

MICHIGAN DEER POPULATIONINTRODUCTION:

This report concerning the deer population of Michigan was made through the cooperation of the Game Division of the Department of Conservation and the Department of Zoology at Michigan State College. It is an unbiased report of the deer situation at the present time in Michigan.

DATA:

All statistics were calculated from the weekly reports of the conservation officers located in the districts of Michigan which support deer. The weekly reports were in chart form and included such information as the name of the conservation officer, district number, date, hours spent each day in deer territory, location of the area patrolled, the number of bucks, does, and fawns seen, as well as those seen which were not identified, and the weekly totals. A sample form is included in this report.

These reports were carefully compiled each week and segregated into counties. The totals for each county were obtained and the various ratios, percentages, and other calculations were figured from this material.

The sportsmen will probably feel that these returns are prejudiced and inaccurate because of the source of the material (conservation officers throughout Michigan) and they may be justified in such an assumption. However, in an attempt to allay their suspicions, we will make comparisons of material gathered from the conservation officers and that which originates with the sportsmen themselves - the deer hunters' tally cards which they mailed to the Department of Conservation.

Comparison to Previous Deer Tallies made by Conservation Officers

Tallies of the reports of the conservation officers began in 1929.

The tabulation was performed again in 1930 but was discontinued in 1931 due to a reorganization of the Department of Conservation's field forces.

### Lower Peninsula

In the Lower Peninsula the 1929 ratio of does to bucks was calculated to be 1.9 to 1; in 1930 the doe-buck ratio was 2.5 to 1; and in 1932 the ratio increased to 2.89 to 1. This shows a fairly constant increase in the ratio of does to bucks each year. Over 31,000 hours were spent by the conservation officers patrolling deer territory in the Lower Peninsula, during which 12,937 deer were seen which averaged .41 deer seen per hour of patrol. Of all the deer seen in the Lower Peninsula which could positively be placed in the buck, doe, or fawn column, only 14.5 per cent were identified as bucks. This percentage is instructive as we notice in 1929, 21 per cent of the identified deer were bucks. In 1930 the percentage dropped to 17 per cent, showing a steady drop in the percentage of bucks seen in the Lower Peninsula. The percentage of unidentified deer may be important as it bears on the care taken in identification and might give the Game Division an insight to the location of the conscientious conservation officer.

Nearly half of the deer seen in the Lower Peninsula were seen in Montmorency County. This is explained by the fact that there are many hunting clubs which have restricted membership and practice conservative shooting in their areas. The State has one refuge in Montmorency County in which no hunting is allowed - the Herman Lunden Game Refuge of 4,800 acres.

In the Turtle Lake district which is located near Alpena and embraces areas in Montmorency, Alpena, Oscoda, and Alcona Counties, deer have been increasing many years, chiefly as the result of conservative shooting practiced on the many private clubs which now occupy the bulk of many townships.

In Montmorency County over two deer were seen for each hour of deer patrol. The keeper of the Lunden Refuge in Montmorency County has a much

better opportunity to see deer than his fellow officers, yet probably the same deer was noted several times during the season in which he reported, which would give inaccurate returns for the season.

As the efficiency of a refuge is measured by the rate the game supplies increase and become available to the guns which are paying for the service, we should see that the Iunden Refuge is serving its purpose excellently.

