Comprehensive Management Plan for White-tailed Deer in Montgomery County, Maryland

Goals, Objectives, Implementation

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The Montgomery County Deer Management Work Group (1995)

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Introduction

In April 1993, in response to concerns of county residents and interest groups about the number and activities of white tailed deer (Odocoileus virginianus), the Montgomery County Council, by resolution created the White-tailed Deer Task Force (hereafter, Task Force). The Council charged the Task Force to examine information relative to conflicts between deer and people in Montgomery County, and make recommendations on how to respond to these.

The Task Force published its findings and recommendations in April 1994, in the Report of the Task Force to Study White-tailed Deer Management (Appendix I, hereafter referred to as the Task Force Report). The report listed deer-related problems that warranted attention, including damage to agricultural crops, deer-vehicle collisions, depredation to gardens and ornamental shrubbery, impacts to parks and other natural areas and public concern over issues such as Lyme disease.

Suburban Deer

The deer is an important and valued part of Montgomery County's natural heritage. However, deer are an opportunistic species that can, in the absence of checks and balances, become abundant enough to conflict with human interests.

Expanding development, in once rural areas like Montgomery County, has created a patchwork of natural areas and landscaped suburban yards that is ideal deer habitat. With urbanization have come restrictions on hunting and just as importantly, a change in attitudes towards wildlife. There has been a general movement from consumptive recreation (hunting) to non-consumptive recreation (wildlife watching). With no remaining natural predators and restrictions on hunting, deer populations have increased dramatically in the past decade resulting in increased deer-human conflicts.

The Approach

The type and extent of deer-human conflicts varies considerably throughout Montgomery County and no single management approach can be prescribed. Therefore, we have chosen to take a comprehensive approach as outlined in the Task Force Report. The plan developed herein is by design open-ended and adaptable. It is in effect being implemented as it is being written and like materials in a loose-leaf binder, it will allow for portions to be removed when they are no longer needed and for new approaches to be added as needs change or as new management tools become available.

The problems associated with deer in suburban and urban areas are a relatively new phenomenon. The approach being taken here is likewise somewhat new and unique. It requires the development of a system for dealing with deer on a county level that involves cooperation between a number of County, State and Federal agencies. As problems are identified or anticipated, it will be essential for the key participants who should be involved in remediation or prevention to work together to assemble information, in some cases to act, and in all cases to learn from each experience how better to address conflict situations. The

initial approach will be to focus on specific issues, as for example that of deer-auto collisions, but the process of addressing specific issues will be iterative, and the actions taken should work synergistically to address the larger issue of deer management on the county level.

What follows is a comprehensive White-tailed Deer Management Plan for Montgomery County. Guided by the Task Force's recommendations, this plan establishes goals and objectives for managing deer in the County, develops a plan of action for each of the problem issues identified in the Task Force Report and sets a time table for the implementation of those actions.

This management plan is divided into four parts. Part I addresses the collection, centralization and use of accurate data on white-tailed deer and their impacts in Montgomery County, and forms the foundation on which sound management decisions must be based. Part II outlines the implementation of a comprehensive public awareness and education program to better inform citizens about deer-human conflicts and their prevention. Part III describes the various management alternatives that are available to reduce deer impacts and outlines the implementation of population management alternatives to reduce deer populations in areas where this is deemed necessary. Part IV outlines the current status of the plan's implementation and the work program for the current fiscal year. This section of the plan will be updated annually and will reflect any modifications or additions to the plan.

Goal and Objectives

Goal

To reduce deer-human conflicts to a level that is compatible with human priorities and land uses.

Objectives

1. Reduce on a county-wide basis the number of deer-vehicle collisions
.
2. Reduce depredation on agricultural crops and ornamental shrubs and gardens to levels acceptable to the community.

3. Reduce the negative impacts of deer on natural communities in order to preserve the natural diversity of flora and fauna within the county.

4. Develop a county-wide education program to provide residents with information on deer, deer problems and how to minimize or prevent deer-human conflicts.

Principal Agency Roles

The deer related problems that exist in Montgomery County and the actions called for to address these problems cross responsibility boundaries of a number of different agencies. As part of a cooperative planning process, the Montgomery County Deer Management Group (DMG) was established through a memorandum of understanding (Appendix II). The group is made up of representatives from the Maryland Department of Natural Resources Wildlife Division (DNR); the Maryland-National Capital Park and Planning Commission, Department of Parks, Montgomery County Natural Resources Management Group (M-NCPPC); and The National Biological Service (NBS). This core group will work with other agencies as necessary to accomplish the actions described in this Plan. Below are brief descriptions of the roles and responsibilities for each of these agencies. Under each heading in part I and II of the plan we have listed a lead agency and participating agencies. The lead agency is one of the agencies listed above that will assume primary responsibility for the actions to be taken under that section. The participating agencies will work cooperatively with the lead agency to accomplish those actions.

The Maryland Department of Natural Resources Wildlife Division

The Maryland Department of Natural Resources Wildlife division has the legal mandate and legislated authority to manage deer populations throughout the state of Maryland (Maryland Annotated Code: 10-202 & 10-205). DNR will provide input into development of the comprehensive management plan for white-tailed deer in Montgomery County through recommendations and providing technical guidance toward the implementation of specific deer management alternatives. The Division's objective is to work with representatives of Montgomery County - M-NCPPC and the NBS-CUE in resolving deer-human conflicts in Montgomery County.

M-NCPPC Department of Parks, Montgomery County

> "The mission of the Department of Parks, Montgomery County,Maryland, is to provide for the acquisition, conservation, development, maintenance, and management of a park system which, in harmony with the environment and in partnership with the community and other public agencies protects, conserves, enhances, and interprets our natural and cultural resources; identifies and offers a variety of leisure opportunities; and is safe, accessible, and enjoyable for all. Our commitment is to be receptive, progressive, equitable, and adaptive in observing and fulfilling this mission for current and future generations."

-Adopted July 1994

The M-NCPPC Department of Parks, Montgomery County currently maintains 27,763 acres of parkland (approximately 8 percent of the county) in 325 different park and open space areas. The Department, through the enabling legislation that established the Maryland-National Capital Park and Planning Commission (Article 28 of the Annotated Code of Maryland), is responsible for protecting, preserving, and managing natural resources including streams, wetlands, forests and wildlife in County parks and consequently must play a critical role in the management of deer on a county wide basis.

The Department of Parks is a designated agency of Montgomery County charged with identifying and initiating actions to resolve deer related problems pursuant to the published findings of the Task Force Report. Within the Department of Parks, the Natural Resources Management Group is responsible for addressing wildlife management issues on park property and works cooperatively with DNR in the development and implementation of wildlife management initiatives.

U.S. National Biological Service

The NBS maintains technical expertise and experience in addressing deer management concerns, particularly in urban environments. Their primary role is that of consultant and technical advisor.

Public Participation

DNR

The Maryland Wildlife Division offers public participation and citizen involvement in the decision making process through:

1.) Regulation meetings held in March and August each year. These meetings provide an opportunity for interested individuals to comment on Hunting season date and bag limit proposals for resident and migratory game species. For more information contact the Maryland DNR Regional Office at 11960 Clopper Rd.Gaithersburg, MD 20878, (301) 258-0817.

2.) Public information meetings are held in various locations across the state to address timely topics that the Wildlife Division is currently addressing. Public meetings have been held in the past to address such issues as the black bear management plan and statewide wildlife management area plan.

3.) The public may also comment on wildlife issues and concerns through written correspondence with the director of the Maryland Wildlife Division at Department of Natural Resources, Tawes State Office Building, Annapolis, MD 21401.

M-NCPPC

M-NCPPC Department of Parks, Montgomery County welcomes and encourages public participation in all issues. The Montgomery County Planning Board of the M-NCPPC meets in the auditorium of 8787 Georgia Avenue, Silver Spring every Thursday 9:30 AM in regular session and the third Monday of each month as the Park Commission to deal with Parks Department matters. All meetings are open to the public. A weekly agenda is available through the Montgomery County Planning Board Community Relations Office at 8787 Georgia Ave., Silver Spring, MD, 20910, (301) 495-4601. In addition, Public information forums and Public Hearings on specific issues or plans are announced at least 30 days prior to the meeting dates. The public may also present their comments through written correspondence with the planning Board/Park Commission, addressed to Chairman, Montgomery County Planning Board, 8787 Georgia Ave. Silver Spring, MD 20910-3760.

Part I

Obtaining Accurate Information on Deer and Their Impacts

Sufficient information does not exist on deer and their impacts for Montgomery County. Information that does exist is generally incomplete and not available in the manner that would be most helpful. In order to make responsible decisions on deer management issues and evaluate remedial actions taken, pertinent information must be available and a mechanism must be in place to collect future data. An important part of this management plan is, therefore, concerned with the collection of accurate data on deer and their impacts for Montgomery County and maintaining that data in a form that facilitates the planning process.

Deer-Auto Collisions

Lead agency DNR; participating agencies - M-NCPPC, Montgomery County Police Department, M-NCPPC Montgomery County Park Police Department, Montgomery County Animal Control, Maryland Department of Transportation (MD-DOT), Montgomery County Department of Transportation (DOT)

Available records indicate an upward trend in the number of deer-auto collisions in Montgomery County. These records however, are not systematically compiled and fail to capture the information

needed to effectively address this problem. An accurate record system is essential to any effort to reduce deer-auto collisions. It will be used to locate high risk areas and to track changes over time in order to evaluate the effects of any remedial actions taken.

Action 1. Develop a centralized method of recording and reporting deer-auto collisions to DNR.

