United States Department of Agriculture
Animal and Plant Health Inspection Service
Wildlife Services
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Fact Sheet
MANAGING DAMAGE BY WHITE-TAILED DEER IN PENNSYLVANIA

February 2010

Background

By the turn of the 20th century in Pennsylvania and throughout much of its range, the white-tailed deer was nearly driven to extinction primarily by unregulated market hunting and habitat loss. The reestablishment of white-tailed deer populations has been regarded as one of the greatest successes in the history of wildlife conservation. Deer are a key component of the ecosystem, and are valued by humans as an important big game animal hunted for recreation and a favorite of wildlife watchers. However, many local environments present an ideal combination of ample food resources, few natural predators, and sanctuary from hunting in close proximity to human development, which enables deer populations to grow overabundant.

Deer-human conflicts occur when overabundant deer threaten human health and safety, property, livelihood, and natural resources. Controversy often arises at the community level when lethal management is proposed to reduce deer densities and associated damage. The Pennsylvania Game Commission is the state agency responsible for management of white-tailed deer as a game species, and sets all harvest guidelines for deer. USDA APHIS Wildlife Services may provide expertise in facilitating all phases of the management process to reduce deer-human conflicts.

Deer Biology

White-tailed deer are found in a variety of habitats throughout most of the United States, Canada, Mexico, Central America and northern South America. Deer almost exclusively consume plants. They have a highly specialized four-chambered stomach, which allows them to digest a wide variety of plant species. Deer choose the most nutritious plants and plant parts available. Deer thrive in areas with young vegetation, especially where the edges of several habitat types converge, such as the suburban/agricultural interface.

Adult white-tailed deer weigh between 100 and 300 pounds with males being larger than females. Bucks produce their first set of antlers during their second year of life. Females do not grow antlers. The basic social group is the doe family unit including an adult doe, and her offspring. Outside of the breeding season, or rut, males may form groupings known as bachelor groups. In Pennsylvania, deer breed in the fall, and most fawns are born in late May and early June. Does generally produce one or two fawns each year. In ideal habitats, does may breed at approximately 6 months of age and some adult does may produce triplets.

Deer are most active near dawn and dusk when they move to and from daytime bedding areas and nighttime feeding areas. Bucks have larger home ranges than does, especially during the rut when bucks travel widely in search of mates. In Pennsylvania, deer home ranges average between 150 and 1,000 acres depending on the availability of local resources.

Damage

Deer-vehicle Collisions. Deer-vehicle collisions are a major concern throughout much of the United States, accounting for human injury and death and damage to vehicles. Road-killed deer are a substantial waste of a wildlife resource with an estimated 50,000 or more deer hit annually on Pennsylvania roads.

Risk of Disease. Deer act as a predominant host for the adult black-legged tick, which vectors Lyme disease. High rates of Lyme disease are common among people living in areas where local deer densities are high.

Agricultural and Landscape Damage. Deer may cause significant losses to agriculture including corn, soybeans, cereal grains, watermelons, orchard plants, nursery stock and a variety of other crops. Where deer densities are high, homeowners are extremely limited in their choice of landscape plants that are not preferred foods by deer. Antler rubbing by bucks damages Christmas trees, nursery stock, and landscape plants.

Threats to Natural Resources. Overbrowsing by deer may severely alter the natural environment, resulting in reduced native plant diversity and poor quality habitat for other wildlife species such as ground-nesting birds. Deer overbrowsing affects regenerating forests, including the establishment of commercially important timber species.

Effects on Deer Herd Health. Deer overpopulation reduces the quality of habitat, including food resources and cover, causing deer to be more susceptible to disease, parasites, malnutrition, and poor overall health.

Damage Management

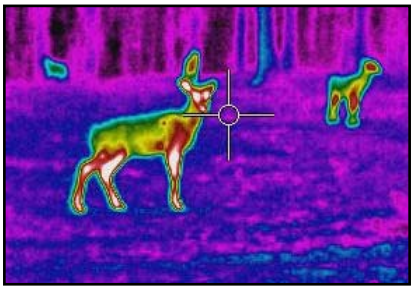
USDA APHIS Wildlife Services recommends that our cooperators adopt an integrated approach to managing damage by white-tailed deer. USDA APHIS Wildlife Services provides leadership in the deer management process by conducting personal consultation with individuals and communities, educational programs, deer damage assessments, and direct management in the removal of overabundant deer.

Integrated Approach:

1. Define Goals. Those seeking to make deer damage management decisions should involve representatives of all stakeholder groups with an interest in managing deer in the target area. Providing education on basic deer biology and damage management techniques is integral to the process, so that stakeholders may make informed decisions. Goals should define acceptable levels of damage by deer, which minimize deer-human conflicts.

2. Identify the Problem. Stakeholder groups should obtain information on the impacts of deer damage such as deer-vehicle accident records, rates of Lyme disease, and estimates of damage to landscape and commercial plants. Establishing the extent and timing of how deer may be impacting the target area is the first step toward identifying whether a deer problem exists.

3. Establish Monitoring. Information collected during the problem identification phase may be used as baseline data for long-term indices relative to goals of the program and as the basis for making management decisions. Estimates of deer abundance are necessary to assess the effects of any management actions relative to the program goals. USDA APHIS Wildlife Services specializes in conducting deer density surveys using a variety of techniques tailored to individual situations. USDA APHIS Wildlife Services can provide estimates of deer densities on areas ranging in size from city parks to entire municipalities.