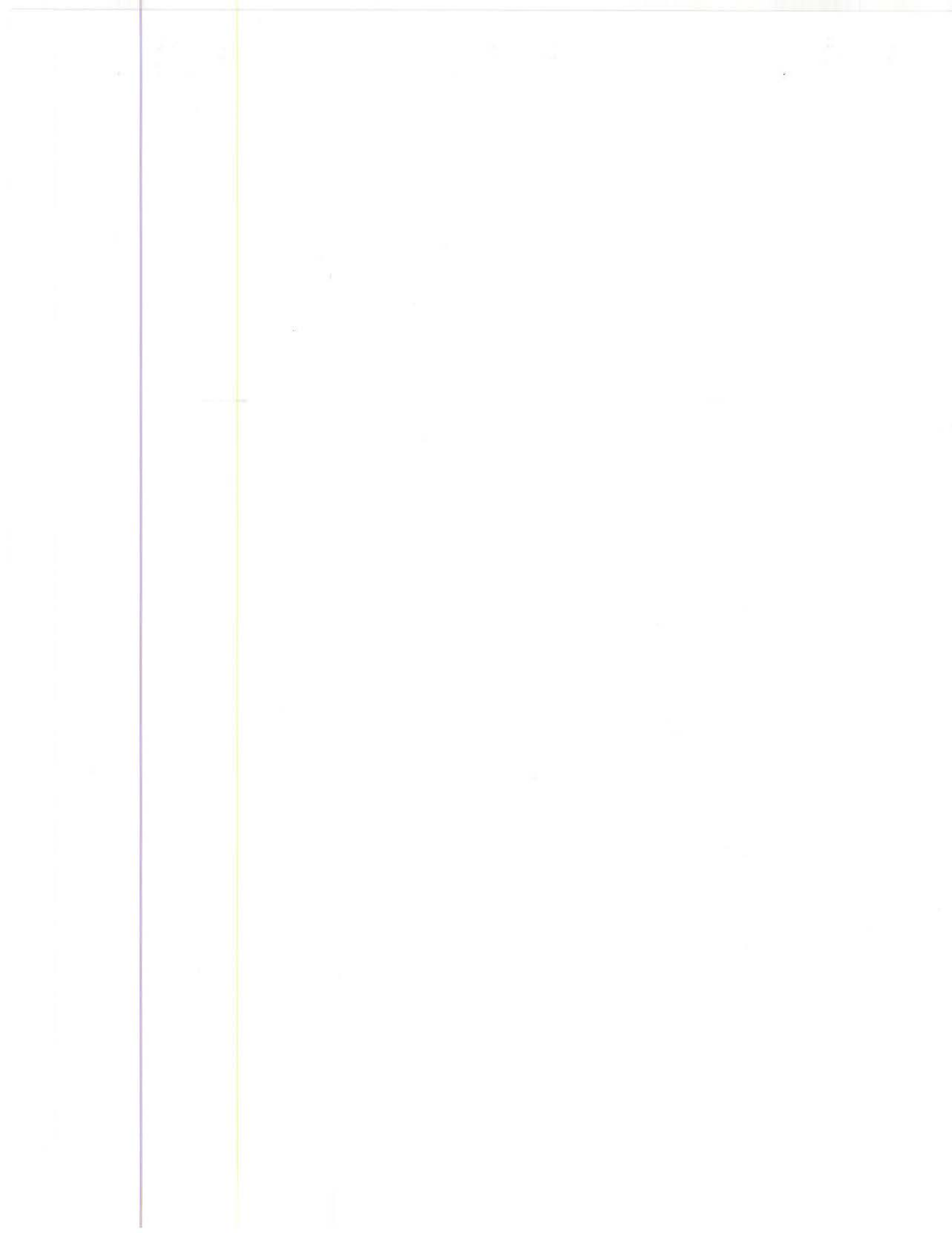
In the season of 1929-30 it was reported that deer were starving in great numbers in Alpena County. An investigation by the Game Division proved that the reports were true and many young deer were found dead. The cause of death was diagnosed as pneumonia, although the woods at that time were certainly bare of any natural food supplies.

Presque Isle County had the highest ratio of does to bucks of all the counties reporting in lower Michigan. The ratio of 7.3 to 1 is probably inaccurate due to the comparatively small number of deer seen by the officers.

The lowest doe-buck ratio was found to be in Wexford County with a ratio of .9 to 1, showing that there are supposedly more bucks than does in this county. As there were only 100 deer seen in Wexford County this conclusion is only approximate.

Four hundred and twenty-seven hours were spent patrolling deer areas in Kent, Midland, and Muskegon Counties, but no deer were seen in this length of time.

