



## MANAGEMENT GUIDELINES FOR ILLINOIS NATURE PRESERVES

### CONTROL OF ANIMAL POPULATIONS

#### **White-tailed deer (*Odocoileus virginianus* Zimmerman)**

An overabundance of white-tailed deer (*Odocoileus virginianus*) can adversely impact plant and animal resources, cause a decline in biological diversity in natural areas, ecologically sensitive areas and the surrounding landscape, cause damage to agricultural crops, ornamentals and orchards, and increase the risk of deer-vehicle accidents (Peck and Stahl 1997, Damron 2003). Excessive browsing caused by an overabundance of deer can result in: 1) reduced diversity of woody and herbaceous plants or natural communities (Tilghman 1989, Strole and Anderson 1992, Stroymayer and Warren 1997, Waller and Alverson 1997, Parker 1999, Fletcher et al. 2001, Webster et al. 2001, Anderson et al. 2005), 2) modified vertical structure in the forest understory (Alverson et al. 1988, Miller et al. 1992, deCalesta 1994, Waller and Alverson 1997, Augustine and Jordan 1998, Pederson and Wallis 2004), 3) extirpation of palatable plant species (Anderson 1994, Peck and Stahl 1997, Augustine and Frelich 1998), 4) reduced reproductive potential in rare plants (Loeffler and Wegner 2000), 5) negative impacts to sympatric fauna that require the forest understory for forage, nesting and cover (McShea and Schwede 1993, deCalesta 1994, Waller and Alverson 1997), and/or 6) a decline in deer herd health (Eve 1981, LaGory et al. 1985, Peck and Stahl 1997).

All consequences of excessive deer browsing listed above have occurred on properties within the Illinois Nature Preserves System (Anderson et al. 2001, Frankland and Nelson 2003, Jones 2004, Jones 2005). This guideline provides direction for implementing deer management programs on areas in the Illinois Nature Preserves System.

#### PROVISIONS FOR MANAGEMENT

The Illinois Natural Areas Preservation Act (525 ILCS 30) and Rules for Public Use of Dedicated Illinois Nature Preserves (17 Ill. Admin. Code 4015) provide that animals may be killed or otherwise molested to control an ecological imbalance that threatens the natural quality of a nature preserve. Removal or other lethal or capture activities to manage a deer herd must be a part of a plan approved by the Illinois Nature Preserves Commission (INPC) and the landowner. The form of the plan must be consistent with the Rules for Management of Illinois Nature Preserves (17 Ill. Admin. Code 4000) and may be part of a management schedule in a Nature Preserve Master Plan as described under the Rule or as a plan for a specific activity. If nature preserve managers choose to seek initial approval of deer management via a proposal not included in the Master Plan, the provisions of the deer management plan can be approved at any time and should be incorporated into the next 3-year update of the management schedule for the preserve. Land owners must approve deer management plans for preserves before presenting them to the INPC for approval (17 Ill. Admin. Code 4000.150b). Under no circumstances can deer management be approved by the INPC without landowner approval. Special Use Permits authorizing removal of deer as a part of a bona fide research project may be utilized in conjunction with an approved deer

management plan, but may not be utilized in lieu of an approved deer management plan.

Any deer management program must also be consistent with existing State of Illinois laws and Illinois Department of Natural Resources (IDNR) administrative rules. If methods are to be employed that require IDNR licenses, permits and approvals, the landowner is responsible for meeting those requirements. However, if hunting is used as the control method, no additional approvals are required as long as the participants follow the rules set forth under the Illinois Wildlife Code (520 ILCS) and related administrative rules (17 Ill. Admin. Code, Sections 650, 660, 670, 675 and 680 ).

Consistent with these provisions, white-tailed deer may be removed from Illinois Nature Preserves, where: 1) deer have caused, or are likely to cause negative impacts to the nature preserve flora or fauna or are interfering with efforts to restore a nature preserve, 2) the landowner and Illinois Nature Preserves Commission have approved a plan as described above, and 3) if the plan uses methods or timing other than regular deer hunting seasons (regulated by the Illinois Wildlife Code), the Illinois Department of Natural Resources has authorized population management and approved the specific methods of removal.