Action 2. Investigate preventative measures that might be taken on high risk roadways (i.e. signage, PSAs by different agencies, reduced speed limits w/ warning lights similar to school areas, radar traps at high risk seasons, deer warning devices, etc.).

Action 3. Assemble information on travel corridors for select wildlife species such as deer and make this information available to M-NCPPC Planning Department, the Montgomery County Department of Transportation and Department of Environmental Protection in order to promote greater consideration of wildlife needs during the planning stages of transportation projects. Information will be forwarded through M-NCPPC Natural Resources Management Group.

Depredation on Agricultural Lands and Residential Properties

Lead agency DNR; participating agencies - USDA Animal and Plant Health Inspection Service (APHIS), Montgomery County Extension Service, Montgomery County Agricultural Advisory Board

As with deer-auto collisions, an accurate record keeping system is essential for guiding and evaluating any effort designed to reduce deer damage to agricultural crops and ornamental plantings on residential property. Records on animal damage and complaint calls are currently kept by the USDA Animal and Plant Safety Service (APHIS); however, these records do not capture all of the information needed at the county level. In addition, better coordination is needed between APHIS and the many other local, State and Federal agencies that also receive calls.

Action 4. Coordinate efforts with APHIS to refine the categories by which data are reported. Of particular concern is the need for more detailed location information.

Action 5. Coordinate efforts between DNR, APHIS, Montgomery County Extension service and M-NCPPC Nature Centers to ensure more centralized data collection on wildlife damage and complaint calls from public.

Impacts on Natural Areas

Lead agency M-NCPPC; participating agencies - NBS-CUE, DNR

The impacts of white-tailed deer on native plant communities requires better documentation. At high densities, deer can impede natural area management goals by reducing species diversity of both plants and other wildlife and impairing forest regeneration. The M-NCPPC, Department of Parks has responsibility for protecting, preserving, and managing natural resources on County parkland. A program to monitor the impacts of deer on native plant and animal communities is vital to making responsible natural resource management decisions concerning deer.

Action 6. Establish a monitoring program to qualify and quantify the impacts of deer on native plants, plant communities, wildlife, rare, threatened and endangered species and natural areas in the county park system (see Appendix III).

Urban/Suburban Deer Ecology and Population Dynamics

Lead agency M-NCPPC; participating agencies - NBS-CUE, DNR

Little information currently exists on the population dynamics of deer in urban and suburban settings in Maryland. Yearly harvest data is collected by DNR on a county level but represents only deer populations in areas open to hunting. Information on deer ecology and population dynamics specific to Montgomery County is vital to a responsible deer management program.

Action 7. Develop and establish a program to monitor relative changes in deer population density and habitat usage within targeted parks (Appendix III).

Use of Geographic Information System (GIS)

Lead agency M-NCPPC; participating agencies - NBS-CUE, DNR

The use of GIS can greatly facilitate the manipulation and graphical representation of data used in the natural resources management process. Geographic and thematic data bases developed within GIS can be used to address both ecological and environmental factors related to deer presence, abundance, and mobility throughout the county, as well as for mapping and analyzing important data on deer-human conflicts.

Action 8. Utilize a Geographic Information System (GIS) in the collection and interpretation of data for The Deer Management Plan. This will include mapping of land use types, habitat types, deer-auto accident locations, sites of deer depredation on agricultural and private lands, conservation and environmentally sensitive areas, rare,threatened and endangered species site locations, telemetry data, deer exclosures and other vegetation monitoring points.

Part II

Public Information/Education

Lead Agency M-NCPPC; participating agencies - DNR, Montgomery County Library System, Montgomery County Extension Service

All to often the problems caused by deer are augmented by a lack of understanding on the part of the humans affected. Public information and education is therefore a critical part of this plan. The following actions are designed to better inform and educate the public and to address commonly expressed concerns related to deer.

Action 9. Develop an informational brochure on white-tailed deer in Montgomery County, including information on deer biology, ecology, deer related problems and their prevention. This brochure will be developed in cooperation with M-NCPPC interpretive staff and Montgomery County Cooperative Extension Service and distributed throughout the county.

Action 10. Encourage the use of the Nuisance Animal Information Line as a source of public information on deer problems and ways to prevent them. This State wide program, available through an 800 number is operated by the USDA Animal and Plant Safety Service (APHIS) and DNR. The Hotline provides information to homeowners and farmers on preventing deer damage to yards and crops.

Action 11. Offer educational programs, through the Montgomery County Cooperative Extension Service and M-NCPPC Montgomery County Nature Centers, on deer in Montgomery County. These programs will include information on deer biology, ecology, deer related problems and their prevention as well as information on Montgomery County's Deer Management Plan. Nature Centers will also use bulletin boards and other displays/exhibits to further educate the public on deer related topics.

Action 12. Develop and maintain a current media plan in order to provide timely and relevant information on deer, including seasonal bulletins advising of increased risk of deer/auto accidents (i.e. during breeding season, hunting season, seasonal dispersal), as well as background and other relevant information (i.e. spring fawning season and info on deer ticks). These public notices will include multimedia public service announcements (PSA's) utilizing local newspapers, radio and TV stations as well as special productions on cable TV.

Action 13. Pursue appropriate action to insure that the County Library System purchases and has available throughout the county, books on white-tailed deer biology and management, as recommended by the Task Force Report.

Action 14. Develop a traveling bulletin board exhibit including information on deer biology, ecology, deer-related problems and their prevention as well as information on Montgomery County's Deer Management Plan. This exhibit will rotate between County Public Libraries, County office buildings and other public locations and will act as dispersal sites for the Deer Brochure.

Action 15. Develop a multimedia presentation including information on deer biology, ecology, deer-related problems and their prevention as well as information on Montgomery County's Deer Management Plan. This program will be presented by MNCPPC staff to local civic groups, environmental groups, County Park Commission, Department of Parks, Montgomery County in-service training etc.

Action 16. Develop an annual newsletter on deer management issues in Montgomery County that will be distributed to interested citizens groups. The purpose of this publication will be to keep citizens informed on the implementation of the Deer Management plan as well as provide additional and updated general information on deer in Montgomery County.

Part III

Deer Management Alternatives and Implementation

There is no single alternative that will resolve the various impacts of deer being experienced throughout the county. One alternative may work well in one situation and be ineffective or inappropriate in another. For example, certain types of fencing and the use of repellents, are appropriate for homeowners protecting small gardens but might be ineffective or prohibitively expensive if applied to agricultural crops. Other alternatives that involve population controls are most appropriate on large parcels of land including farms and parks.

Management Alternatives

The Task Force described eleven management alternatives, discussing both existing and potential means of managing deer impacts in Montgomery County. Some of these techniques are traditional and are known to produce measurable effects. Others are experimental and have unknown consequences. Some are not considered viable alternatives at all under the present circumstances, but are included and discussed to document their having been considered. It will often be the case that no single alternative eases or resolves a problem and that a combination of management alternatives may be required.

The alternatives are listed and described below. Following the descriptions an alternatives matrix is presented that identifies the practicability of implementing alternatives, identifies general magnitude of costs, and describes the likely consequences of implementing each alternative.

- Maintain Status Quo
- Repellents/Scare Devices
- Fencing/Physical Exclusion
- Habitat Management
- Supplemental Feeding
- Restoration of Predators
- Modify Legal Harvest
- Agricultural Depredation Permits
- Direct Reduction
- Contraception
- Trapping and Removal/Relocation

Maintain Status Quo - This alternative implies that no change occurs in current management strategies or actions involving deer. No active manipulation of deer habitat or populations would be undertaken. No changes in hunting limits or the permitted area in which hunts are allowed would occur. All current data collection, inventory, and monitoring activities would continue.

Repellents or Scare Devices - A variety of chemical (taste, odor) and mechanical (noise or visual alarm) devices have been tested and under some conditions proven effective in repelling deer from areas in which they are undesired. A fairly extensive literature exists on this subject and many products are readily available. Consumer information exists and could be readily tailored to meet specific requirements and timing considerations in Montgomery County. Restrictions would exist on some products and devices (e.g. incendiary noise-makers). Repellents are not effective in all situations, can be costly, may require frequent reapplication, and may diminish in effectiveness as deer adapt to them.

Fencing or Physical Exclusion - Fencing or other barriers can be highly effective in providing permanent protection to resources threatened by deer or by excluding deer from access to areas

where they are not desired. Small screens can be effective where protection of individual plants is needed. In natural areas, small fenced plots could protect rare plant species and encourage their reproduction, but would have to be permanently installed unless deer density decreased. Fencing to prevent deer access to roadways has been documented as an effective strategy, provided that design is adequate and that maintenance is routinely performed. Application of fencing is restricted primarily by the varying cost of installation and maintenance and by aesthetic drawbacks. However, it should be noted that over the long term this alternative can be cost-effective depending on the size of the area treated and the value of the product being protected.

Habitat Management - This alternative could involve any of a number of as yet incompletely understood actions to conserve, improve, remove, or otherwise manipulate existing or potential deer habitat to cause populations or behaviors to change in ways that might mitigate human-deer conflicts. The goal of habitat management could be either to raise or to lower the capability of given areas to sustain deer populations (i.e. to change biological carrying capacity), or to alter specific landscape elements, such as roadside vegetation, to produce desired changes.

Specific habitat requirements of deer must be identified before this alternative could be applied. Changes in land use must be planned, programmed, and assessed in a context which allows effect on deer populations to be estimated. Comprehensive, area-wide planning and development impacts on deer populations must be conducted within a context that recognizes that many different objectives will occur as regards land use, some of which can conflict with deer management objectives.

