# A PRELIMINARY REPORT ON THE YOKOING OF THE WHITE-TAILED DEER (ODOCOILEUS VIRGINIANUS) ON THE HURON MOUNTAIN CLUB

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# INTRODUCTION

The Huron Mountain Club is located approximately 9 miles northwest of Big Bay, Michigan. Within the club boundaries, is a yarding area of the white-tail deer (Odocoileus virginianus). In February 1968, I began an analysis of the vegetative cover types comprising this yard and of the movements of the white-tail deer within the yard. Preliminary cruising showed the yard to be comprised of three types of vegetative cover. These were a Red pine and Jack pine area north of Pine Lake, a White cedar area bordering Lake Superior in an area known as Jensen's Swamp and the cover type of greatest size and largest deer concentration, the Hemlock-hardwood forest.

Through personal conversation with Mr. Louis Verme, Game Biologist with the Michigan Department of Natural Resources, I made my decision to concentrate my study in the Hemlock-hardwood yarding area. This decision was made because Mr. Verme related that the Hemlock-hardwood deer yard is prevalent throughout the western end of the Upper Peninsula of Michigan, yet few studies have been conducted in this type of yarding area. Mr. Verme, therefore felt the large Hemlock-hardwood stands in the Huron Mountain Club would provide an excellent opportunity to obtain data on this type of deer yarding area. Mr. Verme also believes many deer die of winter starvation in the Huron Mountain area making the gathering of data in the Huron Mountain area even more urgent.

The objectives of my study then were to determine the parameters characterizing the Hemlock-hardwood cover type and the movement of deer within the yard during the winter and movement into the yard

in the fall and from the yard in the spring. The area I chose to obtain data on vegetative parameters was located directly north of Rush Lake. This area was chosen because, it was the area of greatest deer concentration from late November 1968, until late February 1969. By choosing the Hemlock-hardwood area of greatest deer concentration, not currently being logged, I felt the most accurate description of what attracted deer to a Hemlock-hardwood yarding area would be obtained.

The parameters I chose to study were the composition, frequency, distribution, density, dominance and importance values for the vegetative species present in the Hemlock-hardwood yard. Browse production was also measured as well as the degree of utilization of browse species by deer in a Hemlock-hardwood yarding area.

## METHODS

The method of vegetation sampling I employed used a series of rectangular quadrats 10' long, 2' wide and 6' high. Use of this method of vegetation sampling allowed for the collection of all necessary data to estimate the vegetative parameters. To allow for the simultaneous collection of data on browse utilization, twenty of these quadrats were randomly sampled per month. Percentage utilization of browse was estimated by counting browsed vs. unbrowsed twigs for each specie present in the quadrat. Only twigs above snow level were counted since little evidence was found of deer "pawing" in the snow for food. Then after defining browse as the current annual growth of a plant, I clipped the current annual growth on each unbrowsed twig in the quadrat. The samples of browse from each quadrat were then oven dried for 72

hours at 106 degrees Centigrade. The samples were then weighed to obtain an estimate of the amount of browse remaining on the sampled area for each progressive month. Combining this estimate of the amount remaining with the percentage utilization value also provides an estimate of the amount of browse produced on the area (Table 1).

Movements of the deer were monitored by use of self-attaching collars provided by the Michigan Department of Natural Resources. Red collars were placed in the Hemlock-hardwood area and green collars in the Red pine-Jack pine area. To conserve time and because it contained the fewest deer of the three cover types Jensen's Swamp was omitted from the collaring program. Two collars were taken however; by deer in the "edge" area between the Hemlock-hardwood area north of Rush Lake and Jensen's swamp. These two collars are listed as having been taken in Jensen's Swamp in Hendrickson's record of collared deer in his Preliminary Report.

## RESULTS AND DISCUSSION

I have refrained from giving the numerical data for the vegetative parameters in this report due to their lengthy nature. The data on browse utilization and production is presented however; and this data appears in Table 1. The data on the vegetative parameters will appear in my thesis for the Master of Arts Degree from Northern Michigan University.

The locations of the 24 deer that were successfully collared appear in John Hendrickson's Preliminary Report and therefore; to avoid duplication I have omitted these locations from my report. Four sightings of collared deer were made in 1969.

All four deer were tagged with green collars and all were observed in the Red pine and Jack pine area. My personal observations on the movement of deer within the yard indicated that the early and harsh winter of 1968 and 1969 forced the large number of deer observed in the Hemlock-hardwood area in November into the Red pine-Jack pine area by late January. The deer had to move because they had exhausted the browse supply in the Hemlock-hardwood area. It should be noted that since the collaring program was not began until the middle of February then the movement I have just described would not be shown by the collaring results. This early deer movement would also account for the poor collaring success in the Hemlock-hardwood area, as well as the four sightings of collared deer in the same area in which they were collared.

The data I have obtained on browse production and cover tends to support my belief that the deer enter the Hemlock-hardwood area in late November primarily for the excellent shelter it provides, rather then for the limited browse supply the area contains. Due to this limited browse supply the area is soon over-utilized and the deer move out of the Hemlock-hardwood area into the Red pine-Jack pine area, seemingly to prefer to eat something poor in nutrition then to eat nothing at all (Table 1).

