URBAN DEER MANAGEMENT IN MINNEAPOLIS - ST. PAUL, MINNESOTA

Minnesota Valley National Wildlife Refuge

Bloomington, Minnesota

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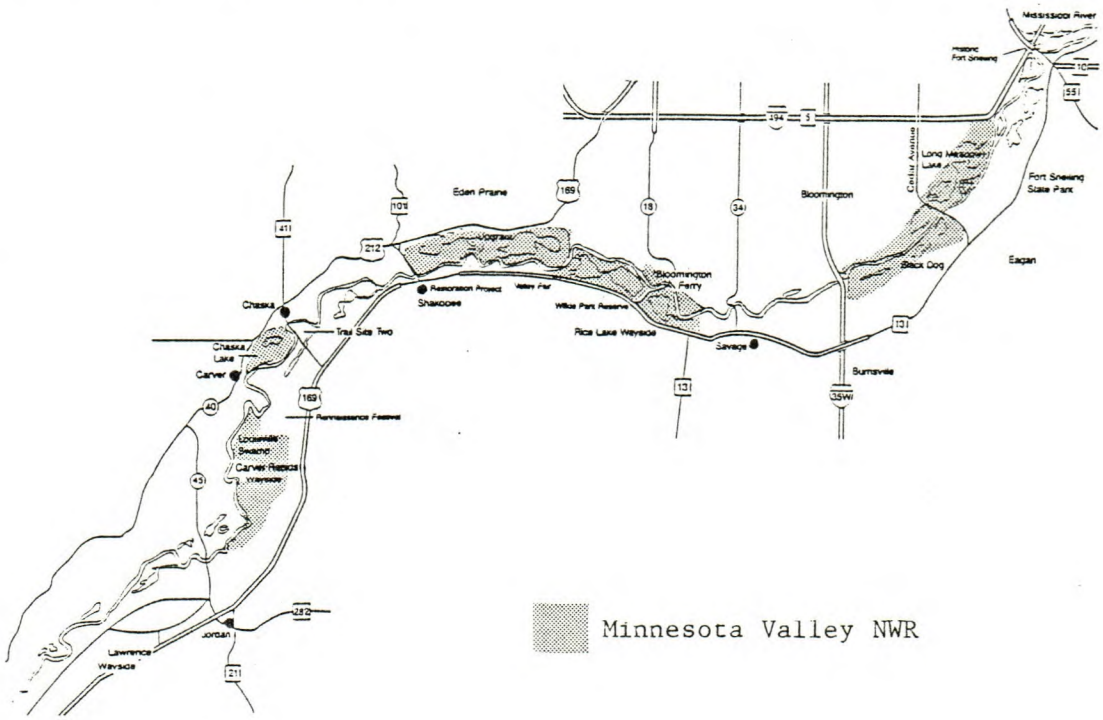
I. GENERAL INTRODUCTION

The trend toward developing suburban housing interspersed with parks and greenways has resulted in ideal situations for skyrocketing metropolitan deer populations. This is particularly evident in the Minneapolis-St. Paul, Minnesota area where parks are liberally placed throughout the urban landscape. The Minnesota Valley National Wildlife Refuge is located in this metropolitan area and has experienced winter population numbers estimated to be as high as 280 deer/sq. mi.

Before discussing the refuge's deer problem in detail, I would like to orient you to the Minnesota Valley National Wildlife Refuge. The refuge is located in east central Minnesota along a stretch of the Minnesota River which runs through four of the seven counties comprising the Twin Cities area. Located within eight municipalities, the Minnesota Valley National Wildlife Refuge is truly an urban refuge.

The refuge consists of seven management units located between the city of Bloomington in the north and the city of Jordan in the south (Map A). Upon completion, the refuge will comprise 12,500 acres, of which 8,500 acres is currently owned or leased.



MAP A. Location of the Minnesota Valley National Wildlife Refuge Management Units.

The diversity and discontinuity of the refuge has complicated the development of an overall refuge deer population control program. A solution to the deer population problem has been most actively approached in the Long Meadow Lake and Blackdog Lake units of the refuge, which are strongly influenced by surrounding urban activity and development.

The 2,500 acre Long Meadow Lake Unit consists of spring-fed marshes interspersed with floodplain forest, brushy thickets and old farm fields. The diverse nature of the landscape -- bluffs, floodplain, marsh silt levee, and river -- attracts a variety of wildlife, including deer. The deer population was estimated at 70 deer/sq. mi. during the winter of 1986-87.