Supplemental Feeding - Supplemental feeding would involve either the private (homeowner) or corporate (agency, County government, interest group) use of acceptable deer foods (e.g. whole corn) to provision deer at problem sites or selected locations within the County, either on a year-round basis or during certain annual periods when browsing activities might be anticipated to have the most severe

impacts on natural plant communities, landscape plantings, or agricultural crops. Artificial feeding would maintain deer population levels and might even promote increases. No long-term decrease in deer impacts to natural plant communities or landscape plantings would be guaranteed, and conflicts, such as deer-vehicle accidents, likely would increase. In addition, once implemented, feeding would probably be required continuously as the deer populations remained at a high level.

Modify Legal Harvest - This option involves making changes to the number of deer that hunters can harvest during the legal deer hunting season. Such changes might allow for the taking of more does in an effort to reduce population growth. This is effective only where problem areas are open to legal hunting or may be open to hunting in the future. This alternative will probably not be an effective tool in most problem areas of the county because these areas are in general closed to hunting. Bag limits for deer are set by DNR and are evaluated and adjusted annually in response to harvest data and public input.

Deer depredation permits - These permits are issued by DNR to land owners experiencing excessive deer damage to crops or other plantings. The permit allows for the landowner to kill a specified number of deer outside of the regular hunting season. The effectiveness of this alternative is limited to the extent that the taking of deer is permitted or possible by private landowners.

Direct Reduction - This alternative involves the use of specially tested and permitted shooters through a controlled hunt or other management action to remove deer from areas where hunting is presently not allowed or permitted. Due to differences in cost, and application, this plan will consider direct reduction as two separate options:

1) Direct reduction using special or managed hunts - This option involves taking land that has been closed to hunting and holding a managed hunt under strict guidelines (Appendix IV) and for limited duration. Hunters participating in these managed hunts must pass special training and marksmanship tests. The goal is to reduce the deer population in the most cost effective and safest manner possible, with minimal disruption to the primary land-use of the area. This method has proven to be a very effective tool in reducing deer numbers in areas where regular hunting is not permitted. It is most appropriate where fairly large parcels of land, such as parks, are found. Deer taken under this management action could be donated to charitable food bank programs such as the local "Hunter Harvest" if the hunter chooses not to keep it.

2) Direct Reduction using Sharpshooters - Under this option specially tested sharpshooters are hired to shoot deer, often over bait, and usually from elevated platforms. In this way, a high level of safety can be assured even in densely populated areas. This option can be effective in reducing deer numbers where the above mentioned methods are not possible do to close proximity to housing or other safety concerns. The drawback to this method is the relatively high cost involved. Deer taken under this management action could be donated to charitable food bank programs such as the local "Hunter Harvest".

Implementation of either option would require coordination and cooperation with natural resource as well as law enforcement agencies for the State of Maryland as well as the County. While similar programs are underway and have been successfully applied in other parts of the country, the use of this technique in Montgomery County would require careful analysis and implementation. Deer taken under this management action could be donated to charitable food bank programs such as the local "Hunter Harvest".

Initiate Use of Contraceptives - The use of contraceptives falls into four basic categories: oral contraception, implantation of microencapsulated hormones, surgical sterilization, and immunosterilization (the use of contraceptive vaccines). These methods have proven to be generally successful with captive deer, but currently present significant complications when dealing with deer that are free-ranging. Use of contraceptives in free-ranging deer herds would require approval from the State DNR - Wildlife Division after the necessary approvals had been obtained from the U.S. Food and Drug Administration.

These complications (depending upon method used) include the need for frequent application to achieve physiological effectiveness, the requirement to capture and handle animals, the need for precise annual timing in administering contraceptives, the current cost of contraceptive programs, and the potential for liability relating to consumption of meat from animals treated with contraceptives or exposure of the public to unrecovered delivery devices (e.g. darts which miss their target and contain viable product). Other concerns involve the as yet unproven system for delivery of sterilants to wild, free-ranging deer, developing adequate monitoring and assessment techniques to determine program effectiveness, and the unknown behavioral (and ecological) effects of sterilization relative to altering natural deer regimens and ecosystem roles. Under controlled

conditions current contraceptive technologies may be successfully applied. Rapid developments in this field suggest broader potential for application in the future.

Trapping and Removal/Relocation - This alternative would provide for the live capture and relocation of deer out of areas in which they pose problems to other predetermined locations. Live capture and relocation would be labor intensive, would in all likelihood have to be undertaken annually in order to be effective, and would be costly ($400/animal). Deer populations elsewhere are high, and finding suitable habitat into which deer could be relocated without affecting established herds would at this time be unlikely. Physiological trauma and deer mortality in capture and handling would be unavoidable, and predicted loss of transported animals after relocation would be high.

Restore Predators - Restoration of the predators that once were native, such as the eastern cougar, would occur as an attempt to restore ecological balance where altered by the activities of man. Where taking place, restorations have usually occurred in relatively large undisturbed or isolated areas that are not experiencing significant use or adjacent land development pressures. Most deer predators require both suitable habitat as well as large natural areas in which to establish viable populations. These conditions would not be satisfied within Montgomey County.

Alternative Matrix

The following matrix is presented to give the reader a brief encapsulation of alternatives in comparison with one another, and is not intended to comprehensively represent or suggest all possible consequences of doing so.

Deer Management Alternatives Matrix

Deer Management Alternative	Likely Result	Cost of Implementing	Time Required to Get Results	Area of Coverage	Comments
Maintain Status Quo	Unknown.	None to County, costs borne by county residents that experience garden damage and crop losses, auto damage, and loss of natural resources.	Unknown.	County-Wide.	If deer population decreases from natural causes deer-human conflicts will decrease; if population remains stable or increases conflicts will remain or increase.
Repellents	Limited, restricted to small areas.	None, but material may be costly to user. $12 - $100 per acre per application	Possibly immediate; requires frequent reapplication.	Specific problem areas.	Displaces but does not decrease deer.
Fencing	May achieve some results in limited areas.	Varying initial and yearly maintenance costs. $185 - $5,000 per acre plus $0 - $200 annual repairs	Possibly immediate	Specific problem areas.	Restricts/excludes deer in specific areas. May increase impacts in other areas.
Habitat Alterations	Alter deer behavior.	Low/high depending on scope. highly variable	Long term.	Most likely site-specific.	Useful in limited area. Would impact wildlife other than deer.
Supplemental Feeding	In absence of other actions can increase number of deer locally.	Costly, depending on scope. approx. $6.50 per deer per month	No result in terms of reducing numbers of deer.	Few, if any areas where it would be desirable.	Does not reduce number of deer. May concentrate deer, creating disease or parasite problems.
Modify Legal Harvest	Lower deer density: extent and rate depends on State regulation of bag limits, season lengths, sex restrictions, areas open.	Minor if any costs, since process is already accommodated in system.	Immediate and long term, if conducted regularly.	County-wide on lands open to hunting	Minor beneficial impact on areas closed to hunting. Major elsewhere.
Agricultural Damage Permits	Can reduce deer depredation on agricultural lands.	None to Montgomery County. Cost borne by MD-DNR.	Immediate and long term, if conducted regularly.	County-wide on lands where operators participate.	Deals mainly with deer causing damage problems

Deer Management Alternative	Likely Result	Cost of Implementing	Time Required to Get Results	Area of Coverage	Comments
Direct Reduction	Reduced numbers of deer in specific areas.	Costly, depending on manpower and methods used. special hunt - $43 - $60 per deer selective culling - $74 - $235 per deer	Immediate and long term, if conducted regularly. Will require periodic use.	County-wide on lands where operators participate.	Effective in specific problem areas.
Contraception	May achieve some results in limited areas.	Currently costly in materials and manpower. $150 - $1000 per deer	Long term.	Small Problem areas with confined animals.	Techniques/materials not standardized. Still in research/experimental stages. Requires Federal and State approval.
Trapping/relocating	Potentially can reduce deer.	Very high. $113 - $570 per deer	Immediate and long term with continuing removal.	Problem areas and problem animals.	Unsatisfactory and costly on broad scale. Requires State approval. Few/no release sites available.
Restore Predators	Unknown.	Costly, physically & socially.	Long term.	Unknown.	Require Federal/State approval. Difficult, likely impossible to implement given urbanized nature of most of the County.

Implementation of Management Alternatives

There is no single agency that can effectively implement these alternatives across the landscape of private, state, county, and federally owned land that makes up Montgomery County. DNR has the legal mandate and legislated authority to manage deer populations and therefor regulates deer management alternatives that involve population management. However, they are not required to play any role in the implementation of other alternatives such as fencing or repellents. Controlling deer impacts in Montgomery County will require a cooperative effort between private landowners and government agencies using a variety of alternatives to address the various impacts of deer where they occur. Farmers and homeowners, who's properties are being impacted by deer, need to become educated in available methods of reducing deer impacts and assume the responsibility to apply these methods to their properties. Part II of this management plan addresses the educational component of this process. Government agencies that manage parkland and open space need to apply appropriate management alternatives to the properties under their control.

Implementation of Management Alternatives - M-NCPPC

The Montgomery County Department of Parks will monitor deer impacts on County parkland and in cooperation with the Deer Management Work Group, evaluate, choose and apply appropriate management alternatives. Alternatives used will no doubt include the full scope of those discussed above. A number of management alternatives have already been applied to County parkland. Ornamental plantings at the Brookside Botanical Gardens have been protected from severe browsing by the use of deer repellents and the installation of a deer proof fence. The Pope Farm Nursery is also scheduled to be fenced.

