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DEPARTMENT OF LANDS AND FORESTS  
Division of Fish and Wildlife**

**Hon. Clare E. Mapledoram  
Minister**

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Deputy Minister**





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POSSIBLE EFFECTS OF FOREST FIRE ON BIG GAME  
IN THE SIOUX LOOKOUT FOREST PROTECTION DISTRICT

by  
A. T. Cringan

Introduction

Ideal conditions for moose and white-tailed deer happen in the early successional stages of a forest, whereas those for woodland caribou usually occur in the climax. Therefore changes in the age-classes of forests likely affect the relative abundances of these ungulates. Three important succession-initiating factors have operated in the Sioux Lookout Forest Protection District in recent years - forest fire, logging and the spruce budworm. These have altered the ages of the forests and so have probably affected big game populations.

The purpose of this paper is to summarize the recent fire history of the district so as to facilitate interpretation of changes in big game populations. The effect of logging and forest insects should also be analyzed, and the results integrated with those of this study for a full understanding of the problem.

The Sioux Lookout Forest Protection District comprises 40,660 square miles, of which 33,748 are land.

Forest Protection Prior to 1926

No data concerning acreages burned annually prior to 1926 are available. Some residents think that the number of forest fires increased around 1910, when the trans-continental line of the Canadian National Railways was built. They also believe that fires were just as bad immediately prior to 1926 as they were in the period just following. Therefore I shall use the average area burned annually between 1926 and 1940 as an estimate of annual losses prior to 1926.

Areas Burned Since 1926

The average area burned annually has decreased greatly since 1926, as shown in Table I, based on data taken from District Annual Reports. The mean area burned annually between 1941 and 1955 was less than one-fifth of the average between 1926 and 1940.

The area burned over in 1956, 135 square miles, was the largest in any year since 1948, when 167 square miles were burned over, and the second largest since 1937. Consequently, the total area burned between 1956 and 1960 will likely be greater than average five-year totals experienced since 1940; future 10-year and 15-year totals will not necessarily be influenced as greatly.



TABLE I - Areas Burned During 5-Year, 10-Year and 15-Year Periods Since 1926  
In the Sioux Lookout Forest Protection District.

<u>5-Year Periods</u>	<u>Area Burned During Period</u>	<u>Mean Area Burned Annually</u>	<u>Percent of District's Land Area Burned During Period</u>
1926-30	841 sq. mi.	168 sq. mi.	2.50%
1931-35	830 sq. mi.	166 sq. mi.	2.46%
1936-40	639 sq. mi.	128 sq. mi.	1.89%
1941-45	127 sq. mi.	25.4 sq. mi.	0.38%
1946-50	188 sq. mi.	37.6 sq. mi.	0.56%
1951-55	8.1 sq. mi.	1.6 sq. mi.	0.02%
1956-60	*135 sq. mi.	*135 sq. mi.	*0.40%
<u>10-Year Periods</u>			
1926-35	1,671 sq. mi.	167 sq. mi.	4.96%
1931-40	1,469 sq. mi.	147 sq. mi.	4.35%
1936-45	766 sq. mi.	76.5 sq. mi.	2.27%
1941-50	315 sq. mi.	31.5 sq. mi.	0.94%
1946-55	196 sq. mi.	19.6 sq. mi.	0.58%
1951-60	*143 sq. mi.	*23.8 sq. mi.	*0.42%
<u>15-Year Periods</u>			
1926-40	2,310 sq. mi.	154 sq. mi.	6.83%
1931-45	1,600 sq. mi.	107 sq. mi.	4.73%
1936-50	956 sq. mi.	63.7 sq. mi.	2.84%
1941-55	323 sq. mi.	21.5 sq. mi.	0.96%
1946-60	*331 sq. mi.	*30.1 sq. mi.	*0.98%

\* Subject to change, depending on areas burned between 1957 and 1960.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions.

2. It is essential to ensure that all entries are supported by appropriate documentation and receipts.

3. Regular audits should be conducted to verify the accuracy of the records and identify any discrepancies.

4. The second part of the document outlines the procedures for handling cash and credit transactions.

5. All cash receipts should be recorded immediately and deposited in a secure bank account.

6. Credit sales should be recorded on an accrual basis, and accounts receivable should be monitored closely.

7. The third part of the document provides guidelines for managing inventory and stock levels.

8. Inventory should be counted regularly to ensure that the recorded quantities match the actual physical stock.

9. Excess inventory should be identified and disposed of in a timely manner to avoid obsolescence.

10. The final part of the document discusses the importance of maintaining accurate financial statements.

11. These statements should be prepared on a regular basis and reviewed by management to ensure their accuracy.

12. Accurate financial statements are crucial for making informed decisions and reporting to stakeholders.

13. The document concludes by emphasizing the need for transparency and accountability in all financial reporting.



Effect of Forest Fire on Age Composition of the Forest

Changes in the ages of the forests of the Sioux Lookout Forest Protection District as a result of fires may be computed using the foregoing information. Computations are subject to the following assumptions:

- (1) that areas burned annually prior to 1926 were of the same size as those burned between 1926 and 1940.
- (2) that 20% of all areas burned have already been burned within the last 15 years.
- (3) that 80% of all areas burned have not been burned for at least 150 years; (the unreality of this assumption is admitted; it is to simplify computations).
- (4) that areas burned from 1956 to 1980 will be essentially similar to those burned between 1946 and 1955.
- (5) that all other succession-initiating factors have little effect; (the unreality of this assumption is also admitted).

The results of the computations are given in Table II. Forest fire protection may already have markedly changed the areas of forests of certain ages in the district. For example, in 1940 there were 1,850 square miles of 0-15-year old burn, and in 1955 there were only 260 square miles of such burn. At the same time, the area of mature forest has probably increased. If the present efficiency of forest fire protection is maintained, it is possible to predict the time during which stands of fire origin of particular ages will become scarce:

<u>Stands of Fire Origin of Age-Class</u>	<u>Years During Which Such Stands Will Decrease In Area</u>
0-15 years	1940-1955
16-30 years	1956-1970
31-45 years	1971-1985
46-60 years	1986-2000
61-75 years	2001-2015
76-90 years	2016-2030

The area occupied by stands of fire origin less than 15 years old has already been reduced to less than 15% of the area occupied by such stands prior to 1940. Similar reductions will eventually occur to all young age classes.

While the decrease in areas of young timber is rapid, the relative increase in areas of mature timber is much slower. The computed area of old (151-years and over) forest increased by only 11% between 1940 and 1955.



TABLE II - Total Areas of Forests in Sioux Lookout District by Ages as a Result of Forest Fires, in Absence of Other Succession-Initiating Factors.

Period of Time	Estimated Area in Square Miles of Forest in Age-Class								
	0-15 yrs.	15-30 yrs.	31-45 yrs.	46-60 yrs.	61-75 yrs.	76-90 yrs.	91-150 yrs.	150- yrs.	
1926-1930	1,850	1,850	1,850	1,850	1,850	1,850	1,850	7,400	15,250
1931-1935	1,850	1,850	1,850	1,850	1,850	1,850	1,850	7,400	15,250
1936-1940	1,850	1,850	1,850	1,850	1,850	1,850	1,850	7,400	15,250
1941-1945	<u>1,280</u>	1,850	1,850	1,850	1,850	1,850	1,850	7,400	15,820
1946-1950	<u>765</u>	1,850	1,850	1,850	1,850	1,850	1,850	7,400	16,335
1951-1955	260	<u>1,850</u>	1,850	1,850	1,850	1,850	1,850	7,400	16,840
1956-1960	<u>260*</u>	<u>1,280</u>	1,850	1,850	1,850	1,850	1,850	7,400	17,410
1961-1965	<u>260*</u>	<u>765</u>	1,850	1,850	1,850	1,850	1,850	7,400	17,925
1966-1970	260	<u>260*</u>	1,850	1,850	1,850	1,850	1,850	7,400	18,430
1971-1975	260	<u>260*</u>	1,850	1,850	1,850	1,850	1,850	7,400	19,000
1976-1980	260	260	<u>765</u>	1,850	1,850	1,850	1,850	7,400	19,515
1981-1985	260	260	<u>260*</u>	1,850	1,850	1,850	1,850	7,400	20,020
1996-2000	260	260	<u>260*</u>	1,850	1,850	1,850	1,850	7,400	21,610
2011-2015	260	260	260	260	1,850	1,850	1,850	7,400	23,200
2026-2030	260	260	260	260	260	<u>260*</u>	<u>260*</u>	7,400	24,790
2031-2045	260	260	260	260	260	260	260	5,810	26,380

N.B. Underlined figures are those now established fairly accurately.

\* - These values will be low if there are large areas burned between 1957 and 1960, since heavy losses were sustained in 1948 and 1955.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes the need for transparency and accountability in financial reporting.

2. The second part of the document outlines the various methods and techniques used to collect and analyze data. It highlights the importance of using reliable sources and ensuring the accuracy of the information gathered.

3. The third part of the document focuses on the interpretation and analysis of the collected data. It discusses the various statistical tools and techniques used to identify trends and patterns in the data.

4. The fourth part of the document discusses the importance of communication and reporting. It emphasizes the need for clear and concise communication of the findings and conclusions of the study.

