deer use of neighborhoods, residents were asked questions pertaining to their personal knowledge, interest, and experiences with the deer population. Nearly all respondents had seen deer with most sightings occurring in autumn. People were more concerned with deer-related accidents than disease transmission or plant damage and most respondents preferred a stabilization or decrease in the population, yet <50% supported traditional controls. This suggests a need for research into the viability of deer management practices that include alternative, non-lethal methods.

## INTRODUCTION

The ability of white-tailed deer to coexist with humans has created new challenges and problems for deer managers (Roseberry and Woolf 1991). Wildlife management occurs in the public arena and decisions are being increasingly scrutinized by special-interest groups (e.g., animal rights movement) (Decker et al. 1991). Curtis and Richmond (in press) state: "Mismanagement of highly-visible human-wildlife conflicts will undoubtedly attract media attention and erode public confidence in our profession." No other aspect of wildlife management is as visible to the public as the deer/human conflicts that are currently occurring in North American cities and suburbs. Because deer management in suburban situations would literally occur in people's backyard, requesting input from individuals that are most affected is paramount to avoiding confrontation.

The objective of this study was to ascertain the attitudes and perceptions of residents in a southern Illinois community that has, in recent years, experienced an increase in the deer population (Cornicelli 1992). Information generated from this survey was used to determine the level of public acceptance and tolerance of deer and/or their concerns and the implications of having deer in their neighborhood.

## STUDY AREA

The survey was conducted in Carbondale, Jackson County, southwestern Illinois. Patterns of residency ranged from single-family houses to high-density apartments and trailer courts to semi-rural farmhouses. Since incorporation in 1842, the human population of Carbondale has increased from 500 (Hornberger 1964) to 27,033 in 1990 (U.S. Dept. Commer., Bur. of Census 1991). The incorporated area has increased from an original 0.01 km<sup>2</sup> in 1842 to 15.5 km<sup>2</sup> in 1990 (J. Rayfield, Carbondale Planning Commission, pers. commun.).

Habitat composition within the city limits and areas immediately adjacent was 49.2% developed, 13.8% woods, 13.1% oldfield, 12.8% agriculture, and 11.1% grasses. Habitats available to deer consisted mainly of blocks of woods and fields (8-50 ha in size) (Cornicelli 1992).

## METHODS

Names and mailing addresses of 1988 registered voters in the Carbondale area were obtained from the County Courthouse in Murphysboro, Jackson County, Illinois. The sample consisted of 2,120 people randomly selected from a pool of 14,166 voters. We attempted to select 100 names from each of 29 voting precincts to ensure equal representation of all regions within the study area; however this was not always possible.

A self-administered mail-back questionnaire was mailed to households in September 1990. Follow-ups were not sent to non-respondents. The survey was a modification of that used by Decker and Gavin (1985) in New York. Residents were asked about their personal experiences with deer, concerns about the animals, and attitudes about having deer in the area (Appendix I).

Two groups of residents were identified from the onset: those that lived in a rural setting with potentially more exposure to deer, and those with city addresses who may encounter deer less often. Returned surveys from each group were analyzed separately for differences in response based on housing location. Significant differences between groups (city vs. rural; Chi-square Goodness-of-fit test; alpha = 0.05) were reported separately and non-significant differences were combined. Percentages were reported as frequency of response and statistical tests were not conducted on individual answers. Data were analyzed using the SAS computer package (SAS Inst. 1985).

## RESULTS

### Survey Response

Of 2,120 households surveyed, 2 questionnaires were undeliverable and 671 were completed and returned (658 usable), for an adjusted response rate of 31.7%. Usable responses were <658 for some variables due to item non-response. Additionally, some questions allowed for multiple answers, so percentages may not total 100. Rural responses comprised 16% ( $n = 106$ ) of completed surveys; suburban residents accounted for the remaining 84% ( $n = 552$ ).