The Role of Parkland in Deer Management

About 70 square miles (approximately 48,000 acres) of Montgomery county are devoted to parkland and open space. About sixty percent of this land (27,763 acres) is owned and operated by the Montgomery County Department of Parks, and is spread over 320 parks, ranging in size from the 3,600-acre Little Bennett Regional Park near Clarksburg to the 1/10-acre Philadelphia Park in downtown Silver Spring.

These parks provide habitat for wildlife and play an important role in the size and distribution of deer populations throughout the county. Evidence suggests that many deer problems in the county occur adjacent to parkland. Deer-auto collisions occur where roads transect parkland and many of the complaints of crop or ornamental plant damage also occur near parkland. No effort to reduce deer-human conflicts in the County can succeed without addressing deer populations within parks.

An important issue concerning deer and parkland is a growing concern over deer impacts on native plant and animal communities. Dense deer populations may negatively impact forest regeneration, natural diversity, native plant and animal communities, and rare, threatened and endangered species. Regardless of other concerns, various park agencies may find it necessary to implement deer management alternatives including population management in areas of parkland where it is determined that resources are being negatively impacted.

While the Montgomery County Park Commission does not allow hunting on parkland as a rule, it has the authority to open parkland to hunting and has done so in the past. One county park, Dickerson Conservation Park, is currently operated, in cooperation with DNR, as a public hunting area and has been operated as such for over ten years. The department of parks views population management as a resource management tool to be used where necessary to achieve desired goals.

Montgomery County also incorporates Federal, State, and municipal parkland. Included among these are the Chesapeake and Ohio Canal National Historical Park (4,184 acres), Seneca Creek State Park (6,000 acres), and eleven municipal parks (total of 2,766 acres).

The County will work with other park agencies to encourage their cooperation in efforts to reduce deer-related problems in Montgomery County.

Implementation of Population Management Alternatives

Lead agency DNR; participating agencies - M-NCPPC, M-NCPPC Park Police, Seneca Creek State Park

Public education on the use of repellents or fencing to protect property and crops, and efforts to reduce deer-auto accidents with public service announcements and warning signs are important steps in reducing deer-human conflict but they do little to resolve the problem of overpopulation. If deer populations continue to increase, it is likely that deer-related conflicts will continue to increase. Habitat will degrade and in the long run the deer population will also suffer. A program of population management can reduce both deer-human conflicts and deer impacts and must be considered as a tool in the long term reduction of deer-related conflicts in Montgomery County.

A number of options are available to reduce deer populations. Of the eleven management alternatives discussed above, three were determined to be practical and effective in reducing deer numbers.

- Modify Legal Harvest
- Deer Depredation Permits
- Direct Reduction (use of Sharpshooters or special hunts)

Action 17. The Deer Management Work Group will review bag limits on deer in Montgomery County on an annual basis to ensure that current limits are appropriate to deer management goals where hunting is allowed. Work through appropriate DNR channels to make changes to bag limits as necessary.

Action 18. DNR, will work to coordinate efforts between agricultural community and local hunters to open more private land to hunting in order to 1) Augment the legal harvest during the regular hunting season; and 2) make more efficient use of DNR agricultural depredation permits.

Action 19. The County will encourage State and Federal Park officials to cooperate in efforts to reduce deer-related problems in Montgomery County.

Action 20. Develop guidelines for the implementation of Direct Reduction management on county parklands (Appendix IV).

Action 21. On an annual basis, the Deer Management Work Group will review data on deer-auto accidents, damage complaints by property owners, and impacts on natural communities. Using this information the group will identify "hotspots" where deer impacts are most severe and make recommendations on implementing appropriate management alternatives at specific locations. The Most recent Deer Management Annual Report and Recommendations is available on the web at: www.mc-mncppc.org/environment/deer.

Criteria for Implementing Direct Reduction Management on Parkland

The complex nature of deer-related problems in Montgomery County makes the designation of hard and fast numerical criteria problematic. Ideally we might set a criterion based on deer population densities, as for example, direct reduction management will be initiated where the population density exceeds 30 deer per square mile. Deer density, however, is difficult and expensive to estimate over an area as large and fragmented as Montgomery County. Additionally, it is feasible that due to juxtaposition of habitat, roads and housing, an area with higher deer densities may have relatively few deer-related problems, while an area with lower deer densities may have a higher incidence of deer problems. If the goal is to reduce deer-human conflicts it may be better to chose criteria based on the number of deer-auto collisions, or the number of deer damage complaints recorded for an area. However, here again, it is hard to set hard and fast numerical criteria. At what number of deer-auto collisions do we initiate action?

The threshold at which action is called for is driven by human values and tolerance levels that may shift over time. We believe that the guidelines set out below will serve to identify and prioritize areas where population management is needed.

Procedure for Recommending Direct Reduction Management on County Parkland

1. Data on deer-auto accidents, damage complaints by homeowners and farmers, and impacts on natural communities will be used to determine where deer problems are most severe.

2. These areas will be targeted as potential sites for direct reduction management and prioritized according to the severity of the problem, for example a site posing a public health hazard such as a high number of deer-auto collisions would receive a higher priority than damage to backyard gardens.

3. Sites given the highest priorities will be studied further. Deer population surveys and vegetation studies will be used to evaluate if deer densities are too high and if deer are negatively impacting the natural vegetation.

4. DNR will take the lead to evaluate sites to determine deer population parameters and make recommendations on the extent to which the deer population should be reduced. This estimate will be used to set specific short and long term reduction goals for each site.

5. On an annual basis, a list of sites recommended for direct reduction management will be submitted to the Director of Parks.

6. Decisions on the implementation of direct reduction management will be made by the Superintendent of Parks who will notify the Park Commission of any pending management actions.

7. Public input will be gathered and assessed. Public Meetings may be held. These meetings provide information to the public and offer a forum through which their concerns and questions can be addressed and they encourage public input into the design and implementation of specific management programs. Public input may also be gathered through direct mailings to the community when the number of residents affected is small.

8. Upon approval by the Superintendent of Parks, a program of direct reduction will be implemented. DNR maintains technical expertise and experience in conducting direct reduction management in urban park settings and will assist as a consultant and technical advisor in the design and execution of any managed hunts and/or use of sharpshooters (Appendix IV).

9. Data collected in future years will be used by DNR and M-NCPPC staff to evaluate and fine-tune management actions at specific sites.

Part IV - Deer Impact Data

Materials and Methods

This plan calls for the Montgomery County Deer Management Work Group (DMWG), on an annual basis, to review deer-impact data. The following explains what data is used and how these data are collected and analyzed. The Most recent Deer Management Annual Report and Recommendations is available on the web at: www.mc-mncppc.org/environment/deer.

Assessing Deer Impacts

The DMWG collects data on deer-related vehicle collisions, agricultural crop damage, damage to home landscaping and damage to natural vegetation. The locations of deer-related vehicle collisions, agricultural crop damage complaints, and homeowner complaints are mapped or otherwise geographically analyzed to determine where existing problems are most severe. The following sections give information on the data collected and how that data is interpreted.

a) Deer-vehicle Collisions

Deer-vehicle collisions (DVCs) represent important safety concerns including the potential for personal injury and death. For this reason reducing deer-vehicle collisions is a primary objective of the County's Deer Management Plan. Data on DVCs are collected from the following sources.

1. The Montgomery County Police Department (MCPD) keeps records on deer collisions on county roads that require police response as well as dead deer seen on roads by police officers and reported to the Division of Animal Control (Animal Control) for pick-up. The MCPD data, because it includes data on collisions in which the deer are not necessarily recovered, includes the most complete numbers for county roads but does not include all deer collisions on state roads or the many DVCs that go unreported. The data is analyzed by the MCPD and an annual report is issued. A copy of this report is sent to the DMWG and included in the appendix of this report.
2. Animal Control is responsible for picking up dead deer on county roads. Detailed location information on each pick-up is provided to the DMWG in an annual summary report. This data is mapped to determine the distribution of deer-vehicle collisions on county roads.
3. Road-killed deer on state roads within the county are picked up by the State Highway Administration (SHA). This data was not available for 2002 due to changes in collection protocol but will be provided to the DMWG and mapped in the future.

The data provided by the above agencies in some cases is complementary and in other cases overlaps considerably. Due to the detailed location information provided, the flexibility of the database, and in order to eliminate overlap, only Animal Control and SHA data is used for mapping. The distribution of deer-vehicle collision locations is used to help delineate hotspots of high deer density and activity in the county.

In addition, this data is shared with the Department of Public Works and Transportation (DPWT). Where appropriate, recommendations are made to implement measures to attempt to reduce the numbers of DVCs along identified stretches of road.

b) Citizen complaints

Citizen complaints are received by a variety of agencies including DNR, M-NCPPC, local nature centers, the Montgomery County Cooperative Extension Service, The Maryland Nuisance Wildlife Information Line and the Montgomery County Council Office. Often, calls are referred from one agency to another. Consequently, there is no single database to keep track of this information.

