

Managed hunts to control white-tailed deer populations on urban public areas in Missouri

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White-tailed deer (*Odocoileus virginianus*) have adapted to urban and rural landscapes, resulting in expanding populations throughout their North American range (Conover 1995). In the Midwest, deer experience high survival and rapid population growth in the absence of hunting (Hansen et al. 1997). Absence of hunting opportunities in urbanized areas has created a management dilemma. Some deer populations have grown to excessive numbers, and, in some cases, hunting mortality has been compensated for by other factors, such as deer-vehicle collisions. Large deer populations near areas of intense use by humans often results in conflicts. Crop, ornamental plant, and garden depredation; deer-vehicle accidents; destruction of native flora; decline in plant and animal diversity; and human disease concerns may result in areas with high deer densities (Connelly et al. 1987). However, surveys of Missouri urbanites indicate white-tailed deer are highly popular, having been voted the wild animal that urban Missourians most enjoyed viewing (Missouri Dep. Conserv. 1990). Most urbanites enjoy seeing deer from time to time, and so far, increasing urban deer populations have generated only localized concern from the public (Stout 1997). As a result, management of urban deer often becomes acceptable only when the number of deer has exceeded human tolerance levels; there are few instances of successful proactive management.

In response to increasing concerns about urban deer, a Missouri Department of Conservation (MDC) task force was formed in 1989 to assess the magnitude of the problem and provide guidelines for managing urban deer. Employees with MDC, working in urban areas, were surveyed about the status of urban

deer populations. Results of the survey revealed 9 urban areas with existing or developing deer problems. Respondents felt that 71% of the urban sites with deer could sustain some deer hunting. Of the sites where hunting was not considered possible, 77% had legal restrictions preventing hunting, 46% were too close to human habitation, and 8% were owned by a person or municipality opposed to hunting as a means of control. We were surprised and encouraged that such a high percentage of problem areas could, potentially, be hunted. Therefore, MDC has pursued the use of hunting wherever possible to manage urban deer because it is generally the most cost-effective means of controlling deer populations (Deblinger et al. 1995).

The MDC takes an extension approach to urban deer management. We evaluate the problem, advise land managers on appropriate management strategies, and establish regulatory boundaries in which a feasible management alternative can be developed. Implementation of a management alternative, however, requires landowner consent and action. Generally, on non-MDC public properties with deer problems, the owner initially contacts MDC about an existing or emerging deer problem. A task force consisting of representatives from the agency in charge of the area and from MDC is formed to assess possible management alternatives. On MDC urban properties, an intra-agency committee addresses deer management.

Regardless of ownership, one of the first steps taken is to assess population status and set population goals. Deer population monitoring is an important part of this process. We use numerous indices to assess deer population status and the magnitude of the problem (Fig. 1). Deer population simulations (Wal-

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ters and Gross 1972) are performed with the initial population size determined through aerial censuses (J. Beringer, unpubl. data) and demographic input based on previous studies (L. Hansen, unpubl. data). We believe censuses in combination with population modeling provides insight into the dynamics of urban deer populations and the harvest rates needed to achieve population goals. Modeling also provides a useful tool for evaluating management alternatives and demonstrating the impacts of these alternatives to administrators and the public. We collect supporting data on deer-associated problems such as the number of deer-vehicle accidents and number of complaints about crop or garden depredation.

Establishing population goals often is more nebulous and, in Missouri, reflects public attitudes more than biological considerations. On urban public areas where deer are a major attraction, we find densities of about 15 deer/km² are high enough to provide adequate viewing opportunities for the public but low enough to minimize problems with deer. On sites where ecosystem in-

tegrity is a high priority, we set goals at about 8 deer/km² to simulate historical densities and impacts (Seton 1929).

When hunting is used to manage deer populations on public areas, we follow a protocol for setting up the hunts (Fig. 1). The first consideration is the appropriate hunt format. If possible, we prefer these hunts to be under Missouri's statewide deer-hunting rules because this is simplest for the participant and, administratively, is least expensive. Unfortunately, only rarely are hunts in urban settings conducted under statewide regulations because hunting pressure on urban public areas can be extreme if unrestricted. We are particularly concerned about safety with high hunter densities, potential conflicts with other activities on these heavily used areas, and vulnerability to challenges from anti-management groups. As a result, most of our urban hunts are conducted as managed hunts in which the number of hunters, methods, and time of hunts are restricted.