The 1,300 acre Blackdog Lake Unit is dominated by the Northern States Power Company electrical generating plant and the 500 acre Blackdog Lake which is used by the plant for cooling water. Six hundred acres of wet meadow on the lake's south shore provides excellent winter deer habitat. The deer population was estimated at 109 deer/sq. mi. in the winter of 1986-87.

Not all of the refuge is so heavily influenced by urbanization. In contrast, the 2,700 acre Louisville Swamp Unit is located in a more agricultural setting, where quarry operations, farming and grazing are predominant.

The Minnesota Valley National Wildlife Refuge was established in 1976 by a special act of Congress. People concerned about preserving the natural and cultural resources of the Minnesota River valley in the metro area were instrumental in the establishment of the refuge. These same people are still active today as the "Friends of the Minnesota Valley" and continue to campaign for refuge support and funding.

Residents in the suburbs bordering the refuge have a strong identification with the river valley and take pride in living adjacent to an area of scenic vistas and abundant wildlife. A heightened citizen awareness of the refuge's activities required the refuge staff to develop a well-planned and aggressive public relations effort before taking any steps to manage the local deer herd.

II. DEER POPULATION PROBLEM INDICATORS

Several research approaches were taken to gather information about the population dynamics of the metropolitan deer herd in the Minnesota River valley beginning in 1982 with a tagging study.

The tagging study showed the metro deer herd to be highly mobile, with segments of the population moving in and out of the river valley along established corridors. Over 400 deer sitings have been reported to the refuge over the past four years from the seven county metro area. In three separate incidences, young bucks travelled over 50 miles from the tagging site. Analysis of deer/car collision reports also suggested the existence of movement corridors as well as a seasonal pattern to deer movements.

The tagging and deer/car collision studies indicate that the deer are very mobile in the metro area and are drawn to the river valley during severe winter weather. This attraction to the valley is further aggravated by the

Corn fed deer! — ought to be plump & tender!!

feeding of deer by river bluff reside ... ngton
river bluff residents revealed that, ...
grain are fed to deer each winter.

Although hampered by heavy air traffi ... n
airports, winter aerial surveys of the ...
conducted since 1981. Surveys from he ... ey
results.

Figure 1 gives the density of deer/sq. ... g
Lake units combined with Fort Snelling ... he
northeast. Deer population densities ...
15-20 deer/sq. mi. since the winter su ... ear
doubling of the estimated winter popul ... eral
factors. First, fawn production was most likely optimized in the spring of 1985 after the deer passed through a mild, relatively unstressful winter. In addition, the winter of 1986 was colder than normal with record snowfall in November, causing a large number of deer to seek out the river valley for shelter.