#### DOCUMENTATION OF PROBLEM

The negative impacts associated with an overabundance of or excessive browsing by deer in Illinois nature preserves is well-documented (Szafoni 1991, Anderson et al. 2001, Frankland and Nelson 2003, Jones 2004, Jones 2005). These sites range in size from 20 acres to more than 1,000 acres (Anderson et al. 2001, Frankland and Nelson 2003, Jones 2004). Documentation of deer overabundance and deer-related damage in Illinois nature preserves has included, but is not limited to, reduction or loss of herbaceous or woody species, high percentages of browsed twigs, high direct or indirect deer population estimates, or damage to other exceptional or significant features of the preserve (Szafoni 1991, Anderson et al. 2001, Frankland and Nelson 2003, Jones 2004, Jones 2005). Therefore, ample documentation exists as to what excessive deer browsing has done, or is likely to do, to the native plant life on dedicated nature preserves. The precedent of deer management via lethal control exists, with no negative impacts of this activity to the natural area having been noted, and has established the framework for mediating negative impacts of localized overabundance of deer.

The negative impacts associated with deer overabundance or excessive browsing are brought about by deer seeking refuge in areas with little or no hunting pressure and the lack of natural predators (Strole and Anderson 1992, Hansen and Beringer 1997). Terrain, hunter accessibility and other factors such as low hunting pressure or deer management strategies on adjacent lands may also contribute to excessive browsing. The negative impacts are greatest in midwinter and last through April or May when other food sources may be scarce (Halls 1978, Szafoni 1991, Frankland and Nelson 2003). Winter browsing on woody vegetation may be particularly intense during severe winters or extended periods with heavy snow cover (Doenier et al. 1997).

#### POPULATION MANAGEMENT PHILOSOPHY

Deer populations and habitat resources interact dynamically and such interactions can vary over time and among sites (deCalesta and Stout 1997, Augustine and Jordan 1998). Additionally, the significant resources and plant communities vary from preserve to preserve across the State.

Consequently, no universal standards of deer density can be formulated that will predict the degree of browsing impact on plants (Doenier et al. 1997). Therefore, when browsing by deer causes habitat deterioration, appropriate densities are best determined by site-specific reduction of deer numbers.

The goal of deer management on a nature preserve is to maintain the natural quality of the preserve on a long-term basis. When possible, deer management on sites within the Illinois Nature Preserves System should be coordinated, and implemented simultaneously, with extant management programs on adjacent properties.

Two general forms of deer management are recognized by the Commission: Habitat Modification and Herd Management. Habitat Modification in this context is the changing of habitat to reduce preferential use by deer. In nature preserves, this is limited to removal of human-created wildlife attractors such as reduction of edge habitat, and/or elimination practices such as food plots, salt blocks and supplemental feedings that are not consistent with the use of nature preserves or violate the Illinois wildlife code. Other more drastic habitat alterations are not compatible with nature preserve management. Habitat modification as described should be employed as a first step in all deer management programs within nature preserves and, where possible, implemented on adjacent lands.

Herd Management is an action taken where the number of deer removed equals or exceeds annual recruitment thereby maintaining the number or density of deer at a desired level or reducing it. The degree of management is dependent upon the level of impacts to plant and animal resources. Areas with low to moderate impacts to plant and animal resources may require a lower degree of herd management than areas with heavy browsing and the appearance of a browse line.

#### DEVELOPMENT OF A DEER MANAGEMENT PROGRAM

A deer management program may be developed by the owner, custodian (see 17 Ill. Admin Code 4000.110 for definition) or other designated authority of an area protected in the Illinois Nature Preserves System. Deer management programs that include herd management will be routinely approved on areas in the Illinois Nature Preserves System that are 20 acres in size or larger. Proposals for deer herd management on areas smaller than 20 acres will be considered, but must demonstrate that removal efforts on the preserve are required for the management effort to be successful.

All deer management programs must have an approved plan, as part of the site-specific 3-year Management Schedule, that: 1) clearly defines the management objectives associated with the deer management program, 2) describes site characteristics, 3) describes the methods to be used to achieve the stated objectives, 4) describes methods to monitor the success or failure in meeting the objectives of the management. The owner or custodian of a Nature Preserve is required to report on deer management efforts in the Annual Report for Nature Preserves as provided by Rule (17 Ill. Admin Code 4000.165). Specifics regarding the details of this report may be found in the REPORTING PROVISIONS Section of this document.

Only methods that have been field-proven to be effective for reducing or maintaining populations of white-tailed deer at acceptable levels will be approved. Once initiated, deer management programs may be continued after the deer population has been reduced to an

acceptable level and/or vegetation has shown significant recovery to prevent a return to pre-management conditions. Maintenance programs may also be implemented to prevent deer populations or browse rates from reaching unacceptable levels.