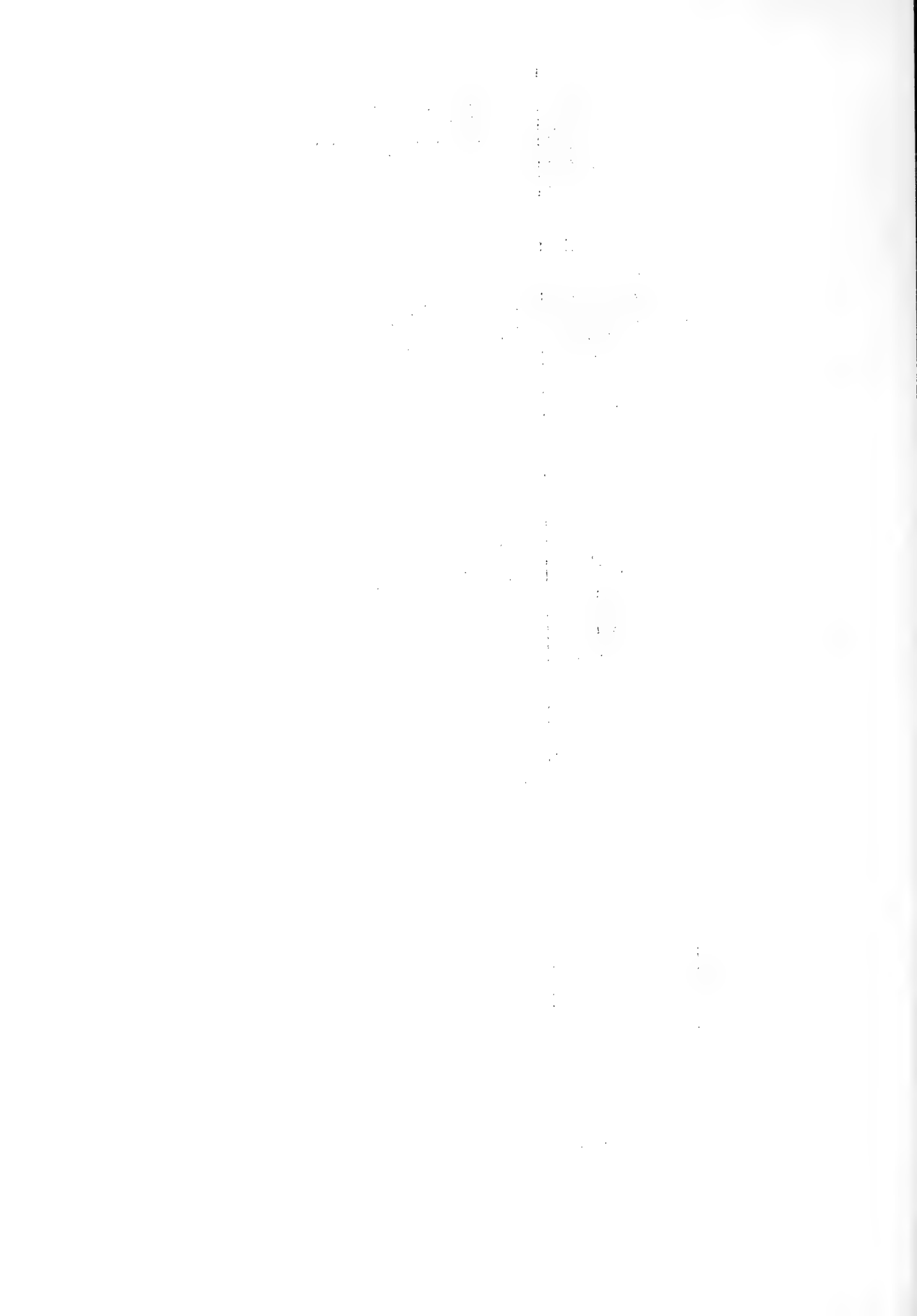
5. The fifth part of the document discusses the importance of ethical considerations in research. It highlights the need for researchers to adhere to ethical guidelines and ensure the integrity of the research process.

6. The sixth part of the document discusses the importance of ongoing evaluation and improvement. It emphasizes the need for researchers to regularly assess the quality of their work and make necessary adjustments.

7. The seventh part of the document discusses the importance of collaboration and teamwork. It highlights the need for researchers to work together and share their knowledge and resources to achieve their goals.

TABLE III - Computed Carrying Capacities for Moose of Theoretical Forests Derived In Table II.

Year	Moose carrying capacity of 0-15-yr. old stands at four moose per sq. mi.	Moose carrying capacity of 16-30-yr. old stands at two moose per sq. mi.	Moose carrying capacity of 31-45-yr. old stands at one moose per sq. mi.	Moose carrying capacity of older stands at four sq. mi. per moose	Total moose carrying capacity
1940	7,400	3,700	1,850	7,050	20,000
1945	5,120	3,700	1,850	7,192	17,862
1950	3,060	3,700	1,850	7,321	15,931
1955	1,040	3,700	1,850	7,448	14,039
1960	1,040	2,560	1,850	7,590	13,040
1965	1,040	1,530	1,850	7,719	12,139
1970	1,040	520	1,850	7,845	11,255
1975	1,040	520	1,280	7,988	10,828
1980	1,040	520	765	8,116	10,441
1985	1,040	520	260	8,242	10,062



### Effect of Habitat Changes on Moose

Burned-over areas seem to provide the best conditions for moose within 15 years of being burned. Such areas have been assigned a carrying capacity of four moose per square mile (Table III); 16-30-year old stands, two moose per square mile, 31-45-year old stands, one moose per square mile, and older stands, four square miles per moose.

The carrying capacity of the Sioux Lookout Forest Protection District may have been 20,000 moose in 1940, 13,000 of these on the 5,550 square miles of forests of fire origin less than 45 years old! In the absence of other succession-initiating factors, the carrying capacity is likely to drop to 10,000 moose by 1985, of which only 1,800 will be carried on the 780 square miles of forests of fire origin less than 45 years old.

The projected decline in moose carrying capacity is rapid, and is directly proportional to the decrease in area burned annually.

### Effect of Habitat Changes on White-tailed Deer

I am unable to suggest how deer populations in the district may be influenced by forest fire protection, as they are more strongly affected by other variables such as weather than are moose. I suspect that the carrying capacity for deer will decrease more and earlier than that for moose.

### Effect of Habitat Changes on Woodland Caribou

The woodland caribou fares best in mature stands, is present in forests approaching maturity, and absent from young forests. I have assigned a carrying capacity of one caribou per 10 square miles to forests between 91 and 150 years in age, and of one caribou per five square miles to older forests.

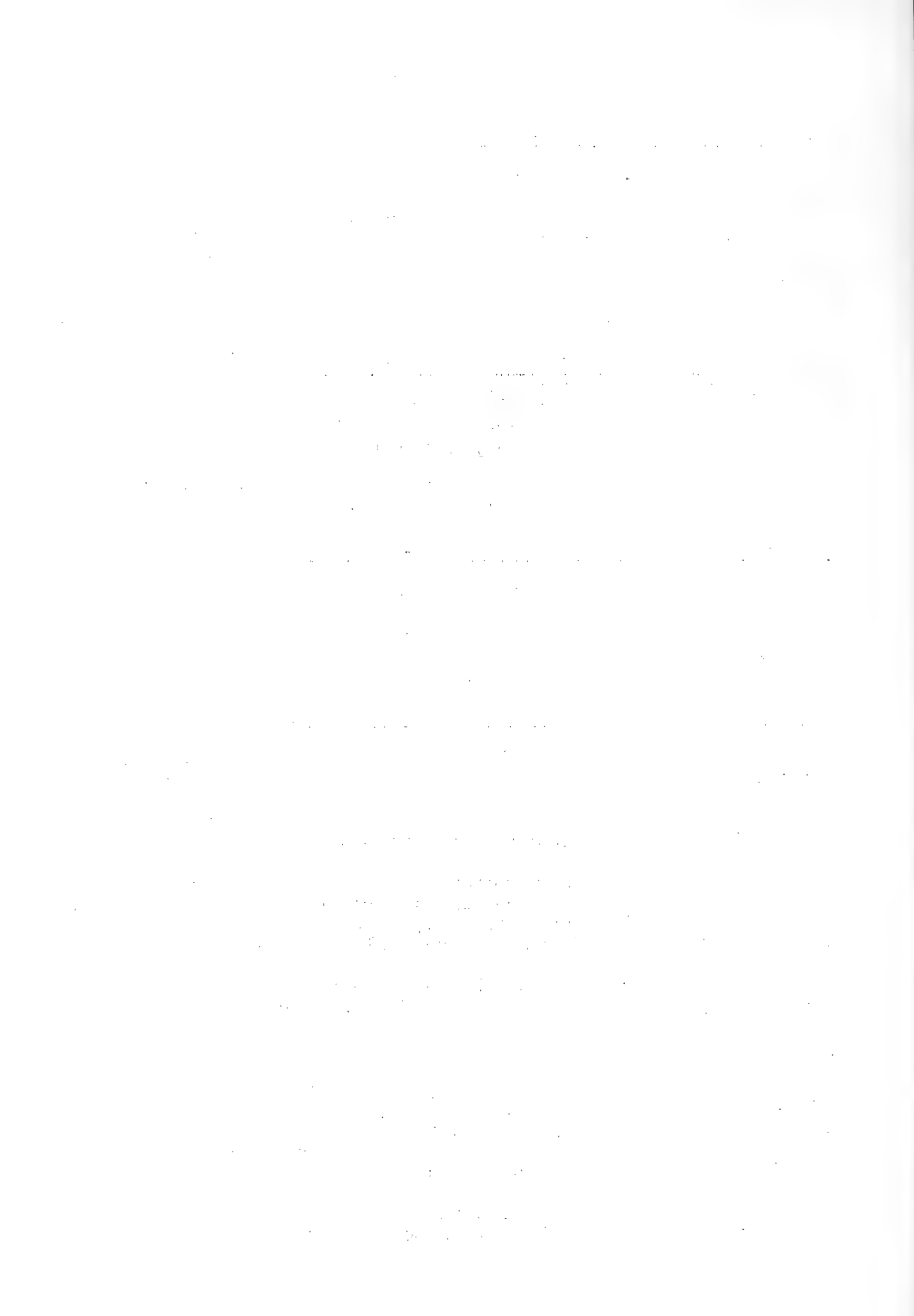
The carrying capacity of the forest protection district may have been about 3,800 woodland caribou in 1940 (Table IV). It should gradually increase to 4,500 by 1975 and 5,000 by the year 2,000, as the area of mature forest slowly builds up.

