



White-tailed Deer Management in the National Parks

Information Bulletin

Update #2

December, 1991

The Issue

In recent years, approximately 49 parks units in five National Park Service regions (North Atlantic, Mid-Atlantic, National Capital, Southeast, and Midwest) have identified possible conflicts with white-tailed deer. The management of white-tailed deer in national park units in the eastern United States is a complex issue. Before deciding on how to manage white-tailed deer, managers must first determine whether or not deer populations are affecting the park's ability to preserve and protect *all* the resources in the park. In addition, consideration must be given to problems outside of park boundaries.

Background

Population changes In the past 40 years, white-tailed deer densities in some areas of the eastern United States have increased to levels that are probably higher than they have ever been in eastern ecosystems. In addition to increased densities, the distribution of white-tailed deer is believed to have changed dramatically across its former range.

These population changes can be attributed to many factors. One of these factors is the continuing fragmentation of forested lands into agricultural, suburban, and other types of human-developed lands. When forested lands become developed in this heterogeneous way, white-tailed deer thrive on the diverse food supplies associated with the early stages of forest succession, fragmented forest patterns, and agricultural crop plantings. Horticultural plantings may add to the food supply. This fairly recent increase in food supply has been accompanied by a decrease in historical deer population controls. Animals that prey on deer rarely survive urbanization and have been eliminated in many areas. Restrictions on hunting season, bag limits, and availability of hunting lands have lessened the effect on deer populations by sport hunters.

Attitudes vary on the current population levels of white-tailed deer. Park visitors and the general public enjoy seeing and photographing deer. Park neighbors can see deer as either a source of beauty or as pests that eat garden vegetables, flowers, bushes, and other landscape plants. For farmers, the white-tail is a pleasure to look at and hunt, but can also damage valuable crops. State fish and game agencies regard white-tailed deer as a renewable, harvestable resource for both viewing and sport hunting. And the increased car-deer accidents resulting from higher deer populations cause everyone concern.

NPS Policy NPS management policies and park management objectives for each unit of the Park Service are based on the legislation that established the National Park Service and each unit. Although these objectives are developed according to management zones (i.e., natural, cultural, developed, and special use zones), they remain consistent with the overlying natural resource management policy to allow nature to take its course as much as possible. In natural zones of parks, the objective is to maintain the ecosystem in as natural a state as possible without active management, treating all components as part of the whole. In cultural zones, the goal is to provide a scene that represents the historical event or period the park was established to recognize, relying on natural processes to the extent possible, and, where not possible, using active management programs. In park development and special use zones, the first choice for management is again to rely on natural processes to the extent possible and, where not possible, to provide for active management.

Research Current research in the National Park Service emphasizes understanding the role and possible effects of white-tailed deer on naturally functioning ecosystems and the effects of white-tailed deer on historical and cultural scenes. In the past 10 years the National Park Service funded over 20 site-specific studies related to white-tailed deer. The National Park Service continues to conduct additional research to learn more about the interrelationships of deer and vegetation. Some studies focus on determining white-tailed deer populations and densities. Vegetation monitoring for plant species composition, density, and diversity provide information on the response of plants to feeding by deer. The possible effects of deer activities on threatened and endangered plant and wildlife species are being investigated, as well as the role of white-tailed deer as reservoirs of diseases such as Lyme Disease.

Management In addition to managing white-tailed deer as a component of a total ecosystem, management alternatives must also consider the purpose and management objectives of each unit, the health and safety of the park visitors, and federal laws which mandate compliance, such as the Endangered Species Act, the Clean Air Act, the Clean Water Act, and the National Environmental Policy Act. Park managers must also be concerned with the effects of park management practices on park neighbors, the effects of neighboring management practices on the park, and public attitudes concerning acceptable forms of park management.

Active Management

Active management of white-tailed deer in national park units is permitted only under certain conditions. Several examples are:

- where specifically authorized by law,
- for the protection of the health and safety of the park visitor,
- where white-tailed deer populations/densities are such that the purposes and management objectives of the park cannot be met, and
- where, as a result of human induced changes, white-tailed deer populations/densities are adversely affecting other park resources.

Prior to initiating active management, a park must demonstrate with scientifically valid information that the conditions allowing active management have been met.