Phone calls received by the M-NCPPC through the phone number listed on the brochure "Living with White-tailed Deer in Montgomery County, MD", represent a sample of these calls. Location information is recorded to identify the distribution of citizen complaints throughout the county. This representative sample of calls is also used to document caller concerns.

c) Damage to Agricultural Crops

Farmers and the County Cooperative Extension Service monitor damage to agricultural crops. Average yields over time are monitored for purposes of crop insurance. Deer management permits (DMP's) are issued by DNR to landowners who are experiencing excessive deer damage to agricultural crops. The permit allows the landowner to harvest deer outside of state hunting seasons and bag limits. Records are kept of the number of deer harvested on these permits each year and an annual report including the mapped locations for DMP's issued in Montgomery County is sent to the DMWG. This information is transferred to The DMWG's deer incident map and used to track locations of high crop damage. Additional information is gained through interviews with farmers.

d) Damage to Natural Vegetation in M-NCPPC Parks

1. The M-NCPPC, Montgomery County Natural Resources Management (NRM), initiated a study in 1995 to identify and document the impacts of deer on natural vegetation in the county. Twenty (20) permanent study plots have been established in various parks and habitats in the county. Each study plot is 20 meters by 20 meters in size. The plots were established in pairs; one plot is enclosed in deer proof fence the other plot is not and serves as a control. Data collection follows protocols from the Manual for Monitoring Vegetation on Public Lands (Storm 1992). Between 1996 and 2000 data was collected on overstory and sapling tree species, seedlings of tree and shrub species, shrub cover, ground and vine cover and herbaceous species. Currently data is collected on seedlings, canopy and understory cover. By comparing changes in vegetation inside and outside of these deer exclosures over several growing seasons, NRM staff is able to document and monitor the extent to which deer are altering park vegetation and correlate these impacts with local deer densities.

2. In early April 1996 additional study plots, of a different type, were established in parks to gather site specific data on the availability and use by deer of woody browse (stems and twigs of woody plants eaten by deer). The availability and use of woody browse in winter is a useful indicator of overall deer impacts on woody vegetation. A series of 1.67 meter radius plots was established in each park and inventoried using a twig count method (Storm 1992). All twigs 2.5 centimeters or greater in length and less than 1.5 meters above the ground are examined. The number of browsed and unbrowsed twigs for each woody species in each plot is recorded. The total of browsed and unbrowsed twigs represents the available browse. A ratio of browsed to total twigs is expressed as a percentage of available browse that was consumed. Additional study plots are added in new parks. Due to the extensive size of our park system all plots cannot be surveyed every year.

3. In 1993-94, 1995-96 and 1997-98 staff from the Maryland DNR Natural Heritage Program surveyed selected Montgomery County Parkland for Rare, Threatened, and Endangered (RTE) plant species (Weigand, 1997). As part of this work, observations were recorded about the condition of plant communities within these parks. Observations include the extent to which deer are impacting plant communities and the threat posed to RTE plant species. A report containing this information is provided to M-NCPPC for each inventory.

e) Lyme Disease

Citizen concern about the increasing incidence of Lyme disease in the county has increased in recent years and the DMWG is tracking data on this public health issue. Lyme disease is a bacterial disease transmitted to animals and humans by ticks, primarily the blacklegged or deer tick (Ixodes scapularis).

The nymph stage of the tick, which is active from late spring through summer, is most likely to transmit Lyme disease. Symptoms can resemble the flu, severe arthritis and even Alzheimer's disease. When caught early, Lyme disease is easily treated with antibiotics.

The Maryland State Office of Veterinary and Public Health keeps data on the number of confirmed cases in each county. The DMWG contacts this office annually to obtain these records and receive an update on data collection information and trends. In addition the DMWG attempts to keep current on issues related to Lyme disease and make this information available through our public education efforts.

Assessing Deer Populations

Deer population surveys provide important information for further evaluating hotspots, developing recommendations, establishing management goals and evaluating management efforts. Deer population counts are conducted in county parks identified as hotspots using spotlight counts, walking surveys and aerial counts. Spotlight counts are counts taken at night from vehicles using high-powered spotlights. Walking surveys involve walking park areas of known size and counting deer seen along transects. Aerial surveys are conducted from aircraft and involve counting deer visually during the day when snow is on the ground or using forward-looking infrared (FLIR) technology to videotape deer and counting is done from the videotape at a later date. In each case the number of deer observed is recorded. Spotlight counts and walking surveys are repeated several times to get an average number. Due to costs of using aircraft, aerial surveys are generally conducted only once a season.

Using the report maps, park staff delineates the area covered, determines the area of deer habitat present and determines the number of deer per square mile of habitat. To determine the area of deer habitat GIS is used to measure the acreage of land that is forest, field, or cropland. Housing areas are excluded. Park staff then estimates what the population will be after this year's fawns are born. Biological data collected during direct reduction management programs is used to determine doe: fawn ratios and other parameters necessary to better predict population growth specific to each park. These data are used to establish short and long-term population management goals.

It is important to note that while the population survey methods used are currently the best available to estimate deer densities in our area, the results are only estimates. Aerial surveys in particular represent a one-time snap shot of deer observed in the area at that time. As the technology improves so will the accuracy of the data. Recent studies have demonstrated that surveys most often under count deer, resulting in estimates lower than actual densities (Jay McAninch, Minn. DNR, personal communication). For the purposes of the recommendations outlined here, the population data should be considered as the minimum density for each site surveyed.

Additional data collected by DNR on the number and sex of deer harvested in the County is used to determine population trends on a countywide (rather than park by park) basis. These data are also used to evaluate if changes to hunting regulations recommended in past years are having desired effects. Additionally, in the winter of 1996, DNR initiated a five-county Regional FLIR survey. This survey, encompassing Montgomery, Prince George's, Anne Arundle, Baltimore and Howard counties, offers significant promise toward the development of a region-wide index to deer density. This index, when developed over time, will allow managers to track long-term trends in deer populations and concomitantly evaluate the effects of management recommendations on a landscape scale.

Developing Recommendations

Locations of deer related impacts (deer-related vehicle collisions, citizen complaints, agricultural damage, damage to natural vegetation) are mapped or otherwise captured geographically. Areas with the greatest concentration of deer-related incidents are identified as "hotspots". Additional areas may be identified for

management due to site-specific problems. In these cases the local problem is of great enough concern that it should be addressed even in the absence of other impacts. For example management action may be desirable for purposes of reducing vegetation impacts in parks that have resources of countywide significance or for an area identified as having an extremely high rate of crop damage, Lyme disease, etc.

Deer impact data, population data and other relevant information is used to develop a list of deer management options that might be used for each hotspot. A list of general and specific recommendations is developed.

General recommendations have countywide application and might include continued educational efforts, identification of areas where more data is required, adjustments to county or state regulations. Specific recommendations include management options that might be applied at specific locations such as local educational workshops for communities experiencing damage, use of fencing or reflectors on specific stretches of high-risk roadways, or the implementation of population reduction management on a specific parcel of land.

Determining Cultural Carrying Capacity

The goal of Montgomery County's Deer Management Plan is to reduce deer-human conflicts to a level that is compatible with human priorities and land uses. Biologists refer to the maximum population density at which deer-human conflicts are at acceptable levels as the cultural carrying capacity (CCC). CCC is driven by human values and tolerance levels that vary from location to location and change over time. As educational efforts outlined in the County's deer management plan move forward, citizens will learn how to better cope with and reduce deer impacts (i.e. by use of repellents, fencing, vegetation management, and improved driving habits); human tolerance for deer should increase accordingly. At the same time, as population management efforts are implemented (i.e. changes to state hunting regulations, managed hunts, contraception experiments), deer numbers will begin to stabilize and in some cases be reduced. It is presumed that at some point the deer population and human tolerance of deer will reach equilibrium. There is no way of determining this number before it is reached.

An important goal of the deer management program is to reduce the negative impacts of deer on natural communities in order to preserve the natural diversity of flora and fauna within our county parks. Different parks in the county serve different purposes. Conservation parks and other park areas designated as being of high natural value are the highest priority. Studies have shown that in forested areas where the goal is to preserve natural diversity, deer densities should be maintained at approximately 18-30 deer per square mile to allow for optimum forest regeneration and assure habitat for forest species (Tilghman, 1989). Because land-use in our parks includes affording the public the opportunity to see deer and enjoy them as well as preserving natural diversity the most appropriate number of deer will likely be at the high end of this number or slightly higher.

In park areas that serve other functions such as recreation, or that are small and/or of generally lower natural quality, deer impacts are of less concern therefore population management may not be a priority.

Results and Discussion of Deer impact data collected through 2003

Assessment of Deer Impacts

a) Deer-vehicle Collisions

Table 1 is a summary of Deer-vehicle collisions (DVCs) reported by the MCPD, Animal Control and SHA for the years 1994 - 2003.

Numbers of DVCs reported from specific roads can vary widely from year to year. For example a 1.5-mile stretch of Brink Road in 1996 and 1997 had one of the highest concentrations of DVCs in the county (18 and 21 respectively). In 1998 the same stretch of road had only 7. In 1999 the number increased to 11, in 2000 it was 9 and in 2001 it was 13 . It is likely that deer are responding to a number of natural and man-made conditions including crop rotation, acorn production, development or other pressures that can change drastically from year to year. This makes it difficult to establish patterns and to justify expensive long-term remedies for what may be temporary conditions.

Table 1. Deer-vehicle Collision Data 1994 - 2001

Source	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MCPD[1]	1,343	1,244	1,776	1,705	1,774	1,891	2,033	2,003	2,127	2,047
Animal Control	447	509*	521*	547*	631*	1,059*	1,112*	1,123*	1,194*	1,180*
SHA	211	192*	200*	390*	608*	572*	675*	713*	N/avail	341*

1 - number includes incidents where deer were struck but deer were not recovered.

* - -Mapped locations

Various sources as noted

Deer-vehicle collisions are widespread throughout the county. While DVC concentrations are identified and analyzed for remedial actions, these concentration points make up only a fraction of the total. DVCs are mapped using grids approximately 1000 feet square. In 2002 Animal Control recorded road-killed deer picked up in 754 grid blocks. Of the 754 blocks 86% (651 blocks) had only 1 or 2 DVCs. Ninety-five percent (95%) had three or fewer collisions. The vast majority of collisions countywide don't occur in concentration areas but are spread broadly over the county. Therefore, countywide efforts in education, improved driving habits, improved signage and road design are important to long-term, general reductions of DVCs.

