



**VILLAGE OF GRANVILLE
DEER MANAGEMENT
PROGRAM**



OVERVIEW

The Village of Granville is incurring significant problems associated with an ever-expanding animal population. The problem is compounded by increased land development for homes and commercial/industrial buildup within and adjacent to the Village. Reduced animal harvest in urban/suburban areas and newly created parks, along with the ability of the animals to adapt to this environment adds to the problem. The improved food sources provided by residents' yards and ornamental plantings contribute significantly to the higher animal density of the area as well as the lack of natural predators. Reports of animal damage to ornamental plantings and gardens, as reported to Village staff, have also increased over the past several years. Over-grazing is evident as seen in the forests and parks by the loss of herbaceous under story plants and wild flowers.

Deer have many behavioral traits that can also be problematic. Deer are territorial. They stay in their home range throughout their lives. Deer do not migrate to other areas if conditions become unfavorable in their home range. For the most part, deer will starve to death rather than move on to other areas in search of food. Intimate knowledge of their home range is vital to avoiding predators. Another trait is the breeding cycle of deer. Like many prey species, every eligible doe is bred as a natural survival tactic. Deer have the reproductive capacity to double their numbers every three years if left unchecked. Dawes Arboretum implemented a deer management program in 1997. The initial deer herd numbered at 97. Dawes has used a bow management program for the past ten years culling an average of 70 to 80 deer each year. The total deer herd in 2006 numbered 322. The Dawes program has not eliminated the deer from the arboretum, but has allowed the herd to grow in a more managed manner.

The white-tail deer population and density level in the Village of Granville is very difficult to estimate accurately due to the level of immigration from the surrounding area including Newark and Granville Township. Increased deer densities are associated with cultural, biological, and ecological impacts. Cultural problems may include damage to crops, ornamental plantings and increased deer-vehicle accidents. Biological problems can include an increased risk of disease including bovine tuberculosis, chronic wasting disease, and Lyme disease. Ecological problems include permanent loss of bio-diversity, elimination of native species and rare, endangered plants.

This program hopes to provide the community with a variety of alternatives to address the nuisance issues caused by deer such as landscape destruction and human/deer interaction by suggesting a number of non-lethal alternatives. However, non-lethal methods will not address the issue of deer overpopulation. This program suggests the use of controlled, lethal bow hunting to reduce the deer population to a more manageable level. This program hopes to develop a plan that will benefit both the Village residents and maintain the beauty of our local wildlife.

Population Estimate

There are no specific surveys of the deer population throughout the Village of Granville. Bill Bullard, Wildlife Division Officer from the Ohio Department of Natural Resources, estimates the deer population could be as high as 1,000. He has indicated that Licking County is behind in addressing deer management issues. Mr. Bullard has indicated that our local deer herd could be reduced by as many as 200 this year with 100 deer culled in each following year. Postponing initiation of a deer management program will result in an increased deer population in the future.

Local residents have sited herds as high as forty in the eastern portion of the Village. Only through an aerial, infrared, grid-based survey can a more exact estimate of herd size be reported.

Reported deer-vehicle accidents within the State of Ohio have increased steadily from 20,000 in 1990 to 25,000 in 2004. Nationally, Ohio ranks among the top five states for the number of registered motor vehicles, licensed drivers and miles driven. Ohio ranks fourth nationally in the number of deer-vehicle collisions according to the National Insurance Institute. In Licking County in 2004, there were 364 deer vehicle incidents reported. In Granville between 1995 and 2006, there were 62 reported crashes involving deer. Overall complaints involving dead or injured deer, during that same time period, was 361 with an incident low rate of 14 in 1995 and a high of 50 in 2005 (these numbers include accidents). It is likely that the incident rate was actually much higher as these numbers represent only reported accidents.