Management Alternatives

If an analysis of the situation indicates that white-tailed deer populations or densities require management action, the more common and currently available methods that park managers may choose from are:

Cooperative Management State parks, county parks, state forests, state game management agencies, private landowners, county and local governments, and other federal land management agencies face many of the same conflicts as National Park Service managers. By establishing partnerships, combining efforts, and implementing alternatives on all affected lands, the conflicts may be solved more effectively. For example, several federal and state agencies have cooperated to formulate and achieve a management program for the grizzly bear in the greater Yellowstone ecosystem. Cooperative management relies on a mix of management techniques.

Predator Restoration The National Park Service is already attempting to restore native predators in large natural areas; for example, the red wolf is being restored to Great Smoky Mountains National Park. One side-effect of these restorations may be population control of prey species such as deer. However, predator-prey relationships are extremely complex. The impact of predators on herbivores such as deer varies. In addition, restoration of predators in the eastern U.S. is generally not considered a realistic alternative in small parks because of the lack of suitable habitat, the proximity to human population areas, and potential effects on privately-owned livestock.

Live Removal and Relocation Live capture and relocation may have limited success in the management of small, isolated populations or in the removal of animals for augmenting populations in other areas. However, its value in reducing large populations is questionable because of the high costs associated with relocation programs, the lack of acceptable release sites, and the high mortality of relocated animals.

Removal by Public Hunting Public hunting is possible only in those units of the National Park System where it has been specifically authorized by Congress. In these few units, hunting may prove to be an effective alternative for the management of white-tailed deer.

Shooting by National Park Service Personnel The authority to manage wildlife within National Park Service units exist under the provisions of the Organic Act and the National Park Service Management Policies. In certain prescribed situations, shooting of wildlife may be considered a management or research action if the situation meets the extensive requirements defined by the management policies of the National Park Service.

Fertility Control (Contraception) Contraception is a method to manage or reduce birthrates. Contraception does not reduce the existing population, and, therefore, must be initiated before deer populations pass established acceptable levels. If populations are already too high, then reduction to desired levels must first be undertaken before contraception techniques can be applied.

Contraception techniques are still considered to be experimental. While current research offers some promise in this area, additional research will be required in order to provide sound answers to a number of

questions. More information is needed on the pharmacological effects of long-term exposure to contraceptives, the effectiveness of various contraceptives, administration techniques, secondary effects to the animals treated, and the safety of humans and animals that might consume treated animals.

Fencing Fencing may be used to protect threatened and endangered plant populations, to prevent deer from crossing highways, and to minimize deer impacts in selected areas such as woodlots, agricultural areas, and developed areas. The effective use of fencing to mitigate deer impacts is limited to small areas because fences can prevent desired migration or dispersal of other animal species. Fencing is also labor intensive, expensive to install and maintain, and may be an unacceptable intrusion on the cultural objectives of some parks.

Landscape-Agricultural-Timber Practices Plants either unpalatable or unpleasant to deer may be planted in developed, landscaped, or agricultural areas to reduce browsing. These kinds of planting are limited by species availability, agricultural economics, and needs and costs. Timber management practices, such as clear-cutting to decrease habitat and thinning stands to increase open space, may also be used to create habitat that is unfavorable for white-tailed deer. Both of these methods are labor intensive, costly, and restricted to specific areas. They are also restricted to areas where such activities are allowable under management policy and to areas where they are naturally and culturally appropriate.

Repellents Repellents are compounds or substances that are sprayed on or attached to vegetation to repel browsing species such as white-tailed deer. There is no single repellent that is suitable for the wide range of possible applications or conditions. Research has shown that their efficacy is low and that, at best, repellents represent an interim solution for limited circumstances.

Public Involvement

According to the National Park Service's management policies, any planned population management action must provide opportunities for public input, review, and comment. Strict adherence to both the intent and the requirements of the National Environmental Policy Act is mandated. As part of achieving environmental compliance, the park unit must provide sufficient scientifically-based, technically competent, and peer-reviewed evidence that management of a species is warranted. The park also must demonstrate that it has secured appropriate types and amounts of public review of its proposed actions and the alternatives considered.

For Further Information Contact Michael Coffey, Wildlife and Vegetation Division, National Park Service, P.O. Box 37127, Washington, D.C. 20013-7127. Phone: 202-343-8135.