

Timber Management for Deer in  
Northern Michigan

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Forestry has long been accepted as a science. Wildlife Management? Well there are those who yet hesitate to give it that exalted classification. But a combination of the two - That is relatively new and recent. For that reason no attempt will be made in this paper to go into exact detail on this small portion of the subject. Rather, some of the reasons why timber management for deer is desirable in certain localities, and something of the projects being carried on by the State will be discussed.

The deer herd is one of Northern Michigan's more valuable assets. In addition to its aesthetic value to summer tourists, it is estimated that 200,000 deer hunters spend between 4,000,000 and 5,000,000 dollars annually in quest of the "wily buck." At least half of this sum is left in the deer country in exchange for gasoline, food, lodging, guide services and other items. Pro-rated over the 35,000 square miles of deer territory, this means an average annual return of more than fifty dollars per square mile to the people of this northern region - an income that is an important part of their yearly livelihood.

This income fluctuates in various areas as hunters come and go with the increase and decrease of deer populations. It therefore is desirable from an economic as well as a conservation standpoint to keep the deer herd as high as sound, sustained, broad, management practices permit.

It is known that large solid blocks of medium sized or large timber are not conducive of a maximum or even an optimum deer herd. Timber stands, diversified both in species and age have a much higher deer carrying capacity than larger, even aged pure stands. This higher deer carrying capacity of mixed stands results mainly from better and more available food and more desirable "close" cover.

Here in Michigan the main factor limiting deer populations in certain deep snow areas is a shortage of winter food. This food shortage is the result of two perfectly natural processes.

1. The natural growth of trees, and
2. The increasing consumption of food in winter by increasing deer herds.

The main winter deer foods in northern Michigan are white cedar foliage, and the twigs of most deciduous trees and shrubs. White cedar produces a maximum of winter deer food for a varying period when cedar is between 10 and 40 years of age. The amount of food produced and length of producing period depends on site, soil, density of stand, etc. In unbrowsed thick stands of young cedar, maximum food is produced when reproduction is 10 to 20 years old.

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Self-pruning, due to crowding, soon eliminates available food from this type stand. As soon as the tops are above reach of a deer the food is gone. In more open stands, which are common in our deer country, much food is produced when cedars are from 15 to 35 years of age. As these trees advance beyond the 30 to 40 year age period the foliage on the lower limbs is dropped and deer food production decreases sharply.

Browsing has a similar but more drastic effect on food producing cedars. If heavy browsing occurs early the young cedar is killed. If it comes in the sapling or tree stage - 15 to 35 years - then the foliage is removed from the lower branches and the tops carry on with little, if any, more foliage being produced low enough for a deer to reach.

The reproduction of deciduous tree species has a quite different cycle for, as compared with cedar, it comes in fast and grows out of reach in a hurry. Within 5 years, following a hardwood cutting, the reproduction is furnishing its maximum of deer food. If left unbrowsed it has grown up out of a deer's reach by 8 to 10 years and the food production has been reduced to practically nothing.

Browsing on hardwood produces more food instead of less, the reverse of cedar. As hard maple and yellow birch twigs are nipped off, branching is stimulated, thus producing two or more twigs where only one appeared before. The more browsing - the more twigs, is true except in extreme cases of continued heavy browsing when the young shoots are killed out. Under normal heavy browsing second growth northern hardwood should produce well for 10 years. But browsing intensity is seldom constant for a period of years. Light winters allow deer to scatter more and in one or two years the leaders on the previously heavily browsed saplings shoot up out of reach, the canopy closes in, and again a decrease in deer food occurs.

At this point game managers are confronted with a perplexing problem. Here, on game lands purchased with deer hunters license money, timber is growing to the exclusion of deer. Fast forestry practices say - let the timber grow to economic maturity. But deer hunters say - We bought that land to raise deer on - get that non-food producing timber out of there so more winter food can grow in.

What to do? - that is the question. Swamp species - spruce, balsam, and cedar are too small to be cut at a profit as soon as the cedar is self-pruned or over-browsed. On normal northern Michigan sites there is, in general, a gap of 20 to 30 or more years between the end of important winter deer food production and the earliest time when the sale of forest products will pay for the logging. And this is far short of a foresters conception of a "mature" stand.

Hardwood - likewise - has no market at the time it grows out of reach of deer and ceases to produce food. The gap here between the end of the deer winter food producing cycle and the merchantable stage is even wider than in cedar.

It appears that some compromise is necessary between the forester and the game manager on this point. The stand no longer producing winter deer food cannot be cut immediately except at relatively great expense and economic waste. However, to wait until this timber is economically mature would be too long for the sportsmen and unsound from a deer management standpoint.

It has been our responsibility to seek a solution for these problems here in Michigan. Under present economic conditions it appears that the "wait" period can be cut approximately in half by selling the timber as soon as it becomes "merchantable" rather than waiting for "economic maturity." This, of course, is not following the best forestry practice, but it removes the timber, which is what the game manager wants; the sale of timber pays for the operation, and the timber is not wasted.

The state owns roughly 20 percent of the 2000 square miles of winter deeryards in northern Michigan. These areas lie in State Forests, State Game areas, State parks and unadministered lands. During the last few years an extensive cutting program has been carried on, especially in the deeryards on state game areas. Some of these cuttings have been made primarily for deer. Deeryard management plans, although rough, have been made for many of the areas. In developing these plans it was found that much economically mature timber was available. Therefore it was not necessary to cut the younger timber at this time. There was enough older timber to fill the immediate cutting quota.

At present each district game manager is governed, in issuing his cutting permits, by a set of very flexible rules. These cover time of cutting, species to be cut, minimum diameters, stump height, slash disposal, etc. Regulations for each permit are determined from an investigation of the area at the time of sale. The primary object in swamp cutting, of course, is to leave conditions optimum for natural cedar reproduction. These conditions are rather difficult to define. In fact, they are not too well known. They vary with the moisture, the site, the cover on the forest floor, the soil, the species present, the time of cutting, the character of the cut and many other factors. However, with the aid of the State Forests and the U. S. Forest Service much progress has been made. Cedar reproduction is slow growing and the results of the first cuttings are only now beginning to show up.

It is hoped that as results become more apparent the technique can be greatly improved.

Cuttings in hardwood areas need not be watched so close<sup>ly</sup> as this type of reproduction readily reseeds under normal logging procedure.

Up to the present about the only radical change made from ordinary forest practice is a shorter cutting cycle, removing the timber as soon as merchantable. It would seem that, in view of the possibilities of an increased deer herd and its accompanying annual return to residents of the deer areas, such action is entirely justified.