The fawn-doe ratio is interesting in the Lower Peninsula. In 1929 and 1930 the ratio was identical, .9 to 1, but in 1932 the ratio had increased to 1.03 to 1. This, indeed, seems to be a satisfactory ratio and should be gratifying to the Game Division to see that the reproduction is up to expectations.





be forgotten, or -- filled out to the best of his knowledge with a mental summary of all the deer seen during his hunting, with a very inaccurate division into the buck, doe, fawn, and uncertain columns.

A novel plan originated by Mr. Martin Webb of the Game Division would probably increase the number of cards returned to Lansing by the hunters if it would receive the approval of the officials. He suggests, in brief, the numbering of all hunters' tally cards and the raffling of a rifle in each district by the use of the numbered tally cards. Probably the psychology of this plan would appeal to the hunter more than any other plan we could suggest as the average hunter is a gambler by instinct, and if he realized that there would be a chance for him to win a rifle by merely filling out his card properly, he would not hesitate to do so. This plan would also bring the hunters and the Conservation Department together in a friendly contact at which lectures and moving pictures could be utilized to impress upon the hunters the problem which the Conservation Department is trying to solve. The scheme would probably invoke a great deal of criticism from those opposed to raffles - especially raffles by the State, but nevertheless it is a worthy plan and should succeed if attempted.

The doe-buck ratios from the deer hunters' reports all seem to be rather high compared to the ratios calculated from the Conservation Officers' reports.

The Upper Peninsula deer hunters reported a doe-buck ratio of 2.7 to 1 and a fawn-doe ratio of 1 to 1.6, while the conservation officers' tallies give a doe-buck ratio of 1.94 to 1 and a fawn-doe ratio of .79 to 1. The fawn-doe ratios calculated from the hunters' cards are a little lower than those figured from the conservation officers' tallies.

The Lower Peninsula doe-buck ratio as figured from the hunters' reports is also higher than that from the conservation officers' reports. The hunters reported a 3.7 to 1 ratio and the conservation officers a 2.89 to 1 ratio. The fawn-doe ratios of the two compare more favorably. The conservation officers' reports show a 1.03 to 1 ratio, and the hunters' reports a 1 to 1.5 ratio. This is fairly close considering the many possible mistakes which may be included in the hunters' reports.

In a comparison for the entire State we find the doe-buck ratio from the hunters' cards high, as might be expected as both the Lower Peninsula and Upper Peninsula ratios were high. The State doe-buck ratio from the hunters' reports was 2.9 to 1; the conservation officers' reports showed a 2.56 to 1 ratio. The fawn-doe ratio from the hunters' tally was 1 fawn to 1.6 does, and from the conservation officers' tally .97 fawn to one doe. Both ratios are satisfactory as far as fawn production is concerned.

From the above comparisons you can see that there is quite a discrepancy between the results of the two tallies. This brings up the question: Are the results from the deer hunters' reports sufficiently accurate and of enough value to justify the present expenditures and would any increase in expenditures bring a proportionate increase in accuracy?

The increased doe-buck and fawn-doe ratios are probably caused by the inaccuracy in the hunters' identification of deer. Anything sans antlers is considered a doe by most deer hunters; therefore, this will throw the ratios off to a great extent. A comparison of the 1931 and 1932 ratios of hunters' tally cards shows little variation as seen from the included tables.

#### Comparison with De Graaf's Report

E. C. DeGraaf, a senior forestry student at Michigan State College in 1932, prepared a report for the Game Division entitled "Correlation Between Deer Population and Cover Type in Upper Peninsula of Michigan." This report was based on a deer cover map of the Upper Peninsula mapped by Messrs. Bartlett and Wakeman of the Game Division, Department of Conservation in 1931; also on information obtained from deer hunters' report cards for 1931 which were forwarded to the Game Division. Mr. De Graaf has attempted to correlate the number of deer killed and their respective cover type for deer killed in the Upper Peninsula in 1931. He admits that both the cover maps and their plotted data are rather weak authority, stating that the biggest error in the work was the location of the points where the deer were killed and where the deer were seen. He says, "Well-stocked hardwood 8-20" D. B. H. (111 H8-20) is apparently the choicest deer cover, although the entire mass of data is hardly sufficiently accurate to come out with statements for any special cover. More accurate data for a limited area might give some satisfactory results; e. g. a detailed cover map of Drummond Island with complete accurate field data should give some interesting correlations."