The carrying capacity of woodland caribou increases much more slowly (Figure I) than that of moose decreases.

### Discussion

Forest fire protection, in the absence of other succession-initiating factors like logging, may cause the moose carrying capacity to decline rapidly and the woodland caribou carrying capacity to increase slowly. The combined carrying capacity for all species of big game undoubtedly decreases.

This phenomenon can certainly be expected in the hinterland portions of the Sioux Lookout Forest Protection District,





where logging is unlikely to begin for many years, and in adjacent parts of the Patricia West and Patricia Central Wildlife Management Districts where forest protection is now being practiced.

The projected change in moose carrying capacity may have far greater management consequences than a drop from 20,000 to 10,000 would indicate. If the 1940 moose population had reached the capacity of the range, there would have been about 13,000 moose on 5,550 square miles of good range. This would have been a healthy population capable of sustaining a kill of 25% or 35% annually - between 3,200 and 4,500 harvestable moose each year. The availability of this density of surplus moose would make hunting - and management - much easier. On the other hand, by 1985 there may only be 1,800 moose on good range having high productivity, which will sustain a harvest of only 450 to 625 animals per year. The remaining 8,200 moose in the district may sustain a kill of 10% or 15%, owing to a lower productivity of animals. The total allowable harvest by 1985 is likely to be between 1,270 and 1,855 moose per year. Had the range conditions of 1940 been stabilized, a total harvest of between 3,905 and 5,555 moose might have been maintained.

It will become increasingly difficult to persuade hunters to harvest moose in the future, owing to the anticipated decrease in yield.

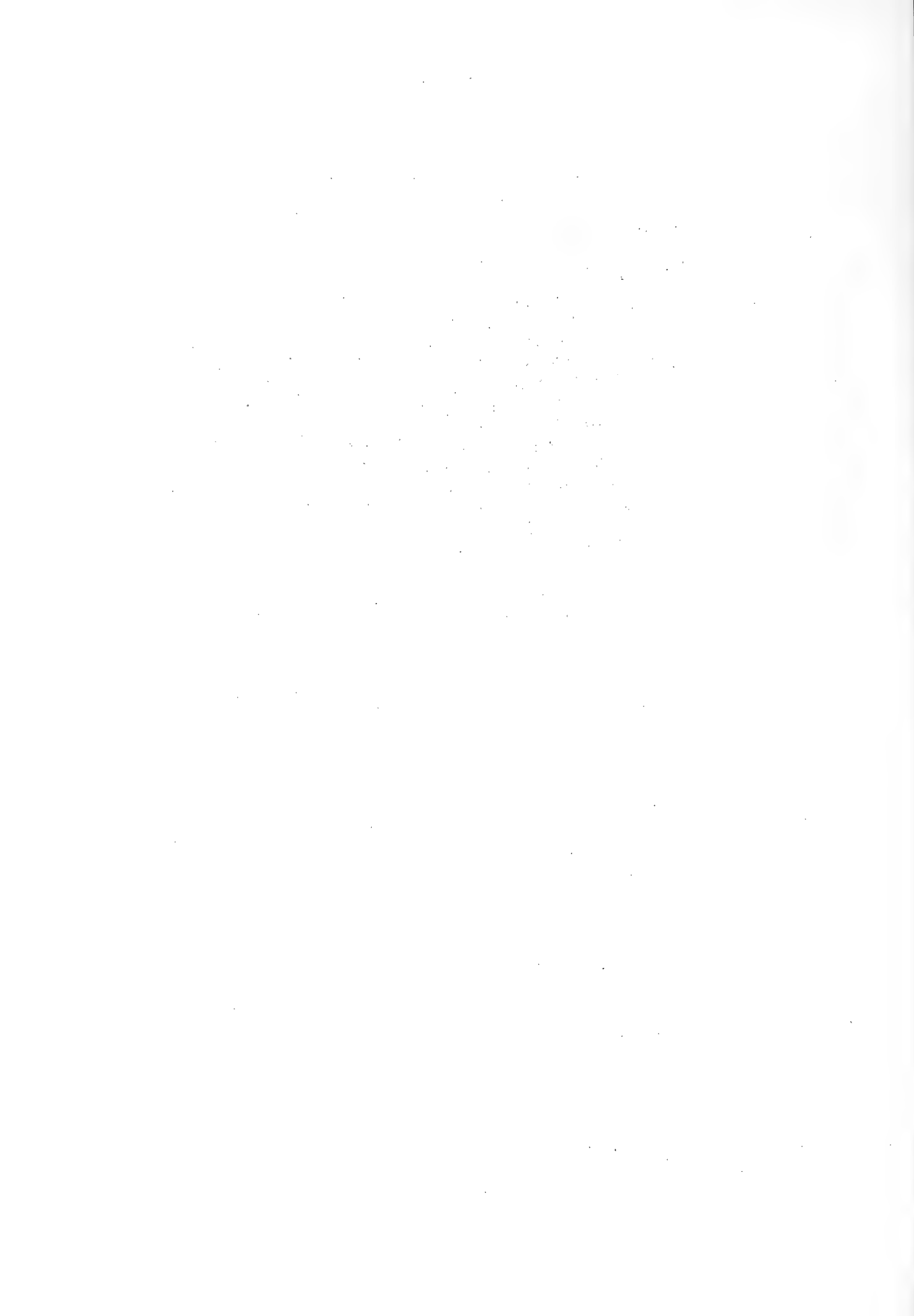
Projected increases in caribou carrying capacity will not commence soon enough or be sufficient to compensate for decreases in moose carrying capacity. The over-all supply of big game is bound to deteriorate in areas influenced by forest fire protection but not by logging.

There were estimated to be about 9,300 moose in the Sioux Lookout Forest Protection District in the fall of 1953, at which time the carrying capacity (Table II) was computed to be about 15,000 moose. As the population continues to increase and as the capacity is certainly declining, the two should soon come into balance, perhaps in 1957 or 1958. This situation could conceivably detonate a moose crash. Only time will tell!

On the other hand, I estimated there to be only about 2,000 woodland caribou in the district in 1955, when the computed carrying capacity (Table IV) was 4,100. It should take the caribou at least several years, perhaps 10 or more, to reach the general capacity of the range within the district.

Some management problems raised by this consideration are as follows:

- (1) Is the moose going to decline as a result of improved fire protection, or will gains in the form of succession initiation through logging compensate for this?



- (2) Are we prepared to manage the woodland caribou as the quality of its range gradually improves?
- (3) Have these suggestions implications which we should work into our present public relations program? Specifically - how much longer can the present moose irruption last? Will it not shortly crash either because of our failure to contain the population or because of changes in the range? Should we not prepare for a decline in the moose population in the immediate future?

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data. The second part of the document provides a detailed breakdown of the financial data, including a list of all accounts and their respective balances. This information is crucial for understanding the overall financial health of the organization and for identifying any potential areas of concern. The final part of the document concludes with a summary of the key findings and a recommendation for further action. It suggests that regular audits should be conducted to ensure that all financial data remains accurate and up-to-date.

TABLE IV - Computed Carrying Capacities for Woodland Caribou of Theoretical Forests Derived in Table II.

<u>Year</u>	<u>Woodland caribou carrying capacity of 91-150 year old stands at 10 sq. mi. per caribou.</u>	<u>Woodland caribou carrying capacity of 151-year old &amp; older stands at 5 sq. mi. per caribou.</u>	<u>Total woodland caribou carrying capacity.</u>
1940	740	3,050	3,790
1945	740	3,164	3,904
1950	740	3,267	4,007
1955	740	3,368	4,108
1960	740	3,482	4,222
1965	740	3,585	4,325
1970	740	3,686	4,426
1975	740	3,800	4,540
1980	740	3,903	4,643
1985	740	4,004	4,744
2000	740	4,322	5,062
2015	740	4,640	5,380
2030	740	4,958	5,658
2045	581	5,276	5,857

1. The first part of the document discusses the importance of maintaining accurate records of all transactions.

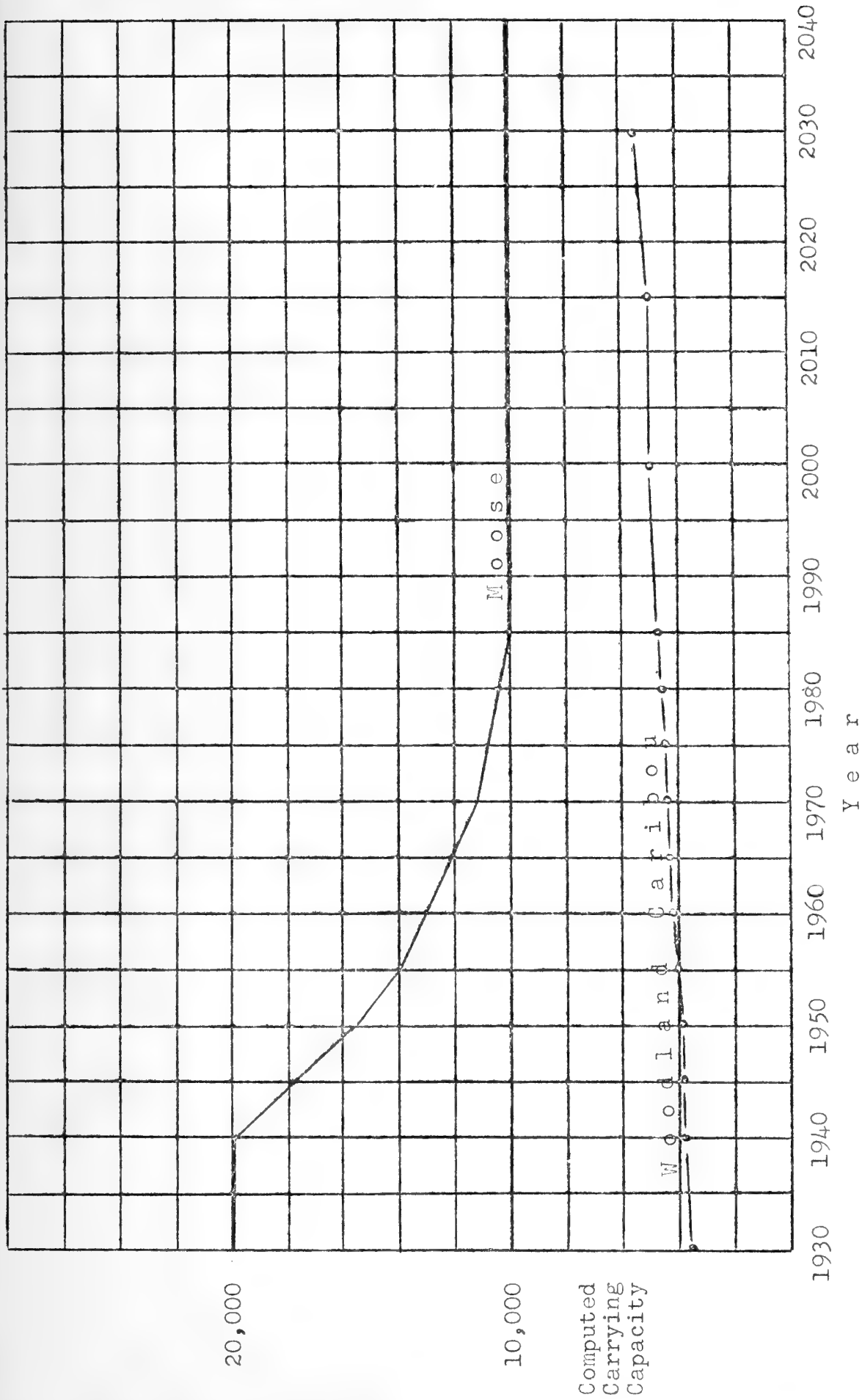
2. It is essential to ensure that all entries are dated and clearly identified.