Most deer-vehicle collisions occur between October and December during the deer-breeding season. According to data from the Ohio Department of Public Safety and ODNR, peak hours for these collisions in 2004 occurred between 6:00-7:00pm followed by 6:00-7:00am. Defensive driving should be promoted during these peak periods daily and seasonally. It should also be emphasized that deer often travel in family groups, and motorists should anticipate other deer near the roadside if one animal is observed.

There are several techniques available to reduce deer vehicle collisions; however, few have been documented as consistently effective.

1. Roadside Reflectors – Reflectors have produced varying success and work by reflecting light from car headlights. This creates a wall of light that shines parallel to the road possibly discouraging the approach of deer. Deer, in residential areas, may respond less favorably to reflectors than rural deer, as suburban deer are more likely accustomed to human activity and lights.
2. Wildlife Whistles – These products attach to cars and produce a noise that is intended to warn animals of approaching vehicles. There is no research that indicates that deer are frightened by a particular frequency or decibel level of sound. It appears wildlife warning whistles are not alarming to deer and are not loud enough to be heard above the engine noise associated with moving vehicles. Studies have shown that the wildlife whistles have not been effective in reducing deer-vehicle collisions.
3. Warning Signs – Roadways with relatively high deer activity are often marked with warning signs in an attempt to reduce vehicle accidents. Motorists generally disregard these signs. Unless an individual experiences deer in conjunction with the signs, they do not respond to future warnings.
4. Fencing – Highway departments install fencing along roadsides for many reasons in addition to preventing deer-vehicle collisions. The effectiveness of a fence along a roadway is very limited unless properly maintained “deer-proof” fences are installed. Height is the major consideration as a fence must be eight (8) feet high to prevent deer from jumping the fence. Breaks or erosion gullies must be immediately repaired as these quickly become areas for deer to cross highways.

Monitoring Actions and Recommendations

Any management plan requires monitoring. Monitoring provides essential information about the baseline (where we are presently and whether we have made positive progress towards our goals). The results of this process will help us identify where problems still exist and allow us to focus our efforts in areas that may include:

1. **Citizen Complaints** – Any complaints made to Village employees should be recorded on a call card form and kept on file. Complaints will be evaluated to determine progress or whether a need exists for further action in a specific area.
2. **Establishing a Spotlight Index** – In order to establish a more exact count of the total number of deer in the Village, an infra-red technique would need to be implemented. The cost of using infra-red flyovers is estimated at \$3,000 to \$5,000 dollars.
3. **Deer Damage Kill Permit Date** – Pertinent data such as sex of deer, location, time and date killed, shall be kept on the deer damage permits issued by the Ohio Division of Wildlife.
4. **Public Opinion Surveys** – It may be beneficial to periodically conduct surveys regarding landscape, garden, and crop damage along with citizen concerns regarding safety and deer-vehicle accidents.
5. **Public Information and Education** – The reduction of a deer herd is a highly sensitive issue. The Village must emphasize the positive benefits of a stable, managed herd while communicating openly and honestly the action plan and goals. Local newspapers may be utilized throughout the year. Information must be available to residents on how to obtain nuisance animal control permits and different methods of deterring deer from intruding on yards and gardens.

Management Alternatives

Deer management is often undertaken to satisfy diverse needs and interests while solving conflicts. Solutions may involve changing attitudes as well as modifying deer behaviors and herd reduction. No single technique or strategy is universally acceptable or appropriate. The complexity of suburban deer issues and limitations of available techniques requires an integrated program. Many options are available for control and reduction, with specific advantages and disadvantages. Some are acceptable for more rural areas while some are unsuitable, from a safety standpoint, for a more urban setting.

Non-Lethal Alternatives

1. **Habitat Modification** – Deer adapt well to nearly all human-modified environments, except for downtown urban locations.
2. **Ban on Deer Feeding** – Supplemental feed can enhance reproductive rates, transmission of disease and encourage deer to concentrate in specific areas and make deer more tolerant of people. Feeding may also contribute to an artificially high deer population, especially

during harsh winters. Regulation may reduce the number of people who do feed deer, but these types of regulations are difficult to enforce unless concerted effort is made.