The number of hunters is controlled by requiring application for a specific hunt; participants are se-

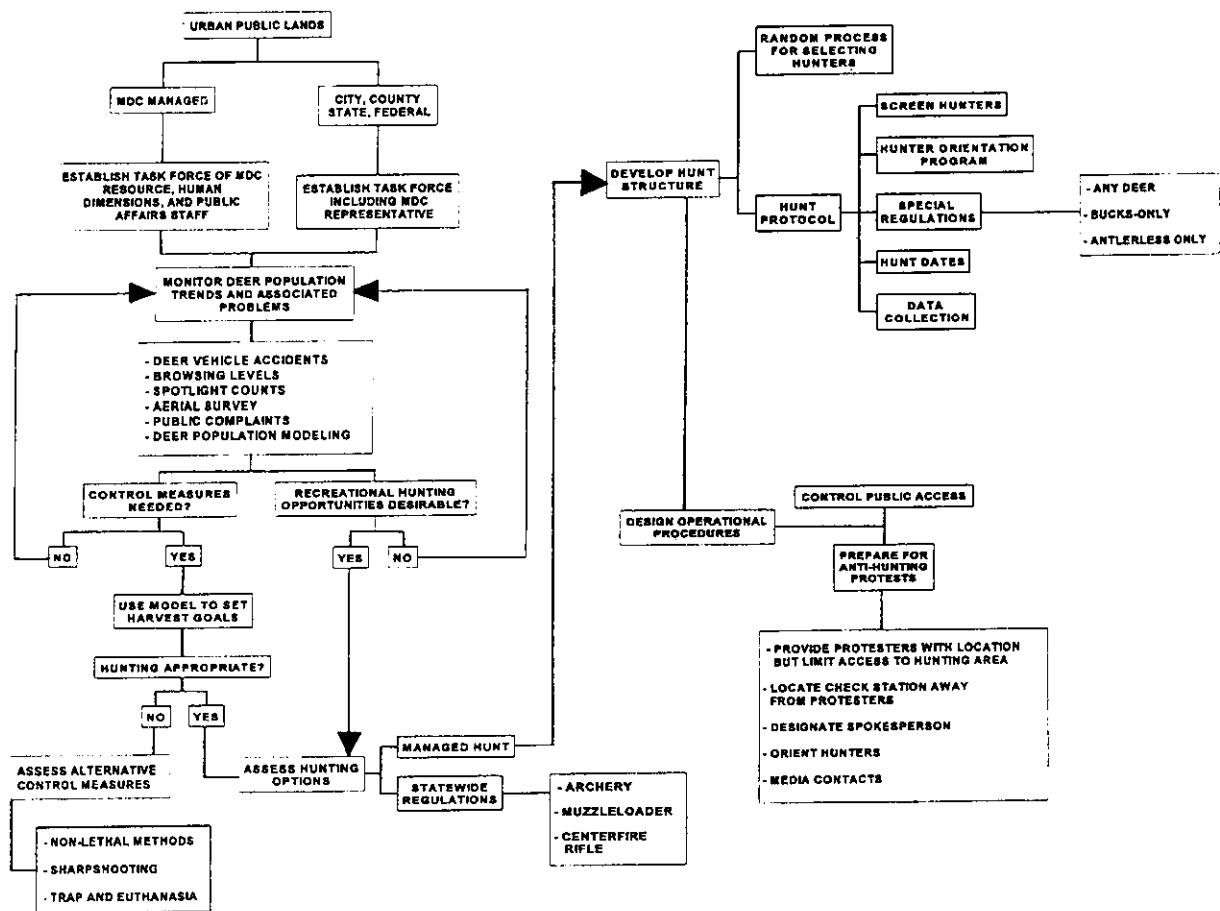


Fig. 1. Flow chart outlining protocol for managing deer on urban public areas in Missouri. MDC = Missouri Department of Conservation.