3. The second part of the document outlines the various methods used to collect and analyze data.

4. These methods include direct observation, interviews, and the use of specialized equipment.

5. The results of these analyses are then used to draw conclusions and make recommendations.

6. Finally, the document concludes with a summary of the key findings and a list of references.



Computed Carrying Capacities for Moose and Woodland Caribou of the Sioux Lookout Forest Protection District As If Forest Fire Was the Only Major Succession-Initiating Factor.





ANNUAL CHANGES IN NUMBERS OF THE WESTERN REGION DEER HERD

by  
R. Boulton

The results of the Western Region Fall Deer Check Station from 1951 to 1956 inclusive are given in table one in percentage form.

TABLE I - Game Check Percentages

Check Year	A g e - c l a s s e s									Total
	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	
1951	21.4	15.5	25.7	18.9	9.2	6.8	1.0	1.0	0.5	100.0
1952	32.6	15.3	11.5	15.9	8.9	5.7	5.7	2.5	1.9	100.0
1953	37.4	30.1	16.4	7.5	3.4	2.7	2.3	0.2	0.0	100.0
1954	28.5	37.3	16.6	5.4	3.9	4.4	3.1	0.8	0.0	100.0
1955	28.3	29.6	21.8	10.1	3.7	2.6	2.6	1.3	0.0	100.0
1956	22.2	21.2	31.2	15.7	4.6	1.9	2.4	0.8	0.0	100.0
TOTAL	170.4	149.0	123.2	73.5	33.7	24.1	17.1	6.6	2.4	600.0
AVE.	28.5	24.9	20.5	12.2	5.6	4.0	2.8	1.1	0.4	

Experience has shown that three year old deer are the most vigorous, and suffer the least from the rigours of winter. This paper traces the changes in herd numbers, starting in 1951 with a representative herd of one hundred animals. The assumption is made that animals aged 3.5 years suffered average mortality each year in the preceding twelve months. It is not claimed that this assumption is perfectly correct but it is a reasonable basis for speculation on progressive changes in herd numbers. To some extent the errors should compensate each other so that the yearly changes in numbers are probably conservative.

The bottom row of table one shows that a six years' average of 24.9 deer aged 2.5 are reduced to 20.5 animals one year later. This is a survival of 82.3 percent. If this survival rate is applied to 2.5 year animals in the 1951 check we can expect  $15.5 (0.823) = 12.8$  animals of age 3.5 in 1952. Table two is constructed on this basis. The line for 1951 is the same as in table one except that it now represents a typical herd of one hundred animals. In the 1952 line it is seen that the 3.5 year animals are set at 12.8 as calculated above. The remainder of the 1952 line is filled in by altering the values of table one in the ratio of 12.8/11.5. Thus 32.6 animals of age 1.5 in the 1952 line of table one become 36.3 animals in table two.



The 17.0 animals of age 2.5 in table two for 1952, when multiplied by 82.3 percent yield 14.0 animals aged 3.5 in 1953. The numbers for 1953 in table one are then multiplied by the ratio 14.0/16.4 to complete the 1953 line of table two. These steps are repeated till table two is completed.

TABLE II - Progressive Changes in Herd Numbers

<u>Check Year</u>	<u>A g e - c l a s s e s</u>									<u>Total</u>
	<u>1.5</u>	<u>2.5</u>	<u>3.5</u>	<u>4.5</u>	<u>5.5</u>	<u>6.5</u>	<u>7.5</u>	<u>8.5</u>	<u>9.5</u>	
1951	21.4	15.5	25.7	18.9	9.2	6.8	1.0	1.0	0.5	100.0
1952	36.3	17.0	12.8	17.8	9.9	6.3	6.3	2.8	2.1	111.3
1953	31.9	25.7	14.0	6.4	2.9	2.3	2.0	0.2	0.0	85.4
1954	36.5	47.7	21.2	6.9	5.0	5.6	4.0	1.0	0.0	127.9
1955	50.9	53.3	39.2	18.2	6.7	4.7	4.7	2.3	0.0	180.0
1956	31.2	29.8	43.9	22.1	6.5	2.7	3.4	1.1	0.0	140.7

The column of totals at the right hand side of table two purports to follow the annual changes in a representative herd that started with one hundred members in 1951.

There is a mechanism in this procedure for estimating absolute deer herd numbers but the writer is not rash enough to recommend its use. If the Spring mortality survey and the Fall check become accurate enough, the sample of dead animals in the mortality survey can be equated with the change in numbers indicated by the Fall check. The sampling is not yet accurate enough, as can be seen in table two. For the most part the numbers decrease as they should, proceeding downward diagonally from the left, but two large discrepancies and several small ones can be found. These discrepancies are probably due to errors in aging and sampling. Selectivity by hunters may also be a contributing factor. Such influences will be difficult to eliminate.



THE WINTER OF 1955/56  
AND THE WESTERN REGION DEER HERD

by  
R. Boulton

The Wildlife Management officers of the three Districts in the Western Region made deer mortality surveys in the Spring of 1956. As a result of their findings they predicted that hunter success would be down in the Fall of 1956 and that the proportion of young animals would drop.

The predictions proved to be true. It will be interesting to study the changes that occurred in the herd as traced by the game checks of 1955 and 1956, and to see what indications, if any, of the changes could be seen in the Spring mortality surveys.

The most interesting point is the proportions of the herd in the kill of 1956 as compared to the average from 1951 to 1956 inclusive (the period during which game checks have been made). This is done in figure one on a percentage basis.

The next step is to trace the change from the proportions of 1955 to those of 1956 as indicated by the kill data. These are given in table one.