- 3. Unpalatable Landscape Plantings** – Deer are selective feeders; they forage on plants or plant parts with considerable discrimination. Their obvious preference for and apparent avoidance of certain plants can be an advantage. Costly browsing damage may be reduced or eliminated by planting less-preferred species or by establishing susceptible plants only in areas protected from deer. Under most circumstances, landscaping based on knowledge of deer feeding preferences can provide an alternative to the use of expensive chemical repellents and physical barriers. Whether or not a particular plant species will be eaten by deer depends on the deer's previous experience, nutritional needs plant palatability, seasonal factors, weather conditions, and the availability of alternative foods.

The homeowner is cautioned that the deer-browsing resistance of any plant species may change due to fluctuations in deer populations, alternative food availability, and environmental factors. No plant species will be avoided by deer under all conditions.

Plants Rarely Damaged

Barberry	Common Barberry
Paper Birch	Common Boxwood
Russian Olive	American Holly
Drooping Leucothoe	Colorado Blue Spruce
Japanese Peris	

Plants Seldom Damaged

European White Birch	American Bittersweet
Red Osier Dogwood	Flowering Dogwood
Kousa Dogwood	English Hawthorn
Redvein Enkianthus	European Beech
Forsythia	Honey Locust
Chinese Holly	Inkberry
Chinese Junipers – green	Chinese Junipers – blue
Mountain Laurel	Beautybush
Norway Spruce	White Spruce
Austrian Pine	Pitch Pine
Mugo Pine	Red Pine
Scots Pine	Japanese Flowering Cherry
Corkscrew Willow	Common Sassafras
Common Lilac	Japanese Wisteria

Plants Moderately Damaged

White Fir	Paperbark Maple
Red Maple	Silver Maple
Sugar Maple	Common Horse chestnut
Trumpet Creeper	Downy / Allegheny Serviceberry
Japanese Flowering Quince	Panicled Dogwood
Smokebush	Cotoneaster
Cranberry Cotoneaster	Old-fashion Weigela

Rockspray Cotoneaster	Japanese Cedar
Border Forsythia	Common Witchhazel
Rose of Sharon	Smooth Hydrangea
Climbing Hydrangea	Panicle Hydrangea
Japanese Holly	China Girl/Boy Holly
Eastern Red Cedar	European Larch
Goldflame Honeysuckle	Privet
Saucer Magnolia	Dawn Redwood
Virginia Creeper	Sweet Mock Orange
Eastern White Pine	Bush Cinquefoil
Sweet Cherry	Douglas Fir
Firethorn	Bradford Callery Pear
Common Pear	White Oak
Chestnut Oak	Northern Red Oak
Deciduous Azaleas	Carolina Rhododendron
Rosebay Rhododendron	Staghorn Sumac
Multiflora Rose	Rugosa Rose
Willows	Anthony Waterer Spiraea
Bridalwreath Spiraea	Persian Lilac
Japanese Tree Lilac	Late Lilac
Basswood	Greenspire Littleleaf Linden
Eastern Hemlock	Carolina Hemlock
Judd Viburnum	Leatherleaf Viburnum
Doublefile Viburnum	Korean Spice Viburnum

Plants Frequently Damaged

Balsam Fir	Fraser Fir
Norway Maple	Eastern Redbud
Atlantic White Cedar	Clematis
Cornelian Dogwood	Winged Euonymus
Wintercreeper	English Ivy
Apples	Cherries
Plums	Rhododendrons
Evergreen Azaleas	Catawba Rhododendron
Pinxterbloom Azalea	Hybrid Tea Rose
European Mountain Ash	Yews
English Yew	Western Yew
Japanese Yew	English/Japanese Hybrid Yew
American Arborvitae	

- 4. Repellents** – Repellents work by reducing the attractiveness and palatability of treated plants to a level lower than other available forage. There are two (2) classifications of repellents – odor-based and taste-based. Odor-based repellents are generally more advantageous as animals realize plants are treated as they approach the plant rather than having to sample and taste a plant which causes damage. Commercial repellents do not perform equally, and research has indicated that odor-based products often out-perform taste-based solutions. Also the effectiveness of repellents depends on several factors. Rainfall will dissipate some repellents, requiring reapplication. Some repellents do not

weather well even in the absence of rainfall. Deer are also likely to ignore either taste or odor repellents in times of food scarcity.

