

Michigan Deer

I. H. Bartlett

Game Division, Michigan Department of Conservation

The total area of the State of Michigan is nearly 57,000 square miles. Of this, 34,500 square miles are considered deer range; the remainder, agricultural territory which lies in the southern portion of the Lower Peninsula. Of the 34,500 square miles of deer range, 16,300 are in the Upper Peninsula and 18,200 in the northern portion of the Lower Peninsula. There are deer over most of this area during the summer with heavy concentrations spotted in various locations.

Under virgin conditions before the white man entered the picture much of the present deer territory was covered by stands of big timber, both hardwood and pine. Under this big timber there was very little undergrowth for cover and food and consequently there were relatively few deer. Then, as now, wintering areas were necessary; however, swamps had grown up to big timber and there was a relative scarcity of winter food. These conditions contributed to the small size of the deer herd which apparently existed in the northern part of the state at that time. By 1850 logging operations had created small openings here and there along rivers and streams, in which desirable low-growing shrubs produced an increasing amount of food and cover. As this food and cover increased, the deer herd increased accordingly. By 1880 it appears the deer herd had reached a peak and because of forest fires in the slash areas burning out this desirable food and cover, the deer herd started to decline. This decline continued until 1900 or 1910 when the deer herd "struck bottom." Heavy forest fires continued to keep desirable food and cover at a minimum until 1915 when forest fire protection gained impetus all over the state. Through the gradual eradication of fire in the wild areas, the desirable food and cover started again to grow in.

By 1920 the deer herd showed a distinct response and by 1925 had increased remarkably. The carrying capacity of wintering areas have been found to be the main factor limiting the maximum deer population in Michigan. By 1925 many of the wintering areas had grown up, produced an abundance of winter food, had become overbrowsed because of increasing deer populations or self-pruned because of advanced growth, and the carrying capacity was again on the decline. However, conditions in general over the state continued to improve until possibly 1935. During this period huge amounts of winter food were produced and the deer herd responding had increased to probably the largest in the history of the state. With this huge herd and the growing up of the swamps, overbrowsing and self-pruning were inevitable. Since 1935 death from starvation among Michigan's deer has been widespread.

Talk given for Minnesota Game Protective League, St. Paul, Minn. -  
January 22, 1940



To obtain definite information on conditions, inventories have been carried on since 1927. Deeryards have been mapped to show cover types, available winter deer food, and deer concentrations. Pathological investigations have resulted in the finding of liver flukes, nose-fly larvae, and lung worms in Michigan deer. These, at first, were thought to contribute largely to winter losses, but further investigation revealed they were only minor contributing factors.

As starvation and overbrowsing spread through the state, various methods of relief were attempted. Live trapping and tagging were tried in 1931, but it was found that this method was inadequate to cope with the situation. This method failing, more information was obtained. Weather conditions were checked through 50 snow depth gauges scattered through the state and weather bureau records. Maximum snow depths in the Upper Peninsula ranged up to 5½ feet and up to 3 feet in the Lower Peninsula. It was found that food and browsing conditions were never stationary but were changing with the increase or decrease in deer populations and the growth of young reproduction. Many hardwood browse areas which for a few years when the reproduction was small had an enormous carrying capacity would in a few years grow up beyond the reach of deer and the carrying capacity would drop to almost nothing.

In 1928 artificial plantings of deer browse were experimented with and during the last ten years more than 3,000,000 plants have been set out. However, a combination of poor soil, poor growing seasons, and deer browsing have resulted in a survival of less than 25%. Artificial feeding was attempted in 1929 but found to be impossible under conditions existing in Michigan. Because fawns are unable to reach food in the swamps, the starvation mortality consists mainly of these young deer; for that reason it was desirable to feed the fawns. Feeding in racks does not accomplish this because the older deer drive the smaller deer away from the racks. Therefore, to adequately feed the fawns all deer must be fed separately. This entails the spreading of hay in small piles along feed lines stretching for miles through the deeryarding area. An estimate of the food and work necessary to feed Michigan deer for one winter indicated that over 750 miles of feed line would have to be put out. With 500,000 deer hungry and each needing three pounds of hay at least twice a week, 3,000 tons of hay would be needed at weekly intervals. This would have to be distributed miles from snow plowed roads through two to five feet of snow. If the feeding season extended over seven weeks, then 21,000 tons of clear clover or alfalfa hay would be needed. It is readily seen that any such project would be hopeless.

Cutting overbrowsed cedar trees has been tried in an effort to bring the food in the tops down within the deer's reach. The inadequacy of this for permanent relief was indicated when the food on 2½ acres of cedar tops was completely consumed by deer in 48 hours. Under proper management this method might be used to relieve the situation in a few communities but is not the answer to the starvation question.



To further determine food requirements of deer, a deer feeding experiment containing fourteen 50 x 100 foot pens and eight one-acre browse plots has been established in the Cusino Game Area. From 50 to 100 deer have been in captivity in these pens for the past four years, and interesting and valuable information has been obtained. Through this work it has been found that white cedar is by far the most palatable, abundant, and nutritious winter deer food and readily explains why this once abundant natural browse has practically disappeared from the deer's winter menu, in many overbrowsed areas.

Overbrowsing of cedar in a swamp comes quickly as evidenced by conditions in the Baldwin Creek Swamp in Lake County. Ten square miles of excellent cedar were completely stripped of browse in three years. Many other areas in Michigan have gone through the same sad experience. In the northeast portion of the Lower Peninsula deer populations have been excessively high for the past ten years. In this area browsing on desirable foods has been so extreme that for a number of years now deer have been forced to live on balsam which contains very little nourishment. In this vicinity also they have been forced out of the conifer swamps during the heavy yarding period and have browsed on jack pine, which like balsam contains very little food value. The result of this type of feeding is inevitable--starvation! In one of these heavily overpopulated areas seven men walking abreast  $3/4$  of a mile found 57 dead fawns. Ten were picked up within 100 feet. While this is an extreme condition, certain areas searched for starved deer in the Upper Peninsula have indicated a starvation loss of 20 to 30 deer per square mile of overbrowsed deer yard. In the Upper Peninsula recent deer yarding investigations indicate over 600 square miles of deer yard in an overbrowsed condition. This is approximately half of the total yarding area north of the Straits. Forty-five per cent of the yarding area is in medium condition and 10% still contains an abundance of food for the deer using them.

General deer yard conditions in the Lower Peninsula are somewhat better with 45% of the yarding area in good condition, 26% medium, and 29% heavily overbrowsed. Winter losses from starvation during the past few years have been estimated to run between 10,000 and 20,000 annually. This really is not conservation. It is a deplorable waste which should and could be prevented.

All this, however, paints a rather depressing picture of the Michigan deer herd. It is but part of the story. Michigan has hunted under a one-buck law since 1921. In 1939 approximately 170,000 deer hunters were in the woods. The kill is estimated to have been between 40,000 and 50,000 bucks. Approximately 28% of the hunters in the field in 1938 brought home a deer. In spite of this seemingly heavy kill,

Michigan is still losing deer from starvation. This indicates poor management of a valuable natural resource. There is a certain definite, although changing, carrying capacity to the winter deer food available in Michigan. This carrying capacity limits the maximum number of deer which will come through the winter. Under good management practices any number of deer in excess of this carrying capacity would be taken by hunters during the fall, thus eliminating any possible waste through winter starvation. However, the Michigan Legislature has failed to give the Department the authority which it has requested to allow hunters to take more than bucks in certain areas where deer are known to be short of food; consequently, starvation and waste continue.

INB:ve  
2-2-40