FIGURE I

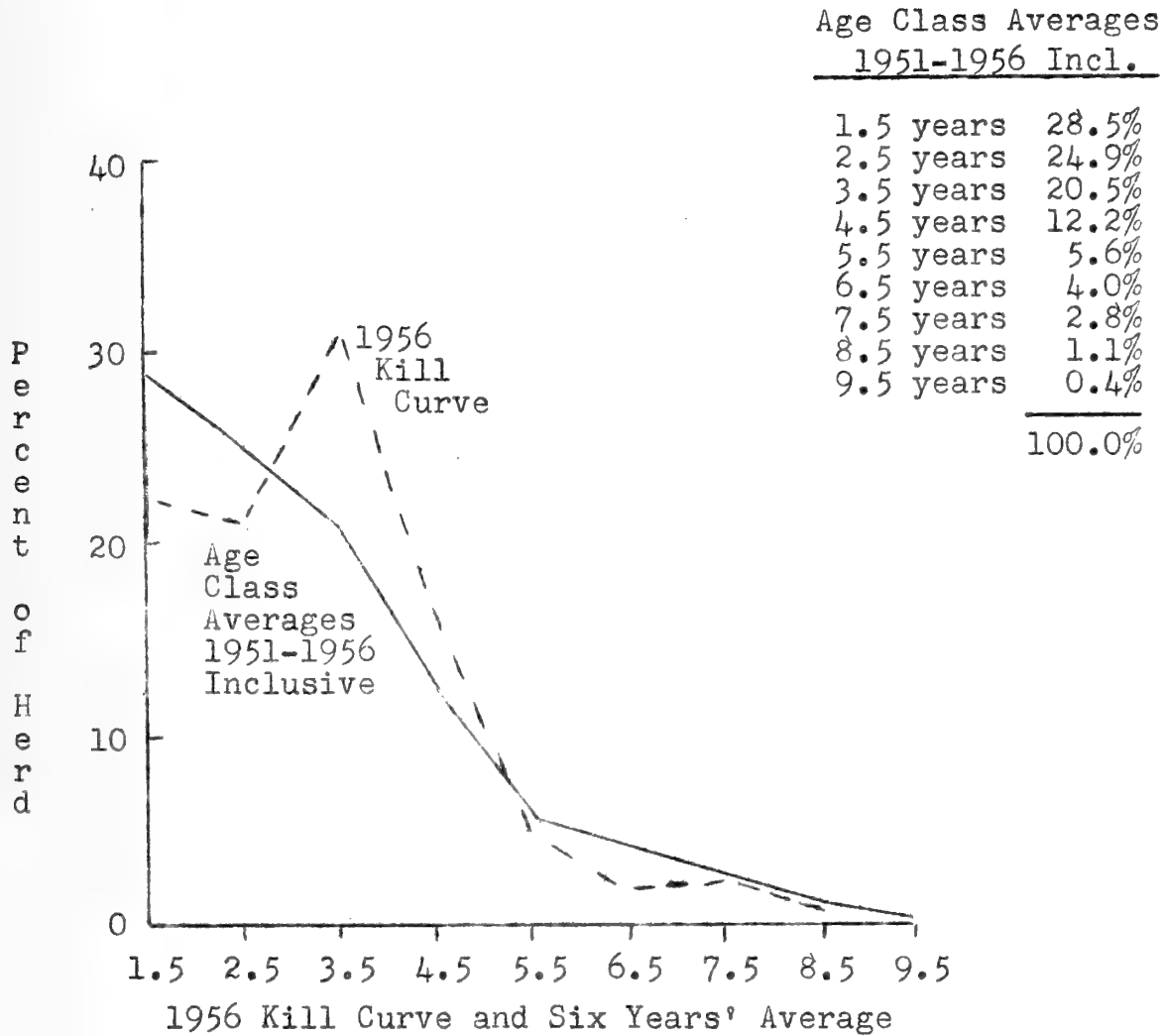


Figure one shows that there was indeed a deficit of young deer in the 1956 game check and also of old animals. The three and a half year animals seemed to withstand the winter much better than other ages, and time may prove this age to be the most hardy.

TABLE I - Kill Data in Percentages

	Age Classes								Totals
	<u>1.5</u>	<u>2.5</u>	<u>3.5</u>	<u>4.5</u>	<u>5.5</u>	<u>6.5</u>	<u>7.5</u>	<u>8.5</u>	
1955	28.3	29.6	21.8	10.1	3.7	2.6	2.6	1.3	100.0
1956	22.2	21.2	31.2	15.7	4.6	1.9	2.4	0.8	100.0





From table one it can be seen that the deficits in the 1956 data are still present with relation to the 1955 data, as well as with relation to the six years' average. The relationship will be still more evident if we use absolute numbers rather than percentages, as follows. We take advantage of the fact that 3.5 year animals in 1956 seemed to be the least affected by mortality. Let us assume that only average mortality occurred in this age-class. Mortality may well have exceeded the average but we have no way of knowing by how much, and the results we secure must be accepted as a minimum condition. The problem is therefore to apply the average rate of mortality to the 29.6 animals of age two and a half in 1955. The average rate of decrease from 2.5 years to 3.5 years is in the ratio of 20.5/24.9 (secured from figure one). Therefore we multiply 29.6 by 20.5/24.9 and get the answer 24.4.

We can now construct a new table of the 1955 and 1956 data. In table two we repeat the 1955 figures but this time we view them as representing a herd of one hundred deer and not as percentages. In the 1956 line we place the figure 24.4 (obtained in the preceding paragraph) in the 3.5 year age class. These 24.4 deer represent the remnant of 29.6 deer a year earlier, assuming average mortality. The next step is to complete the 1956 line so as to have the same relationships within the line as previously. This is done by reducing all the 1956 percentages in the same ratio as the 3.5 year animals. Thus the 1956 percentage of 31.2 in table one is reduced to 24.4 animals in table two. Each other 1956 percentage is reduced similarly. Thus 22.2 in table one is multiplied by 24.4/31.2 and yields 17.4 to go in table two.

TABLE II - Change in Herd Numbers

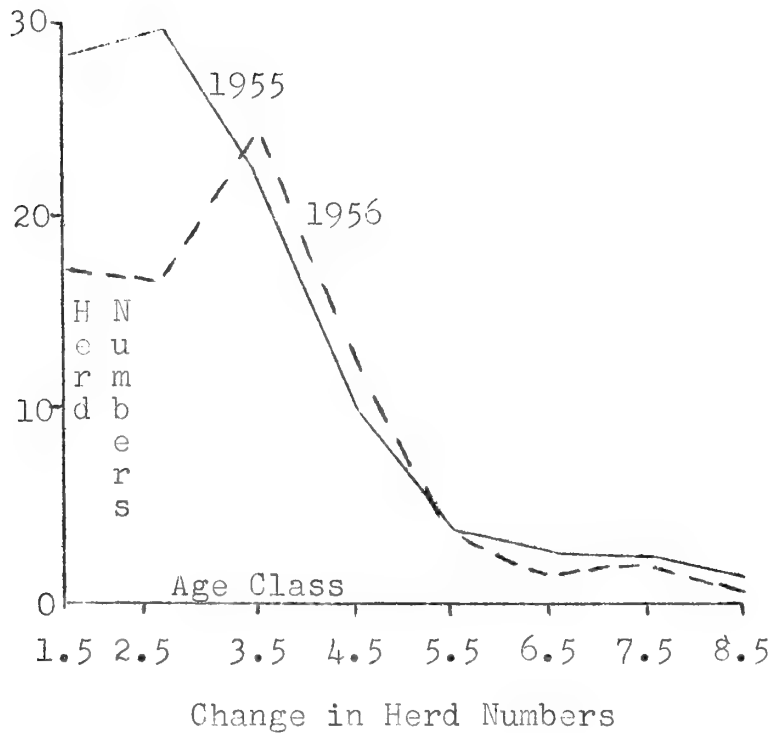
	<u>A g e C l a s s</u>								<u>Totals</u>
	<u>1.5</u>	<u>2.5</u>	<u>3.5</u>	<u>4.5</u>	<u>5.5</u>	<u>6.5</u>	<u>7.5</u>	<u>8.5</u>	
1955	28.3	29.6	21.8	10.1	3.7	2.6	2.6	1.3	100.0
1956	17.4	16.6	24.4	12.3	3.6	1.5	1.9	0.6	78.3

The herd is seen from table two to have been reduced to 78.3, a reduction of 21.7 percent from 1955. This is assuming average mortality from 2.5 years to 3.5 years. If the mortality of these age classes was actually greater, then the figure of 21.7 percent will be conservative. This difficulty can not be solved. If the discrepancy is great then the results could be seriously in error. In round numbers we can say that the 1955 herd suffered an above-average loss of approximately twenty percent (or one-fifth) presumably due to a hard winter.

The data of table two are presented in figure two. A better idea of what happened to the 1955 herd can be had from this figure. For instance it is easily seen that the deficit is principally in young animals, but also appears in old animals. Middle-aged animals seemed to come through the winter without being much affected, particularly the 3.5 year animals.



FIGURE II



In Kenora and Sioux Lookout Districts a total of twelve animals were aged in the Spring mortality survey of 1956. Their age-class distribution was as follows.

TABLE III - Mortality Data

	<u>S p r i n g   A g e   C l a s s e s</u>								<u>Totals</u>
	<u>1.0</u>	<u>2.0</u>	<u>3.0</u>	<u>4.0</u>	<u>5.0</u>	<u>6.0</u>	<u>7.0</u>	<u>8.0</u>	
1956	5	0	0	1	4	0	1	1	12



By the Fall of 1956 these age classes would all be half a year older. They can be seen to correspond loosely to the deficits in the 1956 herd. If we continue our Spring mortality surveys till we acquire confidence and consistency we may predict the proportions of the Fall hunt with equal confidence.

This paper is therefore a plea to our Western Region Wildlife Managers to continue developing their skill in running Spring mortality surveys. At the same time they should endeavour to assess winter factors such as temperatures, snow conditions, and durations of both factors, with regard to their effects on Spring mortality surveys. All inventory techniques will probably yield extra facts when related to each other.

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VARIABILITY IN DEER AGE-MEASUREMENTS

WESTERN REGION 1951 TO 1956 INCLUSIVE

by  
R. Boulton

Aging of killed deer during hunt season has become a well established practice wherever deer are found in the province. It is important to know the relative accuracy with which the various age classes have been measured. This paper studies the problem using data from the Western Region Big Game Checking Station, gathered from 1951 to 1956 inclusive.

The data, omitting fawns, are given in table one in percentages.

TABLE I - Deer Hunt Data in Percentages

Check Year	A g e C l a s s e s									Totals	Aver- ages ?
	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5		
1951	21.4	15.5	25.7	18.9	9.2	6.8	1.0	1.0	0.5	100.0	11.1
1952	32.6	15.3	11.5	15.9	8.9	5.7	5.7	2.5	1.9	100.0	11.1
1953	37.4	30.1	16.4	7.5	3.4	2.7	2.3	0.2	0.0	100.0	12.5
1954	28.5	37.3	16.6	5.4	3.9	4.4	3.1	0.8	0.0	100.0	12.5
1955	28.3	29.6	21.8	10.1	3.7	2.6	2.6	1.3	0.0	100.0	12.5
1956	22.2	21.2	31.2	15.7	4.6	1.9	2.4	0.8	0.0	100.0	12.5
TOTALS	170.2	149.0	123.2	73.5	33.7	24.1	17.1	6.6	2.4	600.0	
AVGS.	28.4	24.8	20.5	12.3	5.6	4.0	2.9	1.1	0.4	100.0	11.1 ?

The average age class is seen to contain 11.1 percent of the herd.

Table two repeats the same information but the age classes are staggered so that all percentages with the same year of origin appear on the same line. The year of origin (year class) is indicated in the left column.

The right hand column of averages in table two shows a strong trend from small to large numbers going from top to bottom. This bias is due to incomplete data. The small numbers of older animals in the early year classes results in a small average, and vice versa. This bias is an introduced error which can be removed by adjusting each age class so that its average is 11.1, the same as the grand average.