Samples of repellents are:

- Deer-Away® - This contact repellent is both an odor and taste-based repellent. Studies have shown it to be 85% to 100% effective.
- Hinder® - This area repellent is one of the few registered for use on edible crops. It is applied directly to vegetable and field crops as well as ornamentals and fruit trees. Its effectiveness is usually limited to two to four weeks.
- Thiram – This repellent is a fungicide that acts as a contact deer repellent. It is most often used on dormant trees and shrubs. Thiram products are most effective when used with Vapor Gard® which increases adhesion.
- Miller® Hot Sauce – This contact repellent is suggested for use on ornamentals, Christmas trees, and fruit trees. Care must be taken when applied to fruit trees or vegetables.
- Tankage – This repellent is a slaughterhouse by-product traditionally used as a safe repellent in orchards. It repels deer and anything else by smell. Various forms of animal urine (fox, mountain lion, wolf, or any other predator type) are also effective and safe.
- Ro-pel® - This taste-based repellent repels deer with an extremely bitter taste. Ro-pel® requires only a once yearly application. It is not recommended for use on edible crops.
- Hair Bags – Human hair is an odor repellent that costs very little but has not consistently repelled deer. Human hair is collected, placed in mesh bags and hung from shrub and tree branches.
- Bar Soap – Recent studies and numerous testimonials have shown that ordinary bars of soap applied in the same manner as hair bags can also be effective. One bar can protect a radius of about one yard.

When using any form of repellent, follow all directions indicated on the label. No toxicants are registered for deer control. Poisoning of deer with any product for any reason is illegal. The effectiveness of any product is related to the availability of food sources. Repellants work when applied repeatedly and when varied as deer can become immune to a particular scent.

5. **Supplemental Feedings** – This method can draw deer away from specific problem areas by using baiting stations. However, additional deer problems may be created near these stations. Concentrating deer may result in excessive plant damage in the new location increasing the possibility of disease transmission and canine predation.

6. **Fencing** – Fencing is a reliable method to address site-specific problems such as landscape or agricultural damage. Several factors must be considered before using fencing as a deer control option. These factors include fence design, site history, deer density, crop or landscape value, local ordinances, and size of the area to be protected. Types of fencing that have been effective are woven wire fencing, three-dimensional outriggers, slanted or vertical fencing, and electrical fences. Low-profile fences are seldom effective. Granville local ordinances require approval of any fence erected in the Village and no fence may exceed forty-eight inches.
7. **Hazing or Frightening Techniques** – These methods are effective under some circumstances, but deer rapidly habituate to these disturbances. Motion-sensing detectors have been used to trigger both audible and ultrasonic devices for frightening deer. Strobes, sirens, water sprays, and other devices have been used to frighten deer with limited effectiveness. Although deer can detect ultrasound, they are not repelled by it because they do not associate the disturbance with danger. All of these techniques are most effective if implemented either before or at the initial stages of a deer intrusion. Deer movements or behavioral patterns are difficult to modify once they have been established.
8. **Dogs** – Dogs contained by an invisible fence have been utilized and are very effective repellents. Dogs have been shown to be more effective than commercial repellents. The breed and disposition of the dog will influence effectiveness of this technique. Dogs restricted by an invisible fence system can keep deer out of an area if allowed to patrol that area day and night.