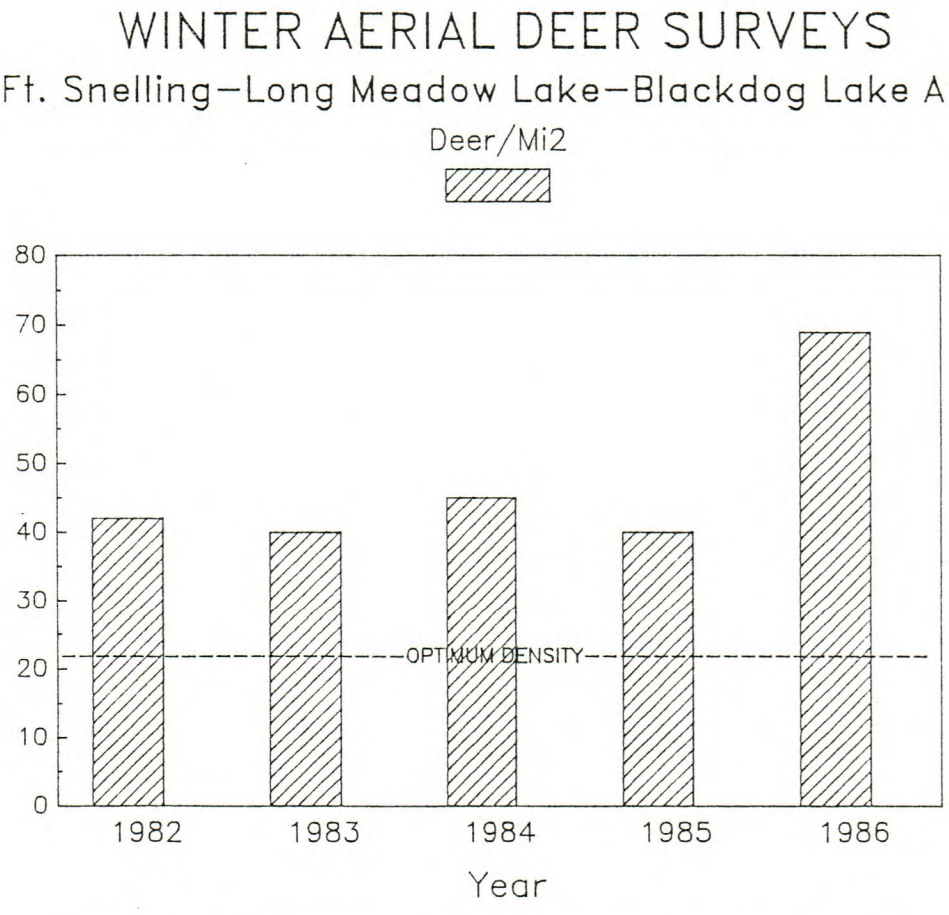


FIGURE 1. Deer Population Densities in the Ft. Snelling-Long Meadow Lake-Blackdog Lake Area, 1982-1986.

In some areas of the refuge, overbrowsing by deer was becoming apparent. Therefore, browse transects were established to determine the effect deer browsing was having on the habitat.

Figure 2 shows the percent twigs browsed over three consecutive winters and indicates that an increase in browse utilization over winter is a yearly event. The graph also shows that, in 1982, a particular harsh winter, the deer had utilized 53% of the available browse by spring. In the National Cemetery adjacent to the Long Meadow Lake Unit, where deer starved in late winter, 1982, 65% of the available browse was utilized by spring. It is likely that given a severe winter and with the species of browse available on the refuge, there is a point between 50 and 65 percent of browse utilized that deer begin to starve.

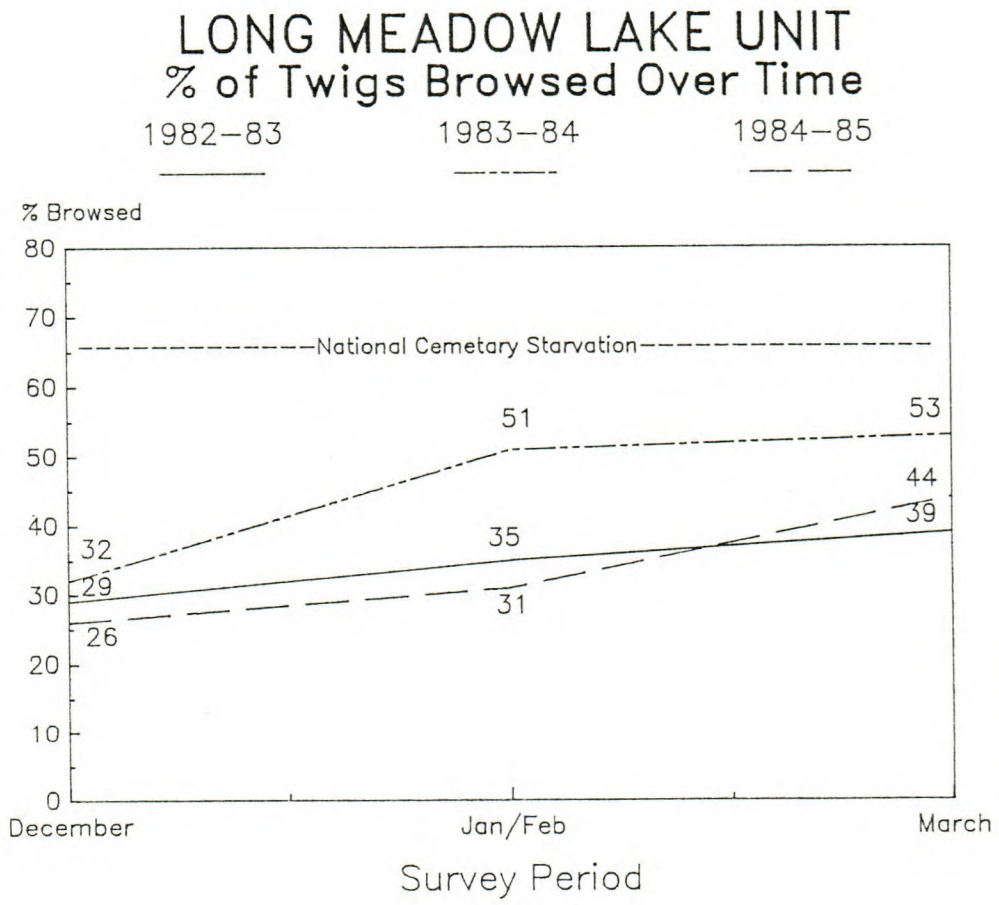


FIGURE 2. Results of Long Meadow Lake Browse Transects, 1982-1985.