### Deer-human Interactions

Ninety-seven percent of rural residents had seen deer in the Carbondale area within the last 3 years versus 70% of city respondents. Deer were most often seen in autumn (82%), followed by spring (69%), winter (60%), and summer (57%). Most respondents (61%) had perceived an increase in the deer population, 19% thought deer numbers had remained stable, and only 4% believed the population had decreased. An additional 16% were unsure of the status of the deer population. Rural residents noticed a higher proportion of roadkills (42% vs. 21%), possibly because many of the secondary roads leading into outlying areas have a higher incidence of deer/vehicle collisions.

Forty-four percent of the respondents ( $n = 212$ ) indicated they had either seen deer, or evidence of deer on their property. Only 36% ( $n = 135$ ) of city respondents had seen deer on their property in contrast to 77% ( $n = 77$ ) of rural respondents. Seven percent of all respondents indicated they fed deer and an additional 10% said they knew of neighbors that did so.

Nearly all Carbondale respondents (90%) had some planted vegetation on their property. Woody ornamentals were the most popular (81%), followed by flower gardens (66%), vegetable gardens (36%), and fruit trees (27%). Of those respondents that had observed deer on their property, 50% ( $n = 103$ ) indicated that deer had caused some damage to vegetation. Woody ornamentals were the most frequently browsed (41%), followed by vegetable gardens (26%), and flower gardens (15%).

### Residents' Attitudes and Concerns

Forty-eight percent of all respondents (rural = 59%; city = 46%) indicated they enjoyed deer and had no reservations about having them in the area. Thirty-three percent (rural = 36%; city = 32%) said they enjoyed having deer but were concerned, and 19% (rural = 4%; city = 22%) were either indifferent or did not like having deer in the area. People were most concerned about the possibility of deer/vehicle collisions (75%) and they were more concerned about disease transmission than plant damage (30% vs. 18%).

Nearly half (49%) of all respondents thought the deer population should be stabilized at current levels and more people preferred to see the population decrease rather than increase (33% vs. 18%). Eighty-five percent of the people expressing a concern (e.g., deer/vehicle collisions) favored stabilization or reduction of the deer population. Additionally, 32% of those expressing no concerns preferred to see the population increase; as opposed to 8% who would rather see it decrease (Fig. 1). Individuals that had incurred personal damage (e.g., out-of-pocket expense from an accident) from deer tended to be less tolerant of their presence. As expected, tolerance appeared inversely related to degree of damage (Fig. 2).

### Potential Population Control

Although 82% of all Carbondale respondents preferred the population stabilized or decreased, only 46% indicated they would support some type of lethal control (bowhunting, shotgun harvest, trained sharpshooters). A majority of respondents simply wanted the deer left alone (Fig. 3). Rural residents tended to favor an active reduction of the deer herd (e.g., hunting) more than did city residents. However, as degree of deer-

related property damage increased, tolerance waned and respondents, regardless of geographic location, became more inclined to favor active population control (Fig. 4).

## DISCUSSION

Most attempts to quantify public attitudes and perceptions about deer have been aimed at special-interest groups such as hunters (Kellert 1978; Anderson and Kube 1990), anti-hunters (Shaw 1977; Kellert 1978), or farmers (Brown and Decker 1979; Decker et al. 1981, 1984; Morgan et al. 1992). Surveys of farmers in New York revealed considerable tolerance for deer damage and overall acceptance of a deer population (Brown et al. 1978; Decker and Brown 1982). Conversely, farmers in Illinois tended to be less tolerant of deer as few wanted to see deer numbers increase (Morgan et al. 1992).

The recent proliferation of deer in suburban areas (Flyger et al. 1983) has changed the demographics of the concerned public. Contemporary wildlife management must now include a human dimension (Decker and Purdy 1988). Because of the close association between deer and humans, public opinion and involvement in managing a growing suburban deer population are vital. However, this involvement can make traditional management approaches difficult or impossible. For example, preservationists and/or anti-hunters view conventional management (e.g., lethal control) as "barbaric" (Kellert 1978). In a typical suburban setting, a majority of residents have little exposure to the outdoors, little knowledge of wildlife, yet retain an idealist attitude that all life should be preserved (Kellert 1978). Indeed, in Carbondale and other suburban deer areas, conventional strategies may not be feasible and other avenues may need to be explored (e.g., long-term contraception).