DVCs continue to be high at several cloverleaf interchanges of Interstate 270. Due to high traffic volumes and high speeds it is likely that DVCs are especially dangerous at these location. Most of 270 is fenced but the fences must have breaks at exit ramps and vegetation growing within cloverleaves may attract deer. Methods to address these localized DVCs are being investigated.

b) Citizen complaints

The number of phone calls received by APHIS and the M-NCPPC from 1992-2003 are summarized in Table 2. It is important to note that the annual number of calls does not necessarily represent the level of concern. Since most citizens are only going to call this number once, each phone call represents a new household where deer have begun to cause citizen concern.

Citizen complaints range from concerns about deer-vehicle collisions to an increase in deer ticks and Lyme disease. By far the most often heard complaint from citizens is the damage done by deer to landscaping vegetation. An issue of growing concern to county residents is the increased exposure to Lyme Disease (see section on Lyme Disease below. Most calls (>75%) were from citizens living adjacent

to or within several blocks of parkland. The most common concerns are listed below and prioritized according to how frequently each concern was expressed.

1. Damage to landscaping and gardens has increased to unacceptable levels.
2. The number of deer ticks in the area has increased the risk of contracting Lyme disease (callers voicing this concern often had a family member or neighbor with the disease).
3. Deer-vehicle collisions are a major concern
4. Deer have become extremely bold and can no longer be frightened from yards. In some cases deer are viewed as posing a physical threat, especially to children.
5. The amount of deer droppings in yard has reached a point that is intolerable and a potential health threat for children playing in grass.
6. The number of deer feeding on property has increased in recent years. (Many callers expressed the desire to have numbers reduced)
7. Repellents and barriers are often ineffective and/or unacceptable at current deer numbers.

In addition to phone calls and letters from individuals the county received requests from several community groups to have deer population management conducted on parkland adjacent to their communities.

Table 2. Citizen deer complaints received by APHIS and M-NCPPC from Montgomery County citizens, 1992- 2003.

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
# calls to Aphis	1,123	166	211	125	175	136	134	57	52	58	72**	54
# calls to M-NCPPC	U/A	U/A	U/A	48	82	47	54	42	47	43	43	31
Total calls	U/A	U/A	U/A	173	257*	185	179	99	99	101	>115	85

* M-NCPPC announced its first year of managed deer hunts in 1996; this event likely led to increased number of calls.
** data incomplete only January – September 2002.
Note: these numbers do not include several hundred annual calls to MD DNR offices. (pers. Comm. P. Peditto)
Source: U.S. Dept. of Agriculture, AHPIS, Annapolis, Md and M-NCPPC

c) Damage to Agricultural Crops

Agricultural producers have a number of methods that they can utilize to reduce deer damage. Those that utilize small acres for high priced crops may find the use of fencing to be cost-effective. The use of dogs contained by underground or invisible fences has been very effective in nurseries and orchards. Farmers raising row crops often manage too much land to make these methods cost effective. Since many sites experiencing agricultural damage are located outside of the urban zone where hunting with firearms is permitted, an approach to reducing deer impacts would be through increased bag limits, improvements to the Deer Management Permit (DMP) program, and increased efforts to manage deer populations on private property. Where agricultural damage does exist in the urban zone it is often adjacent to parkland or other private open space. In these cases where the use of fencing and/or dogs is not cost effective, cooperative efforts between the agricultural producer and adjacent landowners may be needed to reduce deer numbers and damage.

An informal survey of farmers operating in hotspots in 2002 by the County Extension Agent identified the following information.

1. Crop loss due to deer is being evaluated by farmers in several ways including the use of harvest machinery equipped with global positioning (GPS) systems. GPS systems can accurately pinpoint yields in fields and portions of fields with about a 1% margin of error.
2. Crop losses ranged from minimal in some areas to 100 % in certain fields. Losses countywide probably average 10 to 15% with corn and soybeans sustaining heavy losses due to the high number of acres of these two crops. Other crops impacted include vegetables, small fruit, tree fruit, ornamentals, and hay.
3. Some farmers are modifying the crops they choose to plant in certain fields or in some cases abandoning certain fields altogether.
4. Damage levels reported in 2002 were higher than the previous two growing seasons. This is typical of crop years with less than average rainfall. Deer damage is most noticeable and has a proportionally larger impact on crop production during times of drought or other stress when crop production is marginal.
5. A formal written survey will be mailed to farmers at the end of the 2003 cropping season.

In 2003 Deer management permits (DMPs) were issued at most of the same locations in the county as in previous years. Table 3 shows the number of deer harvested using DMPs from 1993 to 2002. The decrease in deer harvested with DMPs in 2001 is likely the result of several factors. 1) Lower numbers of deer and depredation where DMPs have been used regularly, 2) Lack of ability to use DMPs within the urban zone (the urban zone is the southeast two-thirds of the county in which the discharge of firearms requires a county police exemption). Agricultural damage in the urban zone may not be well represented by DMP's. Unless a farmer can get an exemption to the weapon ordinance a DMP may be of limited use and landowners may be reluctant to apply for them.

Table 3. DMPs issued by DNR in Montgomery County 1992-2002

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
# deer harvested on DMPs	82	188	330	361	400	415	415	432	291	223	439

Source - DNR

As a result of DMP use and regulation changes over the past several years, some farmers have experienced a drop in deer numbers and depredation. A 2001 survey of Maryland farmers released by the Maryland Agriculture Statistics Service showed that since 1996 there has been some reduction in crop losses due to deer statewide. The decrease in damage varied depending on the crops grown. Unfortunately the central region of the state, including Montgomery County, did not show as much improvement as some other areas. In the central region, losses per acre of soybeans decreased by 19% and losses of corn increased only slightly (4%), while losses of wheat increased by 200%. This may be because farmers are more restricted in their use of DMPs within these more urban areas. A new survey is planed for early 2004.

d) Damage to Natural Vegetation in M-NCPPC Parks

1. Data from 20 permanent study plots were collected during the 1995-2001 growing seasons. Data analysis strongly suggests the following: 1) Deer impacts are reducing height, number and species diversity of seedlings within our parks, 2) understory density has been dramatically reduced and 3) The effects appear greatest in parks with higher densities of deer. Studies done in Pennsylvania, Virginia and elsewhere have shown that an overabundance of deer can profoundly affect the species composition and density of forest understory (McShea and Rappole 1997) and the regeneration of forest trees (Tilghman 1989). This in turn affects wildlife diversity, particularly for forest interior

birds, small mammals and other species that nest in the understory or on the forest floor (DeCalesta 1994; McShea and Rappole 1997). The development of a prominent browse line in several of the parks further suggests that deer are an important factor in the reduction of saplings and seedlings. Figure 1 illustrates the difference in vegetation density inside and outside of study exclosures after approximately 6 years.

Figure 1 Photos taken inside and outside of deer exclosure showing difference in forest understory.

Within deer exclosure at Black Hill Regional Park- Understory vegetation includes dense growth of shrubs and seedlings

Outside of deer exclosure at Black Hill Regional Park Understory vegetation has been nearly completely consumed by deer.

2. Ninety-three browse plots were inventoried during late winter 2003 to determine the availability and usage of woody plant browse. These data are summarized in table 4 along with data from previous years. Percent browsed is considered heavy at 50-100%, moderate at 10-49% and light at 1-9% (Aldous, 1944). Qualitative assessment of long-term trends of this data set strongly suggests that total available browse is slowly being reduced and that the percentage of browse consumed each year is slowly increasing in parks where deer populations are not being managed and that population management is reversing this trend.

3. Reports issued by staff from the Maryland DNR Natural Heritage Program entitled "Inventory of Rare, Threatened and Endangered Plant Populations and Significant Habitats on Select Park Lands of the M- NCPPC in Montgomery County, Maryland" (1995,1997, 1999) comment on the high density of deer present in many of the parks surveyed and the impacts on plant communities. The following excerpt from the 1995 report summarizes their observations.

   "Every park surveyed during this project has an overpopulation of deer. The severity of this problem varies from one park to another, but it represents a considerable threat to the native vegetation in every park. Browse lines are evident in forested areas, indicating deer populations have exceeded the carrying capacity of the land...As a result of overpopulation, and selective browse habits, deer are determining the dominant vegetation in some areas. Plants that are favorite food, such as lilies and orchids, are declining and becoming locally rare. Conversely, plants that are seldom browsed are becoming more dominant. …adverse changes to the floristics of natural areas are occurring. If quality of the vegetation and integrity of natural communities is to be stabilized over the long term, acceptable methods of deer control must be implemented."

Table 4. Summary of browse availability and use by deer in selected parks Winter 1996 – 2003

Shaded cells show years where population management was conducted

Percent browsed is considered heavy at 50-100%, moderate at 10-49% and light at 1-9% (Aldous, 1944).