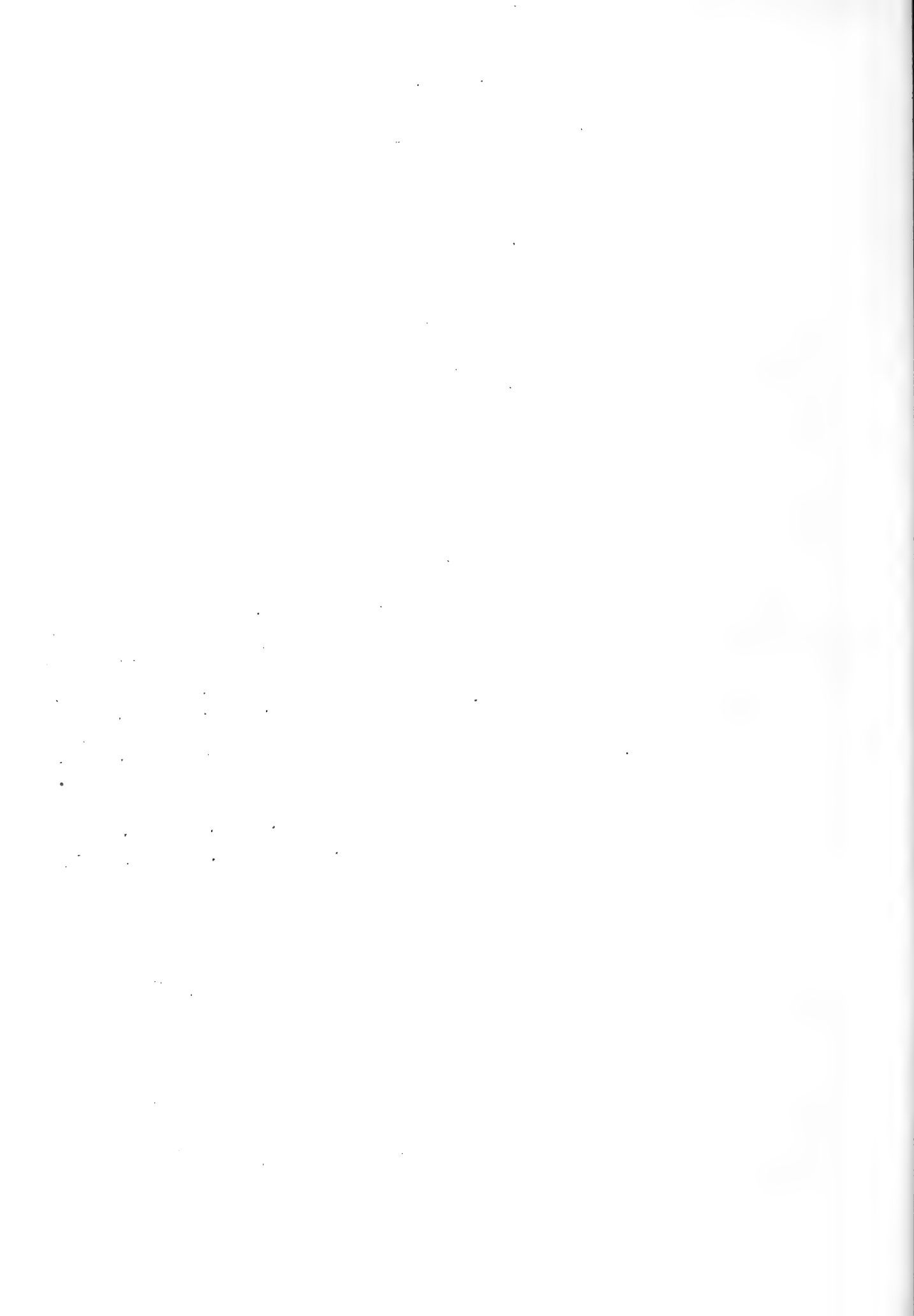




TABLE II - Year Class Data and Adjustment Factors.

Year Class	Age Classes											Totals	Averages		
	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5						
1942														0.5	
1943														1.4	
1944									1.0					1.8	
1945									2.5					3.5	
1946									0.2					12.7	
1947					9.2				0.8					18.0	
1948					8.9				1.3					34.9	
1949					3.4				0.8					52.8	
1950					3.9				2.6					43.4	
1951					3.7				2.4					64.1	
1952					4.6									94.0	
1953														112.2	
1954														89.3	
1955														49.5	
Adjustment Factor	-17.3	-13.7	-9.4	-1.2	5.5	7.1	8.2	10.0	10.7					22.2	

The lowest line in table two shows the amount by which each item in each age class must be altered to bring the age class average to 11.1. Table three presents the adjusted data.







The bottom line of table three shows that each age class now averages 11.1. Reference to the right hand column of averages shows that the bias has been removed, leaving only irregularities due to differences in year class strength. These last irregularities can be ironed out by making the adjustments indicated by the right hand column of table three based on the year class difference from the grand average. These adjustments have been made in table four.

TABLE IV - Bias and Year Class Irregularities Removed

Year Class	A g e C l a s s e s									Totals	Aver- ages	
	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5			
1942										11.1	11.1	11.1
1943								10.3	11.9	22.2	11.1	11.1
1944							9.5	12.8	11.0	33.3	11.1	11.1
1945						12.8	12.8	9.1	9.6	44.3	11.1	11.1
1946					13.9	12.0	9.7	10.0	9.9	55.5	11.1	11.1
1947				16.3	13.0	8.4	9.9	9.9	9.3	66.8	11.1	11.1
1948			15.2	13.6	7.8	10.4	9.7	9.7		66.4	11.1	11.1
1949		6.3	6.6	10.8	13.9	14.2	15.1			66.9	11.1	11.1
1950	9.3	6.8	12.2	9.4	14.4	14.2				66.3	11.1	11.1
1951	14.8	15.9	6.7	8.4	9.6					55.4	11.1	11.1
1952	13.6	17.1	5.9	8.0						44.6	11.1	11.1
1953	6.0	10.7	16.6							33.3	11.1	11.1
1954	12.9	9.4								22.3	11.1	11.1
1955	11.1									11.1	11.1	11.1
TOTALS	67.7	66.2	63.2	66.5	72.6	72.0	66.7	61.8	62.8	599.5		
AVGS.	11.3	11.0	10.5	11.1	12.1	12.0	11.1	10.3	10.5	99.9	11.1	11.1

The right hand column shows that both bias and year class differences have been removed. Only differences between age classes remain to be removed. These can be removed by replacing each item with its deviation from its age class average (shown in the bottom line). This operation is shown in table five. In this table the data have been folded together again by game check years rather than year classes.



TABLE V - Deviations From Age Class Averages  
(Bias and Year Class Differences Removed)

Check Year	Age Classes								
	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5
1951	-2.0	-4.7	4.7	5.2	1.8	0.8	-1.6	0.0	0.6
1952	3.5	-4.2	-3.9	2.5	0.9	0.0	1.7	2.5	1.4
1953	2.3	4.9	1.6	-0.2	-4.3	-3.6	-1.4	-1.2	0.6
1954	-5.3	6.1	-3.9	-1.7	1.8	-1.6	-1.3	-0.3	-0.9
1955	1.6	-0.4	-4.6	-2.7	2.3	2.2	-1.4	-0.4	-0.5
1956	-0.1	-1.7	6.1	-3.1	-2.5	2.2	4.0	-0.6	-1.2
TOTALS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

The figures in table five no longer represent deer: they are merely deviations. In table five variations due to bias, year class strength and age class strength have been eliminated. Presumably the principal remaining sources of variation are random error and aging error. The data of table five are repeated in figure one to permit easier interpretation. Items within the standard error are attributable to random error. Items well beyond the standard error and in the vicinity of the ten or five percent confidence limits are open to interpretation as errors in age measurement.

In general age classes with most of their items within the standard error can be classified as consistent and affected mainly be random errors. All age classes except 2.5 and 3.5 may thus be classified as satisfactory. Age classes 2.5 to 4.5 inclusive are shown separately in figure two, with the game check year placed beside each item.

In figure two age class 2.5 is scattered but shows some pattern in that the last two game checks are within the standard error. Age class 4.5 has most of its points within the standard error but shows an interesting tendency to go lower each year. It will be interesting to watch the course of these two age classes. As it now stands age class 2.5 is badly affected by aging errors (perhaps spilling over from age class 3.5) but may be settling down.

Age class 3.5 has every item badly scattered. There is no tendency to form a cluster and only one item is anywhere near the zero line. No time pattern is discernable other than wide skips in successive years.

Whatever the cause, aging of 3.5 year old animals is subject to serious errors and appears in need of reconsideration.