Analysis of 8,000 Minnesota Department of Natural Resources deer/car collision reports filed between 1974 and 1982 showed a sharply rising occurence of deer/car collisions over the years. The inset graph in Figure 3 indicates that deer/car collisions rose from 400 in 1974 to 1,600 in 1982.

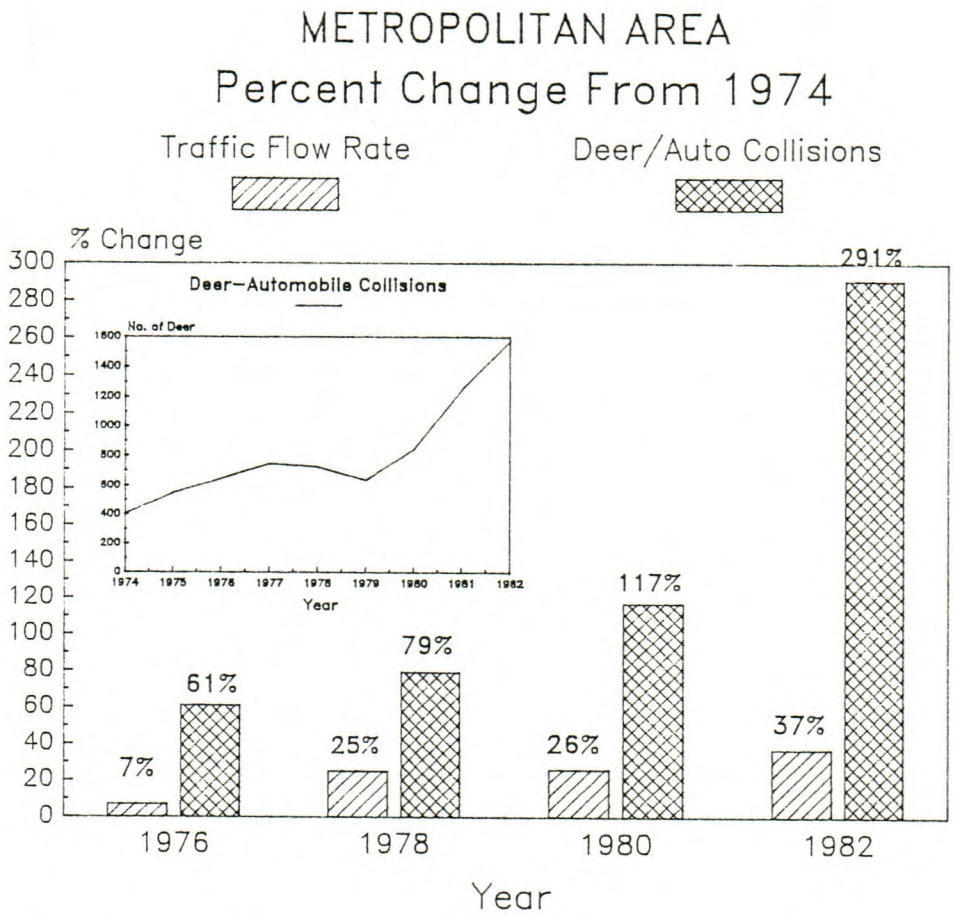


FIGURE 3. Percent Change in Deer/Auto Collisions and Traffic Flow Rate From 1974 in the Seven County Metro Area, 1976-1982.

To determine whether changes in the incidence of deer/car collisions is linked to changes in traffic volume, a comparision of traffic flow and number of collision reports was made. Figure 3 shows that, from 1974 to 1982, the increase in the number of deer/car collision reports is significantly higher than the increase in traffic volume. Therefore, it is likely the major factor in annual increases in deer/car collisions is an increasing deer population. This situation is further aggravated by rapid urban development resulting in shrinking deer habitat in which deer are more mobile and more often in conflict with automobile traffic.

All the above research methods -- tagging studies, analysis of deer/car collisions reports, residential feeding surveys, aerial population surveys and browse transects -- were instrumental in developing an understanding of deer herd dynamics in the area, and formulating a strategy for reducing deer-induced degradation of the habitat and minimizing road hazards to the public.