This movement to the Red pine and Jack pine cover brings us to the third major area of this study, mortality. A detailed account of deer mortality in the Huron Mountain Club yard was kept by Hendrickson and myself. The locations of the 21 dead deer are recorded in Hendrickson's report so I have omitted them to avoid duplication. An analysis of these locations tends to support my belief that deer move from the Hemlock-hardwood area to the Red pine-

Jack pine area, because no dead deer were found in my study area north of Bush Lake, yet 8 dead deer were found in the Red pine-Jack pine area surrounding Pine Lake. The 6 dead deer found by Stuart Bennet are significant since cutting was going on in the Conway Lake area. The reason for Bennet's large number of finds can only be attributed to his search being concentrated in the Conway Lake area only while Hendrickson and myself were concentrating our search in the entire club yarding area.

The final area of my study was a unexpected one. It came about as a result of the decision of the Huron Mountain Club to place in motion a program of corn feeding. It became apparent to me that since this action was being undertaken throughout the state, the feeding program in the club would provide an excellent opportunity to study the results of this program. The method of analysis used consisted of randomly selecting 6 corn piles and checking them following a fresh snow or after replenishment by the club guards. This method was found quite satisfactory in determining whether there was evidence of recent utilization. The pile was then classified as utilized or unutilized. The total degree of utilization amounted to 50%. The degree of utilization for each individual pile is given in Table 2. I feel this feeding program was of little value because of the low 50% utilization value, and also because an autopsie of one deer by Dick Antilla, Habitat Biologist for the Michigan Department of Natural Resources, showed the deer to be suffering from malnutrition despite a stomach filled with corn as well as Red pine and Jack pine needles. It would appear that deer who in late winter are in a poor state of health and near starvation find the dry, hard, whole kernals of corn difficult to assimillate. If artificial feeding is carried on in future years it would be more beneficial if the

feeding was started before the deer were already forced unto starvation diets of Red pine and Jack pine needles.

In regard to deer movement, outside the yard, I am currently working in the Yellow Dog Plains area, looking for collared deer. This area was chosen since some the deer that winter in the Huron Mountain Club are believed to use the Yellow Dog Plains area as a summer range. Out of the 3 deer that have been seen however; none have been collared. Four deer have also been observed on the northern end of County Road 550, without collars.

Plans for next years reseerch call for a continuation of the vegetation study, with the possible establishment of some permanent plots. I am hopeful of some returns on collars, during the 1969 firearm deer season, thus providing some more information as to deer movement. Mortality again will be monitored, hopefully a less severe winter will make this task one of less work than last winters.

TABLE I

| | % Utilization per Species | Total % Utilization | Total Browse Produced (lbs.)/ Acre |
|---|---|---|---|
| December 17, 1969 | | | |
| Striped Maple *Acer pensylvanicum* | 25% | | |
| Sugar Maple *Acer saccharum* | 20% | | |
| Hop Hornbeam *Ostrya virginiana* | 22% | | |
| White Birch *Betula papyrifera* | present but dead | | |
| | | 24% | 10.728 |
| January 12, 1969 | | | |
| Striped Maple *Acer pensylvanicum* | 51% | | |
| Sugar Maple *Acer saccharum* | 46% | | |
| Hop Hornbeam *Ostrya virginiana* | 47% | | |
| American Elm *Ulmus americana* | present but dead | | |
| | | 47% | 10.32 |
| February 8, 1969 | | | |
| Striped Maple *Acer pensylvanicum* | 81% | | |
| Red Maple *Acer rubra* | 100% | | |
| Sugar Maple *Acer saccharum* | 62% | | |
| Hop Hornbeam *Ostrya virginiana* | 64% | | |
| Hemlock *Tsuga canadensis* | 100% | | |
| | | 70% | 9.3003 |

TABLE I
(Cont.)

| Amount of Browse Remaining per Species (lbs.)/acre | Total Amount of Browse Remaining (lbs.)/acre |
|---|---|
| 1.495 | |
| 3.737 | |
| 2.921 | |
| | 8.153 |
| 1.197 | |
| 2.917 | |
| 1.358 | |
| | 5.472 |
| .8987 | |
| 1.8052 | |
| .0862 | |
| | 2.7901 |

TABLE I
(cont.)

| | % Utilization per Species | Total % Utilization | Total Browse Produced (lbs.)/ Acre |
|---|---|---|---|
| March 8, 1969 | | | |
| Largetooth Aspen *Populus grandedentata* | 80% | | |
| Striped Maple *Acer pensylvanicum* | 83% | | |
| Red Maple *Acer rubra* | 88% | | |
| Sugar Maple *Acer saccharum* | 89% | | |
| Hemlock *Tsuga canadensis* | present but dead | | |
| | | 83% | 1.79 |

TABLE I
(Cont.)

| Amount of Browse Remaining per Species (lbs.)/acre | Total Amount of Browse Remaining (lbs.)/acre |
|---|---|
| 2.3958 | |
| .1917 | |
| 1.4375 | |
| 2.6354 | |
| | 8.153 |

TABLE 2

| Location | % Utilized | % Unutilized | Total % Utilization |
|---|---|---|---|
| Corn pile West of Skeet Range | 100% | | |
| Corn pile at Skeet Range | 50% | 50% | |
| Pine Lake Point Corn pile | 75% | 25% | |
| Pine Lake Point Trail Corn Pile | | 100% | |
| Pine Lake Gate Pile | 37.5% | 62.5% | |
| Rush Lake Trail Corn pile | 37.5% | 62.5% | |
| | | | 50% |