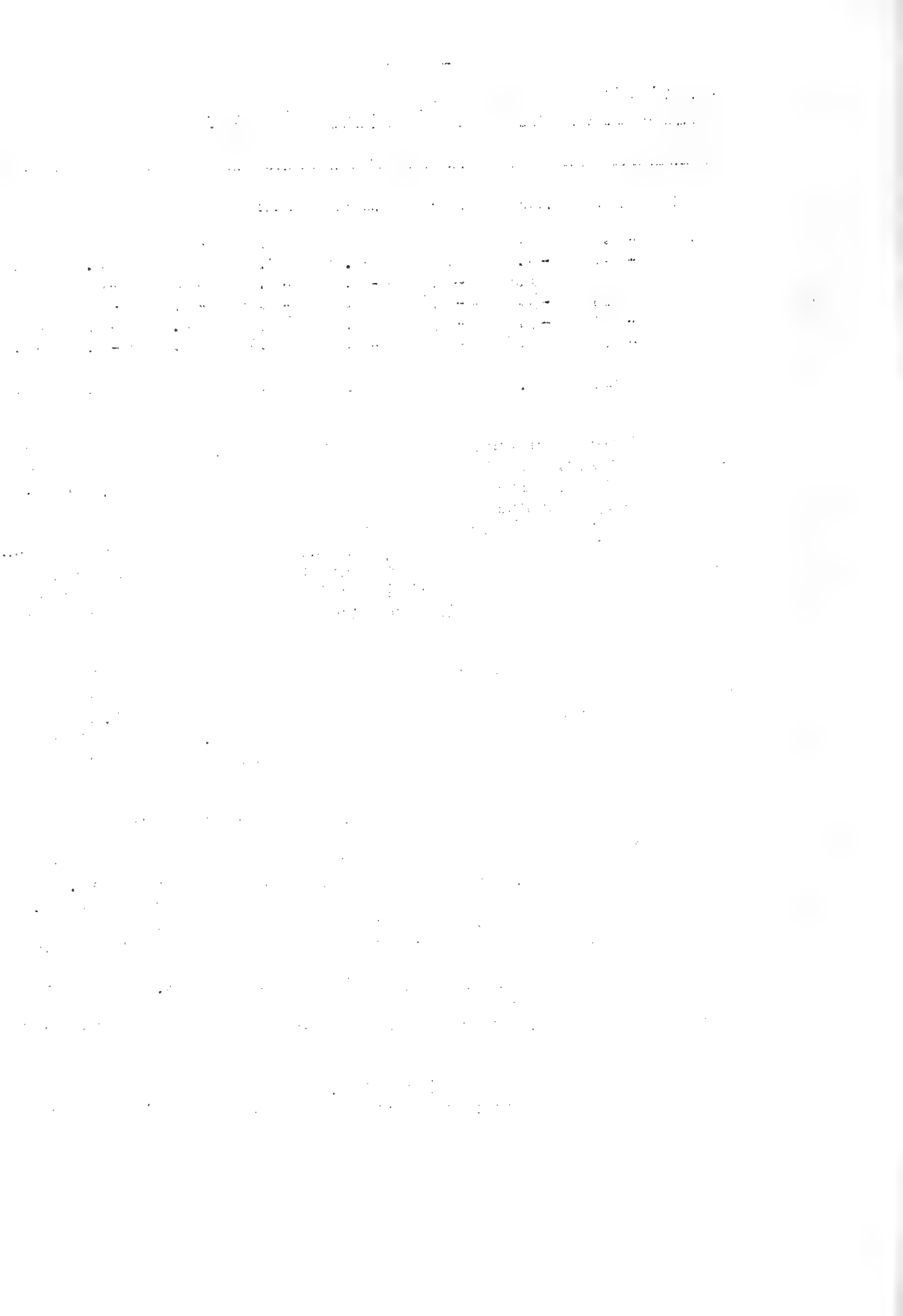




FIGURE I

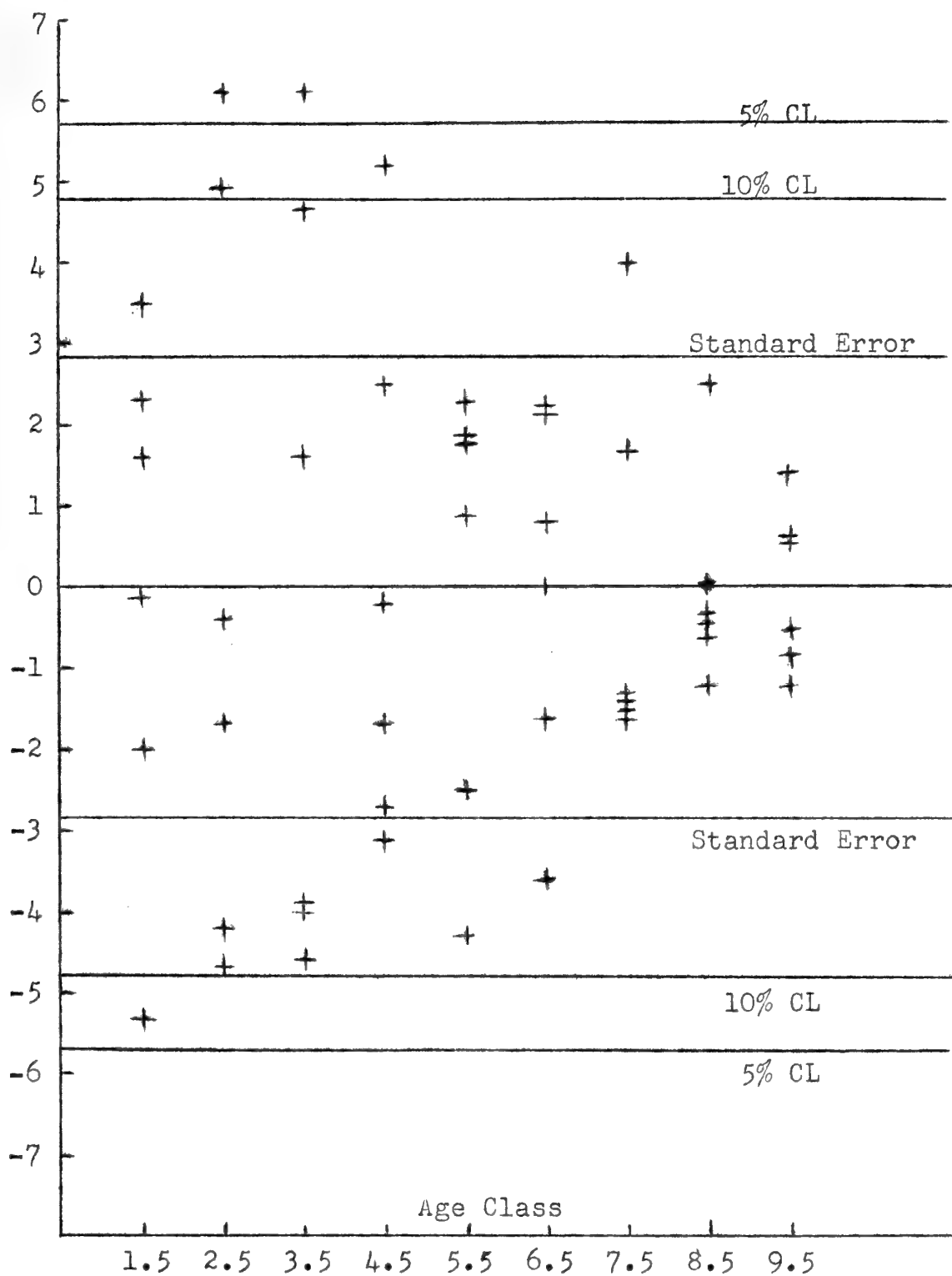
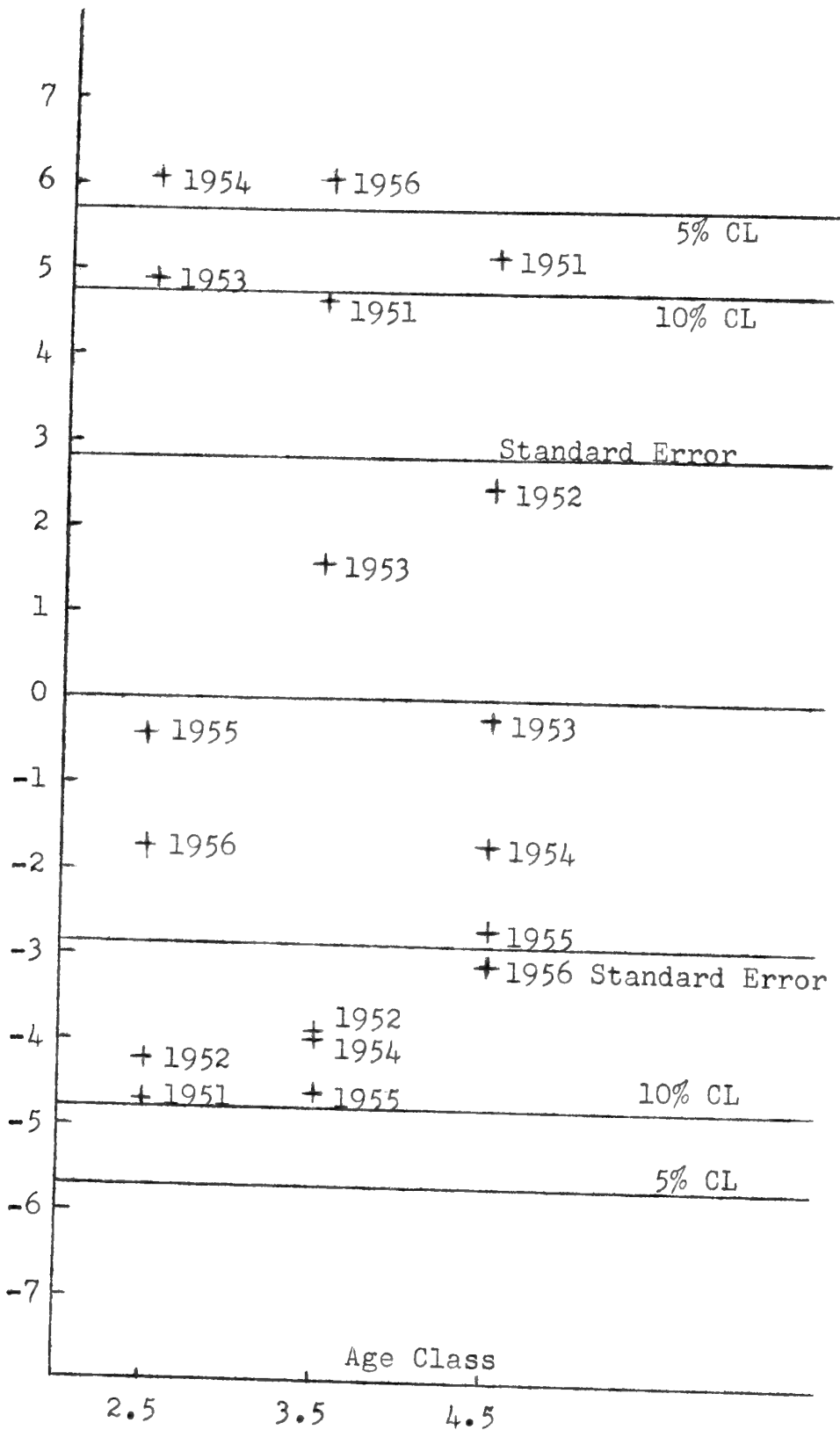




FIGURE II





## DEER SAMPLE SIZE FOR WESTERN REGION

by  
R. Boulton

You wrote me recently to ask what is an adequate sample of deer. In my opinion the answer given below is adequate for the Western Region and may apply in other parts of the Province. It is based on 1,297 deer 1.5 years and older checked in 1954, 1955 and 1956. These animals were divided into twenty-five samples of thirty or more each, and the variations in age-classes served as the basis of the study.

