MANAGING TOO MANY DEER

FOREST STEWARDSHIP MANAGEMENT NOTE #42

"Is Bambi Hogging the Forest?"
- Washington Post headline, Jan. 1993 -

INTRODUCTION

Many people, especially hunters, like to see a lot of deer. In terms of aesthetics, recreation, and economic impact, the white-tailed deer makes major contributions to the quality of life in Michigan. However, it is possible to get too much of a good thing, and a variety of problems related to high deer population levels exist in some parts of the state. This Note briefly reviews the nature of these problems and ways private landowners can minimize such problems where they occur; it does not apply where deer population levels are low or moderate.

WHAT ARE THE EFFECTS OF HIGH DEER POPULATIONS?

To understand the overall problem it is necessary to look at how the views of various interest groups change as deer population levels rise:

1. HUNTERS - generally favor high deer populations because they achieve greater success rates under these conditions. However, support for increased numbers declines when overbrowsing occurs, as many hunters understand that overbrowsing threatens deer health in the short-term and deer numbers in the long-term (#7).

2. FARMERS - generally tolerate low levels of crop damage from deer, but refuse to ignore the problem when economic losses become significant. Statewide, losses amount to millions of dollars each year.

3. OTHER BUSINESS PEOPLE - generally profit from the increased business hunters bring to popular hunting areas.

4. HOMEOWNERS - enjoy having deer of "their own", but become outraged when their vegetable gardens, fruit trees, and ornamentals are damaged.

5. TRAVELERS - enjoy seeing deer along the highway, but such sights become much less appealing after seeing the results of a deer-vehicle collision. Statewide, annual losses amount to millions of dollars.

6. CONSERVATIONISTS - favor abundant deer for their own sake and as a food supply for the recovering wolf population in the Upper Peninsula, but are concerned that overbrowsing is threatening certain native plants and the wildlife species that depend on them (#8).

7. FORESTERS - understand that deer are part of the forest ecosystem, but are having increasing difficulty regenerating timber stands due to heavy browsing of seedlings and stump sprouts.

8. NATURAL RESOURCE AGENCY PERSONNEL - recognize it is part of their traditional mission to assist landowners who want to encourage deer but are finding that the effects of too many deer conflict with their new mission to maintain biodiversity (FSMN #37).

9. OUTDOORS PEOPLE IN GENERAL - are concerned about Lyme disease, which can be contracted from black-legged ticks (formerly called the deer tick) that live on deer and other woodland mammals. Although the extent of the disease is controversial, the area of real concern in Michigan appears to be restricted to the western Upper Peninsula. Nevertheless, many people perceive there to be a danger of Lyme disease where deer are abundant.

HOW MANY DEER ARE ENOUGH?

The textbook answer to this question is that deer population levels should be maintained near their "carrying capacity". However, there are three types of carrying capacity that must be considered:

1. BIOLOGICAL CARRYING CAPACITY - the maximum number of healthy deer the ecosystem can support over many years without loss of habitat quality.

2. CULTURAL CARRYING CAPACITY - the maximum number of deer that can coexist compatibly with local human populations. In residential areas the cultural carrying capacity is often lower than biological carrying capacity as homeowners are not tolerant of browsing on their landscaping. Where hunting clubs occur, the cultural carrying capacity exceeds the biological carrying capacity as hunters tend to want as many deer as possible.

3. BIODIVERSITY CARRYING CAPACITY - the maximum number of deer that can exist without negatively affecting plant and animal diversity. Numbers vary greatly from area to area, but 20 deer per square mile can be used as a very rough rule-of-thumb for biodiversity carrying capacity. Whatever the local figure is, it will usually be lower than cultural carrying capacity.

Your own answer to the question of how many deer are enough depends on your point of view. If timber production is an objective, it is worth considering that browsing begins to inhibit the regrowth of timber species at between 10 and 20 deer per square mile. However, it is important to note that deer can also play a positive role in maintaining the biodiversity of forest ecosystems. This is because a small number of plant species can sometimes dominate an area, and thereby reduce biodiversity, especially if browsing levels are very low.

HOW CAN BROWSING DAMAGE BE MINIMIZED ON PRIVATE LANDS?

1. PROTECTING VEGETATION - The following methods attempt to limit deer problems by protecting vegetation. All of these methods are stop-gap measures in that they primarily treat only the symptoms of deer overpopulation rather than the cause.

CHEMICAL REPELLENTS - Many substances, from human hair to mountain lion urine, have been tried for repelling deer and other damaging wildlife. Success has been mixed (#1-3,9). Several repellents are now commercially available (FSMN #43).

AREA FENCING - Fencing is the most effective method of protecting vegetation directly (FSMN #3).

INDIVIDUAL PLANT BARRIERS - Valuable plants can be individually protected with various types of cages, netting, and other barriers (FSMN #13).

NOISE - Noise canons designed to scare animals away are available (FSMN #43), but no studies of their effectiveness on deer are known.

DOGS – Fencing or training dogs to stay in damaged areas can be effective in small acreages.

2. REDUCING DEER POPULATION LEVELS - The following methods attempt to limit deer problems by reducing the number of deer in the problem area. Regulations change with time and vary from place to place, so always check with the DNR.

DEER HUNTING - Various attempts have been made to reduce deer numbers in areas of overpopulation by modifying deer hunting regulations to allow more deer to be taken in problem areas and by issuing special deer control permits to affected landowners.

DEER REMOVAL - The idea of relocating live deer to other areas is very popular with the general public, and some attempts have been made, especially in urban areas, to trap and remove deer from areas where they are causing damage (#5). However, this practice has generally not proven to be successful nor cost-effective.

DEER HABITAT MANAGEMENT - Adjusting the amount of deer food (and/or cover) available in an area is the most effective long-term means of controlling deer herd size (FSMN's #40). The aim should be to schedule timber harvests so that there is always a "balance" of forest age classes in an area.

If deer are already overpopulated, increasing forage and browse by additional timber harvesting will tend to cause even greater overbrowsing and eventual starvation. If deer are underpopulated, the additional food stimulated by timber harvesting is likely to be moderately used and result to in a gradual increase in the deer population. A critical consideration here is that deer range over large areas so that effective habitat management will generally require coordination among landowners (FSMN #39).

3. INTEGRATED MANAGEMENT - Habitat management should be at the core of any deer management program. However, in the absence of predation, deer tend to overpopulate and cause deterioration regardless of habitat quality. Thus, carefully designed hunting seasons (or other harvest strategies), often including removal of antlerless deer, are also needed, with the possible exception of areas where populations of large predators can be successfully restored.

A FINAL CAUTION - Many factors other than browse, such as winter cover, fawning areas, agricultural crops, and snow depth influence deer populations levels. Consequently, landowners contemplating deer management projects should seek the advice of professional foresters and wildlife biologists (FSMN #43). Even with such advice, all management actions should be considered experimental and be adjusted according to the results achieved.

REFERENCES

FSMN #'s refer to other Forest Stewardship Management Notes in this series.

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