4. Develop a Management Plan. A deer damage management plan should document clearly defined program goals, identify the level of damage caused by deer based on the supporting evidence collected, and should propose management actions to achieve the program goals. Effective management plans must allow for the flexibility to adapt future management actions based on data collected during continued monitoring. If requested, USDA APHIS Wildlife Services can assist in developing such plans.

Options for Management

No Action. The "no action" alternative is appropriate if monitoring indicates that current management practices are maintaining deer densities in balance with program goals. For example, on some public lands, this means allowing the deer population to grow unrestricted. Often, deer numbers grows above levels which the habitat can support and above that which humans are willing to tolerate. In urban situations, deer densities may be maintained by a high rate of deer-vehicle collisions. In extreme cases, mortality may occur in the form of starvation. Alternatively, the "no action" alternative often means that sport hunting continues as the established management practice because hunters are achieving adequate harvests to meet program goals.

Non-lethal Damage Management. A myriad of non-lethal deer damage management techniques are available, and fall under three categories: exclusion, deterrents, and repellents. Research has demonstrated that some practices are effective while others appear to be marketing ploys. Properly installed and maintained fencing 10 feet in height and secured to the ground is the most effective exclusion tactic. Fencing can be cost prohibitive for large acreages, and many communities have ordinances limiting the use or height of fences. Deterrents use sound, visual, or tactile cues to frighten deer from areas where they are causing damage. Deterrents which are set off by the offending deer or those with irregular cues tend to be most effective since deer may easily become acclimated to deterrents. Repellents use taste or scent to discourage deer from eating treated plants or entering treated areas. A wide variety of commercially available repellents have been reported to be effective in independent research. Repellents require reapplication after rain events and may lose effectiveness at temperatures below freezing.

Population Management. When deer become overabundant, a rapid reduction in deer density is necessary to suppress annual population growth and reduce damages. Once management goals are reached, annual deer harvests must be conducted to maintain acceptable population levels. The methods used to remove deer will depend on safety, legal restrictions, financial constraints, timing of the management action, and effectiveness of the removal methods employed. In many deer management situations, using a combination of deer removal methods is necessary to achieve management goals.

Options for Population Management

Sport Hunting – Sport hunting should be encouraged whenever possible as it is generally the most economically feasible strategy to manage deer. However, legal restrictions (e.g., safety zones, timing of hunting activity) and other limitations (e.g., hunters resistant to

harvesting adequate numbers of does) may limit the effectiveness of sport hunting in some situations. In recent years, the Pennsylvania Game Commission has provided for additional deer harvest opportunities under depredation permits outside of the normal hunting seasons. Additional information about hunting seasons, bag limits, and depredation permits may be found online at www.pgc.state.pa.us or by contacting the Pennsylvania Game Commission headquarters in Harrisburg by phone at 717-787-5529.

Controlled Hunts – Controlled hunts on public lands using sport hunters can be structured to maximize deer removal efforts. Stipulations may include designated dates and times of hunts, weapon restrictions, and safety certification of hunters. By concentrating hunting pressure during specific times, controlled public hunts usually increases deer harvest and requires less time than normal sport hunting.

Professional Deer Removal – In instances where sport hunting is not practical or effective, deer removal may be conducted under a depredation permit by USDA APHIS Wildlife Services, private contractors, or other agents of the cooperator. Professional deer removal operators are permitted to use specialized equipment and methods such as high-powered rifles fitted with suppressors to minimize noise; infrared and night vision technologies for identification of safe shooting opportunities and to increase the ability to locate deer; baiting; and shooting at night, from vehicles, and in close proximity to buildings. Deer harvested by professional operators provide venison for charitable donation. Professional deer removal usually requires the least amount of time versus other methods to reach population goals.

Trap and Transfer – Capturing deer and relocating them to another location is not an option in Pennsylvania because this practice is not legal. Legal considerations not withstanding, trap and transfer of deer is expensive, ideal relocation sites are limited, and relocated deer suffer greater than 50% mortality.

Fertility Control – USDA APHIS Wildlife Services is conducting ongoing research through its National Wildlife Research Center in the development of a fertility control agent to limit deer population growth. GonaCon™, a single-shot multi-year immunocontraceptive vaccine developed by the National Wildlife Research Center, was granted regulatory approval by the U.S. Environmental Protection Agency for use in female white-tailed deer in January 2010. To date, tests of GonaCon™ in deer populations in fenced enclosures have demonstrated limited effectiveness. Use of fertility control will have limited applicability, especially for large populations of free-ranging deer. Implementation of a fertility control program would be costly since each animal to be treated must be captured and hand injected with the immunocontraceptive agent. Deer herd reductions would still be necessary to reduce damage since fertility control does not directly reduce deer numbers. GonaCon™ is currently not registered for use in Pennsylvania. For the fertility control agent to be used in Pennsylvania, GonaCon™ would first have to be registered for use with the Pennsylvania Department of Agriculture. Even after successful registration, the use of GonaCon™ will not be the sole solution for reducing conflicts between humans and white-tailed deer. Prospective projects will be required to establish a deer management plan approved by the

Pennsylvania Game Commission and must demonstrate that all other possible measures to reduce deer-human conflicts will be utilized to the fullest extent, both lethal and non-lethal.

Sources of Supply

USDA WS offices can provide technical advice on supplies; sources can be provided upon request at any USDA WS office in PA.

Agency Contacts

To obtain assistance with mitigating damage by white-tailed deer and other wildlife species, please contact:

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Special Note: ***Recommendations in this leaflet should not be implemented if they would be in conflict with the Endangered Species Act of 1973.***

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