THE HUMANE SOCIETY OF THE UNITED STATES

# Why Hunting Doesn't Solve Deer Problems

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Although there is a great need to mitigate conflicts with deer and find ways to enhance native biodiversity, the HSUS believes that hunting is not an efficient, humane or justifiable way to achieve these goals.

## Background:

The ability of deer to adapt to suburbanized landscapes and co-exist with people has created new challenges and conflicts. The white-tailed deer was hunted to near extirpation in most of the eastern United States not long after Europeans first colonized this country. Much of our forested landscapes have not seen deer in any abundance for several hundred years. After an enormous effort was mounted by state wildlife agencies, deer populations have rebounded and concerns about "overabundant" deer have, within the last 20-25 years, been increasingly expressed. The latest concern focuses on forest regeneration and biological diversity.

Much of the northeastern forested landscape is subject to any number of direct and indirect influences that together have created the conditions that we see today. These influences run the gamut from acid rain, insect damage, disease, development, pollution, loss of soil fertility, herbivory, invasives and other competing plant species, parasitic organisms, and landscape fragmentation, among other factors. New research is even showing the potentially huge but largely invisible impact of introduced, non-native earthworms as significant influences on forest ecology. It is vital in addressing the issue of deer-human conflicts that we not use deer as scapegoats for larger and more systemic problems.

## THE PROBLEM WITH HUNTING:

It is noteworthy that despite widespread use of controlled hunting as a management tool, the method has proven to be inadequate at preventing deer from overpopulating broad areas (Cote et al. 2004).

Although general types of hunting are often referred to(culling, public hunting, etc), the disadvantages are not always acknowledged, such as the potential for public controversy, the wounding and crippling of deer (the extent of which is influenced by the weaponry type, skill level of hunters, etc), the problem of unretrieved arrow-struck deer, public safety issues, low efficiency rates, and various humane concerns stemming from any method that involves killing animals.

Bow-hunting can incur crippling rates ranging from 40%-60% (Gregory 2005, Nixon et. al 2001, Moen 1989, Cada 1988, Boydston and Gore 1987, Langenau 1986, Gladfelter 1983, Stormer et.

al, 1979, Downing 1971 ). In other words, on average, for every deer struck by an arrow, another may be crippled but not killed. Archers may be good at hitting a stationary target but judgement, distance estimation, and adrenaline all come into play and influence whether or not a hunter attempts a "good shot" or one that may pose a potential public safety risk.

Bow-hunting is also one of the more *inefficient* forms of hunting, in terms of the time and effort required for the number of deer taken. For example, in a frequently cited and published case of deer reduction by bow-hunting, *it took 66 hunters a total of 371 outings to kill 22 deer* on a 53 acre site (Kilpatrick and Walter, 1999).

## Confounding Effect of Deer Reproductive Biology

One of the main problems with trying to manage deer through hunting -- as repeatedly cited during a Smithsonian Institute conference on Deer Overabundance (McShea et. al 1997) -- is that deer are highly prolific, and their high reproductive rate can quickly compensate for declines in their population. They exhibit higher productivity (i.e. more twins and triplets are born, have higher survival rates, etc) as their numbers lessen and more food becomes available for the remaining deer. In other words, they "bounce back." This is why removal can result in a yo-yo effect, as demonstrated on Angel Island, where biannual removals over a 5 year period of 215 to 25 deer still resulted in high rebound to about 250 deer (McCullough 1997). Thus if attempts are made to lower Holmdel's deer population through hunting, it will require continual and aggressive removals to maintain the deer at a low level and prevent population rebound.

## The Scientific Approach

One of the most important tasks in designing a wildlife conflict mitigation plan is to a) collect and compile data to indicate the magnitude and scope of the problem(s) b) clearly define what the problems are, and c) set clear, achievable and measurable goals and a way to achieve them and d) create an ongoing monitoring program to assess the program's progress and level of goal achievement. Both scientific as well as ethical standards need to be met in any program that seeks to control "pests."

Hunting is often proposed by most communities as the best way to manage deer problems. However, in most communities, valid baseline data are not collected, clear measurable goals and performance indicators aren't set, and a monitoring system is not put in place, as is the case with most of studies cited in the report. The result is that the hunt is measured by anecdotal observation which in itself is affected by people's pre-conceived attitudes and expectations.

### *Case in Point: Deer-Car Collision Data*

Many people believe that reducing the deer population will result in fewer deer car collisions. However, in certain communities where data was collected before and after hunting season, surprising results were obtained. For example, Town Administrator Tim Gordon acknowledged to the Westchester Deer Task Force that over a 8 year hunting period, the number of deer-car collisions did not decline in Millburn NJ (the Millburn Deer Task Force Report (pg 13) contained figures supporting this finding).

Likewise, a paper presented at the 30th Annual Meeting of the Southeast Deer Study Group (2008) reported on a study by the Virginia Department of Transportation which assessed hunting pressure, deer density, amount of forest and housing development, presence of crops and corridors and road metrics for 228 road segments (each 250 miles in length) within the county to determine which factors are correlated with deer-vehicle collisions. The logistic regression indicated that deer density was either a non-significant factor or that deer/vehicle collisions were lower in areas of higher deer density. Hunting pressure was also not a significant variable. The conclusion was that "there is little evidence that increased deer harvest reduced deer/vehicle collisions. (McShea et al, 2007). These kinds of data reflect the complexity of deer related problems and the need to make sure the remedy actually addresses the problem.