III. PUBLIC AWARENESS

The deer herd control problem in the metropolitan area and, specifically, for the refuge is a bio-political issue. This type of wildlife management requires a long-term public awareness program to persuade the public and other government bodies of the need to control the growth of a wildlife population, especially for an animal as publicly appealing as the deer. It cannot be emphasized enough the important role public awareness played in making a deer population control program possible and workable in the metropolitan Minnesota River valley.

And, today, other local natural resource managers with lands in the metro area are realizing the same thing -- that the public will no longer accept the need for control of wildlife populations without knowledge of the degree of the problem and the safety and appropriateness of the offered solutions. Hunting as a control method can no longer be justified by its recreational value alone. And alternative control measures must be seriously considered along with the hunting option.

The refuge began its public awareness program when aerial counts and browse surveys indicated a possible deer population problem. The best tool for publicizing the metro deer herd and its importance in the metropolitan area was the deer tagging program. Developed to learn more about deer movements in and around the Minnesota River valley, the refuge initiated a deer tagging program that was ideal for volunteer participation and news media coverage. The deer trapping was done on the refuge office front yard where it was easy to invite people to observe the entire rocket net operation. On several occasions, while 10 to 15 volunteers waited quietly in the office for the deer to approach the bait, the refuge staff presented a short program on deer management.

Following the program and sometimes interrupting it, the rocket net would be set off and the entire group would rush outside and participate in the tagging operation. It turned out to be an excellent hands-on wildlife management program that provided a great deal of public coverage, not only for the people attending but for thousands of Twin Citians who viewed the deer tagging operation on television. Several local TV stations visited the refuge and captured the tagging operation on film, showing it as a special interest feature during the evening news.

Every new piece of information gathered in our deer research studies was disseminated to the public in news releases. Upon completion of winter aerial surveys, or to alert people to the deer tagging program, information was sent to approximately 15 of the local newspapers. The history of the refuge's public awareness program on the deer issue can be tracked in newspaper headlines -- from the first realization that a deer problem was developing, through the tagging program, the proposal of hunting as one solution, public opposition, results of the first hunt and plans for future hunts.

Another method of disseminating information about the deer herd to the public was the use of direct mailings. Local suburban residents were made aware of refuge activities such as the deer tagging study, deer feeding survey, and annual hunt plans through direct mailings.

In the spring of 1984, approximately two years after we began our deer awareness program, positive steps were taken to implement one possible

solution to the deer control problem, a public hunt. The refuge staff, in cooperation with the Minnesota Department of Natural Resources, targeted the fall of 1984 for the first deer hunt, if public sentiment was generally in favor of the hunting option.

A deer management workshop was held in May of 1984 to assess public sentiment on the deer control issue and solicit suggestions on the type of management strategy they would like to see implemented. The audience was first updated on the deer situation to date and then broken into small groups to discuss possible deer control options. The general concensus was that hunting would be the most viable control method at that time.

The refuge staff spent many hours preparing for and attending meetings with the four local suburban governments. Initially, natural resources and parks city council advisory committee meetings were attended to explain the current status of the local deer herd and to present our ideas for controlling herd growth with a hunt. Once the advisory committees approved the public hunting plan, we then had to approach each city council with our plan and request waiving of the local firearms ordinances. The city council meetings were also invaluable in gauging public acceptance by the degree of acceptance exhibited by the city councils.

The Long Meadow Lake and Blackdog Lake Units of the refuge, along with adjacent Ft. Snelling State Park, were chosen for the pilot hunting program. Meetings with Minnesota Department of Natural Resources parks staff were attended to discuss deer management in the refuge and park and to present the possibility of a cooperative deer hunt in the Bloomington-Burnsville area. Once a combined hunt was agreed upon, additional organizational meetings were also necessary.

The refuge also met with the Northern States Power Company, who leases wildlife management rights on the Blackdog Lake Unit to the refuge. Their concern was mostly from a safety standpoint, requiring the refuge to present a well-organized and thorough hunting plan.

The refuge staff devoted approximately 300 hours of time in pre-hunt planning and obtaining the necessary local government approvals. However, a concerted public awareness effort in 1984 proved to be a cost saver in the following years' hunts, which required minimal pre-hunt planning. The refuge gained a considerable amount of credibility with local governments in 1984, some members of whom were very hesitant to permit hunting of any kind.