Approved methods may include firearm programs – shotgun, muzzle-loader, handgun; archery programs; sharpshooting; trap and euthanize; or a combination of the above listed methods. These methods shall be employed in such a way that they have a reasonable chance of successfully meeting the deer management objectives for the preserve. In areas where the preserve is part of a larger area of deer habitat, a comprehensive deer management program should include areas outside of the preserve to the extent feasible. Deer management programs implemented on nature preserves located within larger units with ongoing deer programs may incorporate provisions of the extant program in the nature preserve program to maintain uniformity and to facilitate administration and participation in the program.

Three removal options are approved for implementing a deer management program on areas in the Illinois Nature Preserves System. These options include; 1) an antlerless-only program, where only deer without antlers may be removed, or 2) an antlerless requirement prior to allowing either sex removal, or 3) an either sex program. Option 2 requires that a hunter remove an antlerless deer prior to being able to take a deer with antlers. Deer management to reduce herd size requires emphasis on the female component. Strategies 1 and 2 place additional harvest pressure on females. Strategy 3 will maintain a herd at, or near, its current level reducing the likelihood of deer overabundance or overbrowsing.

Nature preserve landowners and managers are urged to consult district biologists from the Department of Natural Resources in their areas from both the Wildlife Division and Habitat Resources Division – Restoration Ecology Section for technical assistance and input when developing the management plan.

All deer management programs should be included in an approved 3-year management schedule for that specific site. However, requests for approval of specific management actions, including deer management, that are not included in a three-year management schedule can be submitted at any time during the 3-year cycle. If deer management is to continue into the next 3-year cycle, it is to be incorporated into the next 3-year update. Deer removal will follow existing IDNR administrative statutes, rules and regulations. Deviations from those provisions will require the separate approval of IDNR.

Monitoring of a deer management program will require the use of one or more of the following methods: aerial flights, woody and/or herbaceous browse transects, herbaceous plant surveys, hunter harvest surveys or other acceptable methods. When feasible, monitoring should include methods that assess deer population, hunter harvest and plant population parameters. Frequency or effort of the monitoring program will be determined by the deer management plan but should be frequent enough to allow for adaptive management. Ideally, monitoring will coincide with and be frequent enough to support the update of the 3-year management plan for the site. Implementation of the monitoring program will be the responsibility of the landowner or manager. INPC or IDNR staff may be available to assist in the implementation of monitoring.

PUBLIC NOTICE OF AN ANIMAL CONTROL EFFORT

All Illinois Nature Preserves are held in public trust for the people of the State of Illinois. Landowners, however, retain the right to manage their land within the constraints set out by the Illinois Natural Areas Preservation Act and related administrative rules. When a white-tailed deer management program or any management is slated for Nature Preserves, the public has a legitimate interest to be represented. The Illinois Nature Preserves Commission represents the people's interests with regard to the management of resources within the nature preserve including white-tailed deer. The INPC staff will report regularly on the status of proposed and ongoing deer management plans at their public meetings. The minutes of the INPC are available to the public once they have been approved by the INPC. With privately-owned nature preserves, this is usually all that is needed. On public land or lands held by conservation organizations, it is recommended that the public be kept informed through appropriate use of publications, Administrative Rule, and/or public meeting. In preserves routinely open to the public, prominent signs may be posted at each entrance to the preserve indicating that a deer management effort is being implemented, explaining the need for the population management, and describing the methods being employed. Managers may wish to close the nature preserve to the public during some aspects of implementation of the management program. Notice of such closure should be included in the public notice and on the signs posted at the entrances. Sample wording for entrance signs:

#### ATTENTION

In an effort to control browsing by white-tailed deer that threatens the natural quality of this preserve, a deer management program is currently underway employing the use of firearms and/or archery.

#### REPORTING PROVISIONS

Land managers will provide an annual quantitative summary of management effort, including habitat modification activities, the number, sex, antlered or antlerless, and age (fawn or adult) of white-tailed deer removed, and the results of any deer population or vegetation monitoring. This summary shall be submitted with the annual report for nature preserves required by Rule (17 Admin Code 4000.165).

#### ADAPTIVE MANAGEMENT

Deer management programs shall be reviewed and revised, if needed, at least once every three years in conjunction with the review of the 3-year management schedule. Monitoring and effort data should be used to determine effectiveness of the deer management plans. Approval of ongoing deer management plans will be made through the 3-year management schedule required as a part of the nature preserves master plan (17 Ill. Admin Code 4000.150).

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