Park	Available woody stems per plot							% browsed						
	'96	'97	'99	'00	'01	'02	'03	'96	'97	'99	'00	'01	'02	'03
Little Bennett Reg. Park (LBRP)	113	78	89	57	63		104	42	36	42	44	41		41
Ag/history Farm Park (AHFP)	89	55	44	74	85		32	47	55	76	48	45		55
NBranch SVP (NB)	75			40	124		25	70			71	44		46
Rachel Carson Cons. Park (RCCP)		84	67	79	115		87		33	47	53	29		34
Black Hill Reg. Park (BHRP)		121	47	112	82	13			44	67	57	39	48	
Goshen Rec. Park		109	112	55	36		108		40	42	53	31		37
Rock Creek RP Lake Frank Area	32	53 65	153 65	20	60		41	39	51 46	62 60	52	23		43
Blockhouse Pt CP		103	90			147			35	50			39	
Cabin John RP	104		104			108		23		33			50	
Hoyles Mill CP						56							53	
Nw Branch SVP	63		252			235							64	
Rock Creek SVP	119		75			91			51	38			43	
Wheaton RP		160	97	148		95			35	32	32		45	
N Germantwn SP						99							83	

Source M-NCPPC Natural Resources Management

e) Lyme Disease

Reported cases of Lyme Disease in Montgomery County for the years 1995-2003 are included in table 5. The number of cases of the disease in Maryland increased between 1995 and 2000. Numbers dropped slightly for the past several years. This data, however, is likely incomplete. In order to be recorded, a case of Lyme disease must first be reported by the diagnosing physician to the appropriate county or state agency and it must meet certain rigorous criteria. It is generally believed that Lyme disease is underreported in Maryland. In addition, many cases that are reported fail to meet the strict criteria and are not included in annual totals. Efforts continue to improve the accuracy and completeness of this data.

Personal protection from ticks remains the best defense against the disease. General information is available at: www.cdc.gov. Two new products have been introduced on the market to help reduce the number of ticks in an area. Information is available at: www.maxforcetms.com and www.crdaniels.com/dandux/4post/intro.htm. These tick control systems, should become useful tools in reducing the incidence of Lyme Disease in parks or communities where citizens wish to purchase and maintain them.

Table 5. Number of confirmed cases of Lyme Disease in Montgomery County by Year

1995	1996	1997	1998	1999	2000	2001	2002	2003
26	56	42	52	55	80	69	67	49

Source: Maryland State Center for Veterinary and Public Health

Deer Populations

Table 6 shows change in populations in selected County Parks over time. In most cases where no population management is being administered the populations generally rise over time. Population management has been initiated over the past 8 years in several parks in the county. Population surveys show that these management efforts are reducing deer populations. In most cases these populations are still high and without continued management would begin to increase again. Table 7 lists parks where population management has been conducted, the method of management used and the numbers of deer harvested at these operations during FY 2001- 2004.

Harvest records from DNR shown in table 8 indicate that deer populations continue to increase countywide. Changes made to deer bag limits (the number of deer a hunter is permitted to harvest) over several years were designed to increase the number of female or antlerless deer harvested. In the long-term it is the harvest of does that is required to reduce deer numbers. The number of antlerless deer listed in Table 8 has increased indicating that these efforts are working though it will take several years or more to know what effect this will have on the population over the long-term.

Several diseases impact deer populations to a limited extent. Epizootic Hemorrhagic Disease (EHD) kills small numbers of deer in Maryland each year but is not likely to have a major impact on countywide deer populations. In recent years Chronic wasting disease (CWD) has spread to wild deer in several western and mid-western States and Canada. CWD is a serious disease of the central nervous system that causes death in deer and elk. Similar to "Mad Cow Disease" there is no evidence that it is transmissible to humans. DNR has been monitoring deer in Maryland for CWD and to date, no evidence of the disease has been found. In addition to the increased monitoring, DNR is drafting new regulations to restrict the possession, importation, exportation and transportation of live deer in Maryland. The movement of CWD infected captive cervids has been linked to the spread of the disease. More information, particularly for hunters, is available on The Chronic Wasting Disease Alliance Web site (www.cwd-info.org). In addition, DNR has developed a question and answer sheet which is available on the DNR Web site at: www.dnr.state.md.us/wildlife/cwdinformation.html

Table 6. History of deer population density estimates in selected parks

Estimates of population density are made in the fall and winter using a combination of spotlight counts, Visual counts from helicopter and forward-looking infrared (FLIR) surveys from helicopter.
Shaded cells show fiscal years in which population management was conducted

	spring 1996	spring 1997	spring 1998	spring 2000	spring 2001	spring 2002	spring 2003	Estimate fall 2003
Park	**#/sq.mi**	**#/sq.mi**	**#/sq.mi**	**#/sq.mi**	**#/sq.mi**	**#/sq.mi**	**#/sq.mi**	**#/sq.mi**
Little Bennett RP	125	142	101	88	63	61	37	49
Ag/History Farm Park	163	259	155	100	128[1]	108	78	102
North Branch SVP[2]	73		116	124	110	107	130	156
Black Hill Reg. Park[2]			138	170	85	34	86	115
Rock Creek RP	118	170	135		215	155	136	179
Rachel Carson CP		207		113	133	100	71	94
Wheaton		60	51	Not avail.	71	75	83*	99
Northwest Branch						220	242*	266
N. Potomac (Muddy Br. SVP)			71	Not avail.	105	127	139*	154
S. Potomac (C&O canal)							140	
Goshen Recreational Park		136		153	169	127	91	120
Upper Paint Branch SVP					47	53	63*	70
Blockhouse Point Cons Park		68				81	85	112
N. Germantown Park						196	215*	237

* estimates based on 2001 data

[1]Increased numbers in 2001 and 2002 are likely due to development adjacent to park pushing in additional deer.

Table 7. Deer harvests for M.C. Park's Deer Population Management Program 2001 - 2004.

Park	Management Action	Harvest FY 2001	Harvest FY 2002	Harvest FY 2003	Harvest FY 2004
Little Bennett Regional Park	Managed Hunt	286	112	134	99
Agricultural History Farm Park	Managed Hunt	171	75	58	58
Black Hill Regional Park	Sharpshooting	120	40	-	-
North Branch Stream Valley Park	Sharpshooting	138	33	50	72
Rock Creek Regional Park	Sharpshooting		141	114	101
Rachel Carson Conservation Park	Managed Hunt		129	70	61
Goshen Recreational Park	Mgd hunt by farm lessee		39	65	68
Blockhouse Point Cons. Park	Managed Hunt			88	82
Northwest Branch SVP	Sharpshooting				187
Woodlawn Special Park	Sharpshooting				39
Hoyles Mill Conservation Park	Managed Hunt				81
Bucklodge Forest Cons. Park	Managed Hunt				26
Totals		715	569	579	874

Source – M-NCPPC

Table 8. Deer harvest in Montgomery County FY 1993-2002 and Percent of harvest that was antlerless.

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
total number	1600	1635	2081	2306	2819	2624	3304	3609	3670	3,546	4,385
# of antlerless	717	768	923	1013	1511	1504	1961	2138	2255	2,305	2,890
% antlerless	45%	47%	44%	44%	54%	57%	59%	59%	61%	65%	66%

Source - DNR

Annual Report and Recommendations

The Most recent Deer Management Annual Report and Recommendations are available online at: www.mc-mncppc.org/environment/deer.

Literature Cited

DeCalesta, D. S. 1994. Effects of white-tailed deer on songbirds within managed forests in Pennsylvania. J. Wildlife Management. 58: 711-717

Tilghman, N. G. 1989. Impacts of white-tailed deer on forest regeneration in northwest Pennsylvania. J. Wildlife Management 53: 424-453.

Aldous, S. E. 1944. Deer Browse Survey Method. Journal of Mammalogy. 25: 130-136

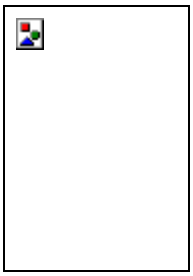
Storm, G. L. and A. S. Ross. 1992. Manual For Monitoring Vegetation on Public Lands in Mid-Atlantic United States. Penn. Coop. Fish & Wildl. Research Unit, Unitversity Park, PA

Hadidian, J., et. al. 1994. Report of the Task Force to Study White-tailed deer Management. Montgomery County Council, Montgomery County, Maryland. 57pp.

Gibbs, R., et. al. 1995. Comprehensive Management Plan For White-tailed Deer in Montgomery County, MD. M-NCPPC, M.C. Dept.of Park and Planning, Montgomery Co., MD. 80 pp

McShea, W. J. and J. H. Rappole. 1997. Herbivores and the Ecology of Forest Understory Birds. The Science of Overabundance: Deer Ecology and Population Management. Smithsonian Institution. Washington, DC

Wiegand, R. and P. Becker. 1997. Inventory of Rare, Threatened and Endangered Plant Populations and Significant Habitats on Select Park Lands of the M-NCPPC In Montgomery County, Maryland. MD Dept. Nat. Res., Annapolis, MD. 295 pp.



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Public Information Meetings on the Implementation of Deer Management Options in Montgomery County, Maryland

Summary of Comments and Nominal Group Technique Data

November 13, 1995

Introduction

This report summarizes the results of two public meetings held to discuss deer management in Montgomery County during which over 2300 individual comments were recorded from 222 citizens. Several dozen additional comments were received by phone and mail following the meeting.

Background

In April 1993, in response to concerns of county residents and interest groups about the number and activities of white tailed deer (*Odocoileus virginianus*), the Montgomery County Council created the White-tailed Deer Task Force to examine information relative to conflicts between deer and people in Montgomery County, and make recommendations on how to respond to these. The Task Force published its findings and recommendations in April 1994, in the Report of the Task Force to Study White-tailed Deer Management. The report listed deer-related problems that warranted attention, including damage to agricultural crops, deer-vehicle collisions, depredation to gardens and ornamental shrubbery, impacts to parks and other natural areas and public concern over issues such as Lyme disease.

As a result of this group's recommendations, the Comprehensive Management Plan for White-tailed Deer in Montgomery County. Maryland was jointly developed by the Maryland Department of Natural Resources Wildlife Division (DNR), the M-NCPPC Department of Parks, Montgomery County and the National Biological Service's Center for Urban Ecology. The goal of Montgomery County's Deer Management Plan is to reduce deer-human conflicts to a level that is compatible with human priorities and land uses. The plan lists eleven management options that could be used to address deer issues in the county.