De Graaf had the following criticism of the deer hunters' report cards:

1. Many conservation officers not conscientious in their card distribution.
2. Cards did not reach many resident hunters in deer territory, transient hunters from below the Straits filling out most of the cards.



3. The card concentration frequently came from one or two camps in a locality.

DeGraaf's report shows that the present cover for the Upper Peninsula is very well suited for deer, the biggest problem being the lack of a winter food supply.

We note from the conservation officers' reports that the deer are more scattered in the Upper Peninsula which would tend to indicate that there is a more uniform cover and food supply. De Graaf states that there are still four major questions:

1. Is the Upper Peninsula deer population increasing or decreasing?
2. Are the bucks being killed off at an earlier age?
3. What is the most favorable cover for deer?
4. What is the sustained yield capacity of deer in certain cover types?

#### Antler Age Tally

The percentages of young, medium, and old bucks killed each year has been determined since 1929. From tables prepared by the Museum staff at the University of Michigan, and Cahalane of the Game Division, the approximate age could be determined with fair accuracy from the antler development. Only one characteristic of the antlers appears to vary consistently with the age. This is the diameter of the beam.

An analysis of the antler tallies since 1929 shows that there is an increase in the  $1\frac{1}{2}$  and  $2\frac{1}{2}$  year age classes and a decrease in the percentage of bucks killed.

If an actual shortage of breeder bucks should presently develop, the result would show up quite promptly in the next conservation officers' tallies by a decrease in the percentages of fawns and would be noted in the next few antler tallies. If, for instance, a considerable number of does are going barren for the lack of bucks, there should be a progressive falling off in the percentage of the younger animals taken by hunters and tallied at the Straits of Mackinac, and at highway



junction points in the Lower Peninsula. A sudden shift of the ratio of the age classes would mean trouble and a steady drift would also need careful watching. So long as the antler and field tallies show fairly consistent ratios there would seem to be no occasion for worrying about the condition of the herd from that aspect.

### Conclusions

Any doe-buck ratio below 5 to 1 is considered satisfactory for the reproduction of deer, quoting the United States Biological Survey, American Game Commission, and the Michigan Game Division of the Department of Conservation as my authorities. Michigan has a much lower ratio than 5 to 1 and hopes to always maintain a doe-buck ratio below 5 to 1. When the ratio mounts too high, some legislative action must be taken to force this ratio down whether it be the popular "one deer law", or some other such law which will tend to balance the sex ratio. There is no cause for alarm for the welfare of Michigan's deer at the present time however.

The fawn-doe ratio for the State is satisfactory. Certainly a ratio of one fawn to every doe should be satisfactory. Michigan has a ratio of .97 to 1 which is very near a 1 to 1 ratio that the discrepancy could be overlooked.

The deer situation in Michigan is not as bad as it is pictured to be by many sportsmen throughout the State. The Game Division of the Department of Conservation is utilizing all possible available information to anticipate the needs of the deer. Such projects as measuring trends, determining capacities of deer yards, determining sex ratios and population, gun pressures, etc., are all carefully worked out and pieced together to give them the status of the deer.

Very little has been done as to the amount of illegally killed deer each year. Since 1929, poaching has increased. It is certainly due to the difficulty for the residents to meet expenses. The illegal kill in the Upper Peninsula

especially is much higher than the officials of the Conservation Department really are aware. I would suggest the investigating of this slaughter by the officials so they might obtain a fairly accurate note of the kill and take legal steps in preventing such a kill. The illegal kill does not affect the ratios presented, but does, of course, affect the population.

It is hoped that this report will cast a little light on the various deer projects which the Game Division is handling and will show how the Division is maintaining an alert program in order to be prepared to meet a serious deer situation which might confront Michigan at some later date.

W. V. Kennedy

March 17, 1933