Attitudes about suburban deer in Carbondale were similar to those reported elsewhere. Carbondale respondents were generally appreciative of deer until they sustained property damage. A majority believed the deer population should be stabilized or reduced, yet only 46% supported a controlled harvest. A similar situation was noted in Islip, NY, where residents also supported a herd reduction but were against any form of control (Decker and Gavin 1987).

In many suburban situations, use of harvest as a management tool is impossible because of high human population densities. Alternative methods of removal such as trap and transfer are generally not feasible because of high economic costs and associated mortality (Jones and Witham 1990). The willingness of residents to tolerate urban/suburban deer depends on the amount of damage deer cause (Witham and Jones 1987). In these situations, deer management must be both a benefit to the population in question and palatable to the affected public. Without a combination of reliable scientific data and public support, the wildlife manager will be unable to effectively implement much-needed urban/suburban deer programs.

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Appendix I. Questions used to construct deer survey booklet mailed to Carbondale, Illinois residents.

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1. How long have you been living at your current address? (If less than 1 year, please give fraction of year).  
\_\_\_\_years
2. Please describe your property by indicating which items you had during the last 12 months. (Check all that apply).  
\_\_\_\_vegetable garden  
\_\_\_\_flower garden  
\_\_\_\_fruit trees  
\_\_\_\_shrubs or other ornamentals  
\_\_\_\_none of the above
3. Have you seen deer in Carbondale within the last 3 years?  
\_\_\_\_no (Please skip to question 13)  
\_\_\_\_yes
4. How often do you see deer in Carbondale?  
\_\_\_\_often  
\_\_\_\_occasionally  
\_\_\_\_only at certain times of the year
5. Have you seen a deer roadkill in Carbondale within the previous 12 months?  
\_\_\_\_no  
\_\_\_\_yes (If possible, please indicate where)
6. Since moving to Carbondale, what trend have you noticed in deer numbers in Carbondale?  
\_\_\_\_more  
\_\_\_\_fewer  
\_\_\_\_about the same number  
\_\_\_\_don't know
7. Which season(s) do you see deer? (Check all that apply).  
\_\_\_\_winter (Dec-Feb)  
\_\_\_\_spring (Mar-May)  
\_\_\_\_summer (Jun-Aug)  
\_\_\_\_fall (Sep-Nov)
8. Have you seen deer or evidence of deer on your property within the last 12 months?  
\_\_\_\_saw deer on my property  
\_\_\_\_saw evidence of deer on my property  
\_\_\_\_never saw a deer or evidence on my property (Please skip to question 13).

## Appendix I. (cont.)

9. Do you provide supplemental feed (e.g., corn, apples) to the deer in your neighborhood?  
 no  
 yes (If so, how often \_\_\_\_\_)
10. Do you know if any of your neighbors provide supplemental feed?  
 no  
 yes (If so, how many \_\_\_\_\_)
11. Please indicate the type of plants deer are eating on your property. (Check all that apply).  
 vegetable garden  
 flowers  
 other woody ornamentals  
 none
12. Overall, how would you describe the amount of deer damage to your property within the last 12 months.  
 none  
 light  
 moderate  
 substantial  
 severe
13. Are there parks, woods, or undeveloped lands near your property that you believe are used by deer?  
 no  
 yes (If so, what type?)  
 city park (which one \_\_\_\_\_)  
 open space or undeveloped land  
 agricultural  
 woods  
 other (please specify \_\_\_\_\_)
14. In general, how do you feel about having deer in your area?  
 enjoy having them  
 enjoy them but are concerned  
 indifferent  
 do not like having deer in the area
15. Please check any of the item below that are a concern for you or your family about deer in the area.  
 deer/vehicle collisions  
 Lyme disease  
 damage to plantings  
 no concerns

Appendix I. (cont.)

16. What type of trend would you like to see in the deer population?

- moderate increase
- slight increase
- stabilize at current levels
- slight decrease
- moderate decrease

17. What type of management strategy would you support for the Carbondale deer population?

- none, leave them alone
  - bowhunting only
  - recreational hunting
  - trained sharpshooters
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