Maintain Status Quo
Repellents/Scare Devices
Fencing/Physical Exclusion
Habitat Management
Supplemental Feeding
Modify Legal Harvest
Agricultural Depredation Permits
Direct Reduction
Contraception
Trapping and Removal/Relocation
Restoration of Predators

Meeting Format

Public meetings, co-sponsored by the Maryland Department of Natural Resources (DNR) and the Department of Parks, Montgomery County (M-NCPPC) were held October 24 and 25, 1995 at Gaithersburg High School and Winston Churchill High School respectively. The meetings were designed with two purposes in mind. One was to educate the public about deer impacts and management options. The second was to solicit individual comments from the public on which options they felt were acceptable for use in the county. The first forty-five

minutes of each meeting was devoted to informal education. A number of displays and written documents on deer-related issues and available management options were available to participants; experts from DNR and M-NCPPC were available to answer questions. Several formal presentations were then presented. County Council Member Nancy Dacek discussed the deer-related concerns that led to the development of the deer management plan. Dong Hotton, the state deer biologist with DNR, gave a presentation on deer biology and an overview of the deer management options. Participants then broke into small work groups to discuss and make comments on the different management options. Each of these work groups was accompanied by two staff persons, one to act as a facilitator and one as a recorder. As a final exercise, each group used a nominal group technique (NGT) to choose the management options that each thought were the most acceptable. Following the group sessions, closing remarks were presented by Josh Sandt, Director of DNR-Wildlife Division, Don Cochran, Director of Parks, Montgomery County and Rick Barton, Director of State Parks, DNR.

After the meeting comments were tabulated and summarized along with the results of the NGT. This information will be used in the decision making process to implement deer management in the county.

Summary of General Comments

Many participants voiced a strong opinion that action must be taken to reduce human/deer interaction and that controlling the population was an important part of that process. There were also many participants who suggested that citizens of Montgomery County must learn to tolerate such interactions and adjust to deer populations, rather than visa versa. Some participants felt that more education is necessary to better understand both the problem and effective methods of controlling the problem. There was also a request to improve knowledge of White-tailed Deer density within Montgomery County. Participants expressed an interest in further research of each option in order to maximize effectiveness. Other concerns include:

<u>Safety</u>

Specific safety concerns will be addressed for each option, however, public safety concern was repeatedly voiced regarding deer related vehicle accidents, disease transfer, and hunting within urban areas.

<u>Cost effectiveness</u>

Many participants favored options which were not only efficient but cost effective. Options such as Repellents, Fencing, and Habitat Alteration were supported for use by individual landowners, but not at a level which would incorporate tax dollars. These options were criticized for their high prices, ineffectiveness, and lack of addressing population management.

<u>Animal rights and cruelty to animals</u>

Many participants voiced an opinion that Modify Legal Harvest, Agricultural Damage Permits, and the use of Direct Reduction is inhumane. There were also participants who expressed an opinion that while they feel hunting is inhumane, it would be supported only after non-lethal methods had been implemented with little or no success. Cruelty to animals was also voiced as a concern associated with Trapping/Relocation and Reintroducing Predators.

Comment Summaries

During the small group sessions, citizen comments and concerns were recorded. The following is a summary of those comments. In order to condense the over 2300 comments that were recorded, some similar statements have been combined. The number in parenthesis represents the total number of citizens recorded with that comment or concern.

MAINTAIN STATUS QUO

Unacceptable (135)
Acceptable (29)
Ineffective solution to the problem (16)
More research necessary (10)
Public safety may be sacrificed (2)
Cost effective (l)

REPELLENTS

- Effective on a limited basis (63)
- Acceptable (36)
- Ineffective (34)
- Too costly (31)
- Moves overpopulation to other areas (21)
- Unacceptable (14)
- Will not effect population growth (12)
- Possibility of pollution (noise and chemical) (9)
- Public education necessary (8)
- Further experimentation-chemical and scare devices (3)
- May effect species other than deer (2)

FENCING

- Too costly (64)
- May be useful on a site specific basis (61)
- Acceptable (37)
- Unacceptable (32)
- Ineffective; Techniques must be improved (23)
- Will not effect population growth (15)
- Aesthetically unpleasing (6)
- Use of wildlife corridors in county planning (6)
- Moves overpopulation to other areas (6)
- May effect species other than deer (5)
- May effect property value (1)
- Encouraged for use before lethal measures (1)

HABITAT ALTERATION

- Acceptable (45)
- May be useful on a site specific basis (40)
- Ineffective due to the animals ability to adapt to environmental changes (26)
- Will not effect population growth (20)
- Too costly (20)
- Unacceptable (16)
- May effect species other than deer (l 5)
- Countywide changes are needed (5)
- Plan future development for wildlife compatibility (5)
- Further experimentation is needed (5)
- Public education is necessary (2)
- Necessary to develop a comprehensive management plan for use of habitat alteration in Montgomery County (1)
- Moves overpopulation to other areas (1)
- Encouraged for use before lethal measures (1)

SUPPLEMENTAL FEEDING

- Will not effect population growth (66)
- Unacceptable (53)
- Too costly (23)
- Acceptable (17)
- Concern for spread of disease (16)
- Acceptable for use during crisis situations only; to improve health within specific herds (10)
- May negatively effect natural deer behavior (8)
- Ineffective (4)

MODIFY LEGAL HARVEST

- Acceptable (76)
- Unacceptable (52)
- Effective only where hunting is permitted (23)
- Inhumane (20)
- Concern for public safety (20)
- Use of public park lands (16)
- Increase doe harvest (13)
- Acceptable only after non-lethal measures have been unsuccessful (7)
- Cost effective (5)
- Opposition to archery hunting (5)
- Ineffective in suburban areas (4)

- Encourage the use of Hunters Harvest Share (3)
- Use of archery hunts in urban areas (2)
- Open land which is currently not being hunted (2)

AGRICULTURAL DEPREDATION PERMITS

- Effective method of control (72)
- Unacceptable (33)
- Acceptable if abuse is restricted (15)
- Permit system must be more efficient (12)
- Acceptable only after non-lethal measures have been unsuccessful (11)
- Permit consistency necessary to effect population (9)
- Permit system needs to be expanded to residential homeowners (5)
- Listing of qualified hunters is necessary to facilitate permittee (5)
- Encourage the use of Hunters Harvest Share (1)
- Permit holders find it difficult to control population (l)

DIRECT REDUCTION

- Acceptable (42)
- Unacceptable (32)
- Acceptable on a site specific basis (19)
- Opposition to the use of sharpshooters (18)
- Support the use of sharpshooters (15)
- Acceptable only after non-lethal measures have been Unsuccessful (l2)
- Inhumane (11)
- Too costly (11)
- Encourage the use of Hunters Harvest Share (10)
- Encourage safe and humane measures (10)
- Ineffective (5)
- Use of archery hunts in urban areas (2)
- Implementation of such a program must be long term to succeed (1)
- Encourage such a program to supplement youth
- education/hunting experience (1)
- Increase doe harvest (l)

CONTRACEPTION

- Acceptable (47)
- Unacceptable (42)
- Too costly (35)A
- dditional research is necessary (23)
- Effective on limited herds (22)
- Unproven (13)
- Ineffective on unrestricted populations (9)
- Concern for safety of humans-consumption (8)
- Concern for trauma placed on animal (4)
- Biologically unsound (3)
- Ineffective delivery system (2)

TRAPPING/RELOCATION

- Unacceptable (67)
- Ineffective (42)
- Too costly (36)
- Concern for trauma and high mortality rate (29)
- Inhumane (18)
- No relocation sites (14)
- Acceptable (13)
- Additional research is necessary (4)
- Concern for the spread of disease (2)

RESTORE PREDATORS

- Unacceptable (130)
- Inhumane (13)
- Ineffective solution (l2)
- Acceptable (11)
- Acceptable on large tracts of land in rural areas (8)
- Concern for danger to humans & domestic animals (8)
- Too costly (4)
- May effect species other than deer (l)
- Additional research is necessary (1)

OUTCOME OF NOMINAL GROUP TECHNIQUE

Numbers were assigned as follows. Each participant could assign up to six points -three to their top choice, two to second and one to third. 'Total for all groups supporting" (column two) represent the total number of points assigned to that option out of a total of 1331 possible points. Column three is the precentage of the total number of points.

DEER MANAGEMENT OPTIONS	TOTAL FOR ALL GROUPS SUPPORTING	% OF PARTICIPANTS
MAINTAIN STATUS QUO	26	2.0 %
REPELLENTS	70	5.3 %
FENCING	135	10.0 %
HABITAT ALTERATIONS	112	8.4%
SUPPLEMENTAL FEEDING	6	.5 %
MODIFY LEGAL HARVEST	315	23.7%
AGRICULTURAL DAMAGE PERMITS	138	10.4 %
DIRECT REDUCTION	276	20.7 %
CONTRACEPTION	221	16.6 %
TRAPPING/RELOCATION	23	1.7 %
RESTORE PREDATORS	9	.7 %

NUMBEROF PARTICIPANTS : 222
NUMBER OF RESPONSES : 1331

The purpose of the nominal group exercise was to quantify comments from the citizens on the acceptability and perceived effectiveness for the different options. It is important to note that while this technique ranks preferences, the purpose of the exercise is not to choose the top ranked choices as the options that will be used to the exclusion of others. The Comprehensive Management Plan for Deer in Montgomery County. Maryland calls for the use of all viable options where and when they are most effective and efficient. This data will be used by the designated State and County agencies that are responsible for implementing deer management options.