Since the public expressed a concern with the safety of conducting a public hunt, the refuge placed emphasis on safe hunting conditions and practices. The hunt area was broken into compartments with mandatory hunter assignment for the two-day hunt. All hunters were required to attend an orientation meeting where hunt compartment boundaries were described and specific hunting restrictions and regulations were explained.

All hunt boundaries were posted and no hunter was allowed to pursue wounded deer outside the hunt compartment without a Conservation Officer present. Shooting was allowed from elevated stands only.

Although only 57 of the 100 deer objective were taken in the 1984 hunt, no accidents occurred and media coverage was favorable, proving a hunt could be conducted within the metropolitan area without jeopardizing public safety.

Due to minimal archer success, the Blackdog Lake bow hunt compartment was dropped from the 1985 hunt. The refuge did request permission to hold a 30 day bow hunt at Blackdog Lake but this request was denied by the City of Burnsville. However, a bonus antlerless deer license program was initiated in 1985 and was made available to all hunters at an additional cost. Fifty-two (52) of the 100 deer objective were taken.

A group of animal rights activists held a protest at the deer check station on the first morning of the hunt in 1985 but did not expand their protest to other hunt areas nor did they return for the second day of the hunt. Even with the protest, media coverage and public sentiment remained favorable.

In 1986, the metro hunt was expanded to a 4-day hunt. The Northern States Power Company, persuaded by our good safety record, granted permission to hold a shotgun hunt at Blackdog Lake. However, the request for a mid-December muzzleloader hunt at Blackdog was denied by the City of Burnsville. No acccidents or visible opposition to the hunt occurred and the hunters were able to take 100 of the 300 deer objective.

The 1986 hunt was followed up with a late winter sharpshooting operation. We had demonstrated that public hunting alone could not achieve our deer reduction goals under the present operating constraints, therefore, the refuge and Minnesota DNR initiated sharpshooting operations in January, 1987. One hundred twenty-five (125) deer were taken over bait, from cars and with daylight drives.

COST EFFECTIVENESS OF 1986 METRO HUNT AND SHARPSHOOTING OPERATION

	Refuge Wages	State Wages	Equipment Costs	Revenues	Total Costs
Metro Hunt	$2,602	$12,046	$802	$2,985	$11,662
Sharp Shooting	$3,472	$11,955	$1,041	$1,000	$15,468

Metro Hunt: $116/deer

Sharpshooting: $123/deer

FIGURE 4. Cost Comparison of 1986 Metro Hunt and Sharpshooting Operation.

A comparison of the operational costs of the metro hunt and sharpshooting operation were made to determine whether it was cost effective to follow up the hunt with sharpshooting on an annual basis. At $123/deer, the cost of sharpshooting was only slightly more expensive than a public hunt at $116/deer (Figure 4). The bulk of the cost for both removal methods is in staff wages but hunting provides more return in revenues.

Many more hunt options have become available to us for use in the metro hunt since its initiation in 1984, the reward for conducting an effective public awareness program followed by a safe and well-organized hunt. In 1987, a 30 day bow hunt at Blackdog Lake and Ft. Snelling Park, a 4-day mid-November shotgun hunt and a 3-day mid-December muzzleloader were approved and implemented. A late winter sharpshooting operation will follow hunting to reach the 283 deer removal objective.

IV. FUTURE PROGRAM DIRECTION

Now that the refuge has demonstrated that a public hunt is possible in the metro area without jeopardizing the public's safety, are we free and clear to continue with and expand the metro deer hunt? Not exactly. City councils with jurisdiction over the existing hunt compartments are beginning to question our annual request for waiving of the firearms ordinance. They feel there is a need for the development and implementation of a long-term deer management program. They have requested the establishment of an intercity planning committee to provide an avenue for their input into the program. And they have ideas of their own to share -- for instance, they are interested in investigating other management options such as the use of birth control implantations.

The complexity of deer herd management in the metropolitan area will continue to grow as the deer herd expands with the urbanization of more and more agricultural lands. The Minnesota Valley National Wildlife Refuge and cooperating agencies have shown that hunting can be a viable and safe form of herd reduction. We have implemented a cost effective sharpshooting program and found little public opposition to its use. However, the need for continued, intensive public involvement must be emphasized -- to keep the public informed of the problem, keep them aware that safe, workable solutions to the problem exist and that we will be open-minded and flexible in considering alternatives. It looks as if we have come to a new phase in deer herd management in the metro area, one which will require continued public involvement with more input into the planning process from local governments who have outgrown their passive, regulatory role.