Non-Traditional Techniques

1. **Reproductive Agents** – Reproductive agents for wildlife are not commercially available. They are currently classified as experimental and are produced by research facilities. Research trials are ongoing, but this option is not viable. **The Ohio Department of Natural Resources, Division of Wildlife, will not authorize this technique.**
(ORC 1531.02)
2. **Relocation** – This technique requires the use of traps and/or remote chemical immobilization techniques. This method of habitat modification has been demonstrated to be impractical, stressful to the deer and may result in a high post-release mortality rate of up to 85%. These programs also require release sites that are capable of receiving deer. The potential for spreading disease must be considered. **The Ohio Department of Natural Resources, Division of Wildlife, will not authorize this technique.**
(ORC 1531.08)

Lethal Alternatives

The Ohio Division of Wildlife issues deer damage control permits to applicants who are incurring economic losses to crops or suffering from other types of property damage such as damage to landscapes, ornamentals and gardens. These permits can be issued after a thorough site

investigation and significant damage is found. Deer numbers, in conjunction with the amount of damage, determines the number of deer that should be harvested within the problem area.

1. **Traps and Euthanasia** – This technique is effective and can be used where there are concerns involving safety. This method involves baiting deer into traps and euthanizing the deer once it is caught. Deer are euthanized humanely and it is a very safe option that can be used where public safety is a concern and hunting and/or sharp shooting is not an option. Traps are site specific and can easily target areas of heavy deer travel or concentration. This technique allows for a high degree of efficiency.
2. **Bow Hunting** – This technique permits trained bow hunters to safely remove deer from both rural and urban areas. This method can maximize safety, discretion and provide a level of efficiency. It is generally the least expensive cost per deer. Accidents involving bow hunting are very low.
3. **Sharp Shooting** – The use of trained personnel to remove deer through sharp shooting has been successful. Using a variety of techniques maximizes safety, humaneness, discretion, and efficiency. It can be a costly solution. Suppressors on weapons can help eliminate the report of weapons.

Management Program Recommendation

The course of action of the Village of Granville to reduce the residents concerns for their safety, health and economic issues caused by the white-tailed deer will require a diverse, integrated management plan. This plan allows the use of proven effective management methods and techniques, both lethal and non-lethal. This plan minimizes harmful effects of control methods on humans, other species and the environment.

- A. The creation of a system for the dissemination of information and education of the residents so that they may better understand the need for deer management and the actions that must be taken by the Village. Residents should be discouraged from feeding deer by developing and making available packets that demonstrate the disadvantage of supplemental feeding of these animals. This information would be included in the public information system. Also included may be periodic public letters or newspaper articles about deer-vehicle accidents, the number of deer damage complaints and other relevant information. Technical data will be available to inform and help residents minimize deer damage.
- B. Deer warning signs should be posted and/or maintained along roadways where high numbers of deer-vehicle accidents occur (Newark-Granville Road, Burg Street, Jones Road and Fern Hill Subdivision).
(These signs do not prevent accidents, but they will alert drivers to the areas of high incidents.)
- C. Information packets would also be available to local residents regarding ways individual homeowners can reduce damage caused by deer through the use of

non-lethal techniques such as plantings, repellents, and fencing.

- D.** Reduction of the ever-increasing white-tail deer population in the Village of Granville will be challenging. With the decreased hunter harvest and lack of natural predators, population management becomes necessary. The use of lethal control techniques must be included in a wildlife management program. The Village will maintain strict guidelines and restrictions on any type of lethal control activity. These guidelines and restrictions will be reviewed, monitored and modified as necessary. The primary reduction method to be utilized within the Village limits is a crossbow and bolt or a bow and arrow.
- E.** An annual review process will play an essential role in maintaining an effective deer management program. Ongoing monitoring and yearly program evaluations allow management plans and goals to be modified so that the stated objectives may be accomplished. Deer-vehicle accidents and resident complaints will be utilized as indicators, but the effect on the biodiversity of our forest and parklands must be included. The evaluation of this information will be the key to maintaining or modifying the dynamics of the plan and meeting its long-term goals.
- F.** Hunters may take a harvested deer to a Village designated processing facility and the meat will be processed at Village expense and donated to a local food bank or similar charity.