When Professor Oswald Schmitz, PhD of the Yale School of Forestry and Environmental Studies addressed the Westchester Deer Task Force at its meeting on October 26th, 2006, he summarized the problem in stating:

**"What I don't see in all of these debates is:**

1) Clear articulation of human values that shape the decisions made about hunting versus other forms of management.
2) Clear articulation of what constitutes unacceptable "deer damage"
3) Clear definition of "biodiversity" and what is an acceptable level of biodiversity
4) Clear definition of "ecosystem health"
5) Clear identification of the location and scale of the 'deer problem'"

"**And what I don't see from the proposed hunting as a management solution:**

1) Clear definition of what constitutes a goal for the management—in terms of measurable performance indicators (this must also consider the confounding effects of other human/land use impacts).
2) Clear explanation of how one will decide that the management goals have been achieved—in terms of measurable performance indicators (this must also consider the confounding effects of other human/land use impacts)"

**<u>Are deer responsible for lack of regeneration and biodiversity loss?</u>**

While it is easy to point the finger at deer and blame them for our forest regeneration woes, the reality is that our ecosystem issues are fraught with complexity, and also subject to human aesthetic preferences which may or may not be grounded in any sort of biological reality. For example, we may want to see more biodiversity in certain areas because we are used to having seen it there in the past. Yet nature is not static. A condition in which a forest floor was carpeted with wild flowers can rapidly transition into another state as a result of many different processes. As forest succession proceeds, "natural" plant and wildlife species abundance and diversity changes. Certain plant species are shaded out as trees mature and the forest canopy closes. Later successional stages are, by their very nature, less diverse.

While we may want to see a certain flower grow somewhere doesn't mean it "should" be there. Take the case of certain trillium, which are often used as an indicator of high deer abundance. Some research shows that soil acidity is a much stronger determinant of where purple trillium

and many important timber species (red oak, sugar maple, quaking aspen, etc) will grow, rather than deer density levels. (Penn State College of Agricultural Sciences News Release, May 17 2002).

The impact of deer on exotic and invasive species is another complex issue. Deer appear to control the spread of certain invasive plant species while helping to proliferate others. The lack of an understory in eastern hemlock forests is often attributed to deer, yet it is simply a characteristic of older hemlock stands that they be relatively depopulate of understory. The less visible yet catastrophic impact of the wooly adelgid is killing entire stands of hemlock and dramatically changing ecological conditions in the riparian areas these trees favor. How ecological processes are affected by deer browsing is not as simple as meets the eye.

**Is the science "in" on this issue?**

This is anything but the case. With the deer "problem" only becoming an issue in the last 20-25 years, we are still far from understanding how conditions have changed and what the future will look like in our eastern forest fragments.

Deer "exclosures" have been pointed to as proof of deer impacts on forests, yet we must be mindful that these enclosures show us what a patch of forest might look like *without any deer.* This is not a condition that will ever again be likely to occur. Deer elimination is not a viable, achievable, or socially acceptable option. And we should not fool ourselves that allowing some public deer hunting will bring a highly bio-diverse condition back to our forests.

Recent research even indicates that deer **hunting** can have unintended negative consequences for biodiversity with respect to herptofauna (snakes, salamanders, amphibians) and many invertebrates (Greenwald et. al 2007). The findings also suggest high deer populations might be creating a richer soil mixture through their droppings which can benefit some plants, which in turn attracts a wider diversity of insects and invertebrates. According to a UPI article, (upi.com Science News, 10/22/08) "By just reducing the number of deer in the forest, we're actually indirectly impacting forest ecosystems without even knowing the possible effects," said Katherine Greenwald, co-author of the study. The authors concluded that "management plans should explicitly address this possible outcome (Greenwald, 2008)."

There's no denying that deer can have a significant impact on our northeastern forests. Deer impacts can be very visible and deer browsing can unquestionably alter forest structure. However, the bottom line is that single species management has never been a viable way to manage a complex, multi-faceted problem. By intensively managing one component of a forest, the result may be unforeseen impacts on other components, such as the spread of certain invasive plant species. There simply has not been enough time since the return of deer and forests both to greater abundance and health than in the past for us to understand (and properly plan for how to influence if necessary) the complex ecological associations involved.

Solutions can be borrowed from the field of forestry to enhance forest regeneration. Such solutions can include selective cutting of canopy (to allow more light), permanent or moveable fencing, small patch cuts, liming, fertilization of soil, stem protectors, and more. But first, the

actual problems need to be identified in a site-specific (not generalized) manner and solutions tailored to those specifics.

## Conclusion

In closing, asking residents to support the opening up of public land for a hunting program of dubious value, utilizing inhumane methods, is something that town officials will have to carefully consider. The HSUS does not believe that allowing deer hunting is an efficient, humane or justifiable way to achieve deer problem mitigation goals.

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