The simplest statement is the equation  $y = \frac{1274.30}{x^2}$

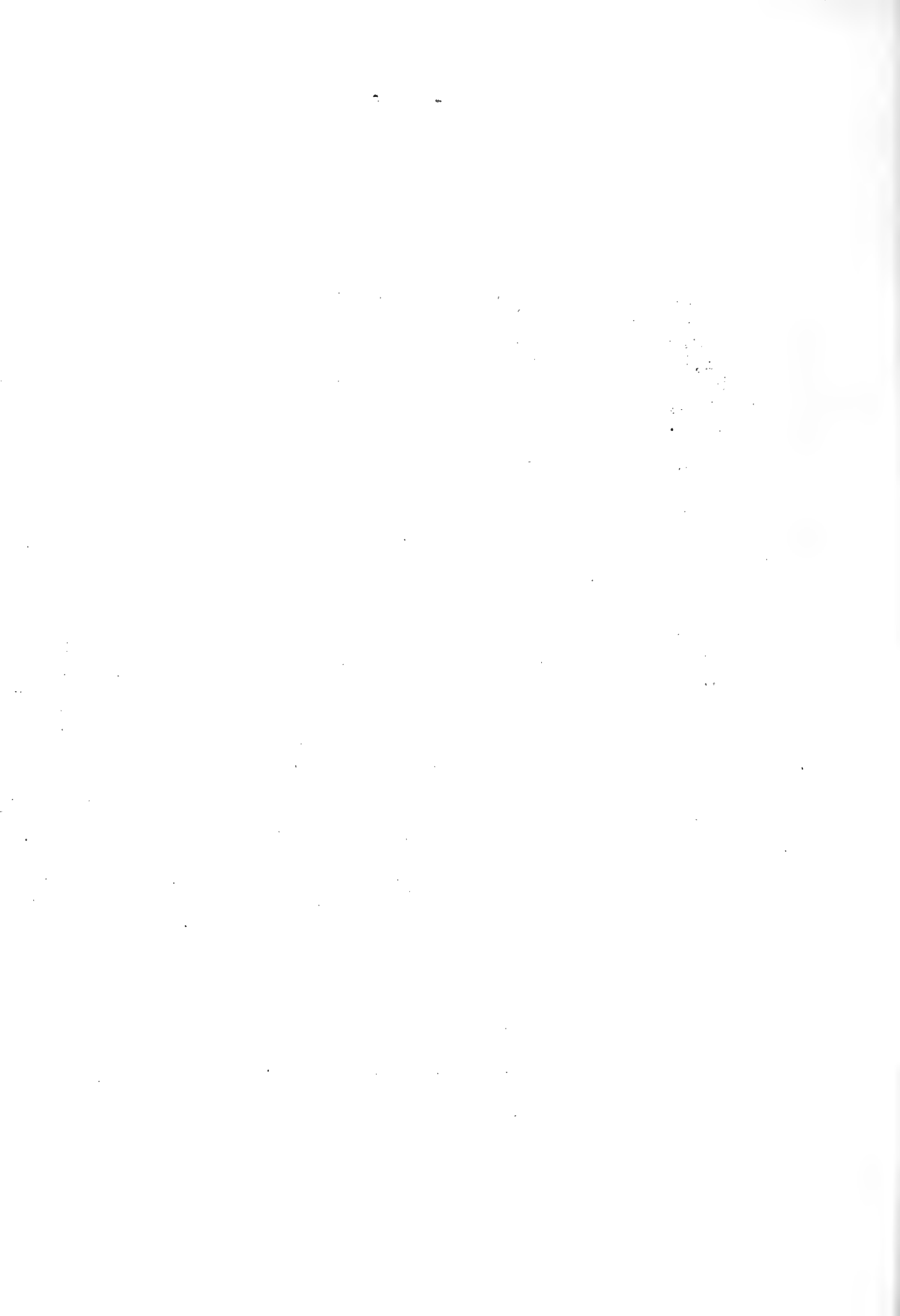
where y is the sample size including fawns, and x is the percentage margin of error acceptable to the deer worker. The margin of error will be exceeded only five times in a century and then probably by a very small amount. Most values will be much closer than the acceptable margin of error.

As an example, how many deer should be sampled for an accuracy of two percent? Two squared is four, which when divided into 1274.30 gives a sample size of 318.575 which can be rounded off at 320. If as another example it is desired to know what percentage of accuracy will be obtained with a sample of 200 deer we can place y at 200 and solve for x. We find x in this case is 2.524 which we can round off at 2.5 percent.

The equation is a good way of finding a compromise between the Wildlife Management Officer who wants high standards of accuracy and the administrator who has to find the men to do the sampling.

Some persons prefer a graph to an equation. Figure one presents the equation in the form of a curve. As an example, to find what sample is needed for two percent accuracy, start from two on the lower edge of figure one and go up to the curve and then left to the answer which is about 316. This can be rounded off at 310 or 320. The figure can also be used in the reverse manner.

It may be asked what is meant by a certain margin of error if the sample data is presented percentically, or in other words as a representative herd of one hundred animals. It is meant that the collective errors of the various age classes will not add to more than the margin of error.



In the Western Region the two and a half year age class has a slightly larger margin of error than that for the whole sample. The remaining age classes have smaller margins of error than that of the whole sample. Fawns were not included in the study, although they are included in the equation and in figure one. It should be noted that the margin of error only applies to animals one and a half years and older although the sample size includes fawns. If, in taking a sample in any one year it is found that fawns are showing at more than 20 percent of the herd the total sample should be increased somewhat.

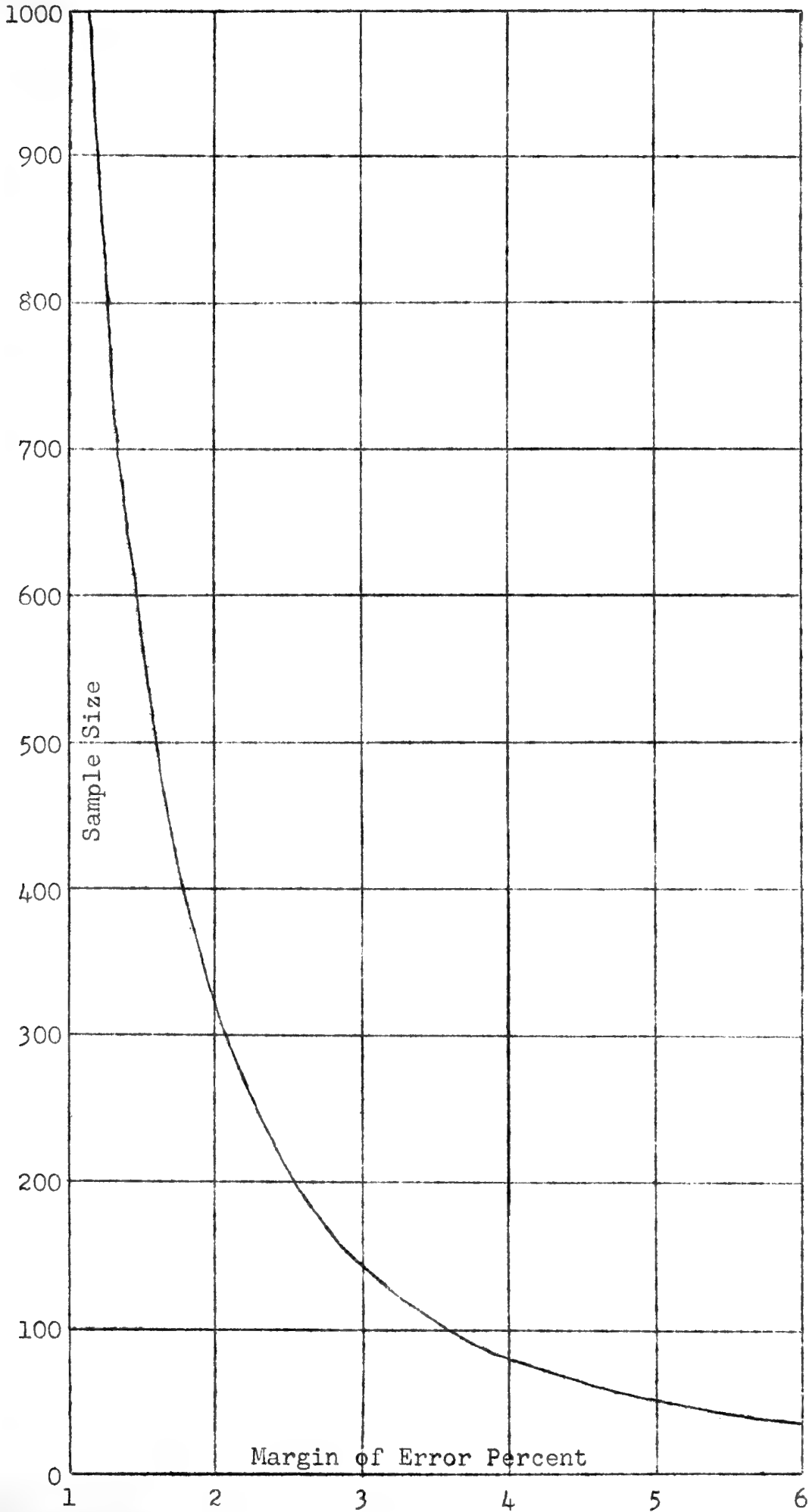
The curve is more revealing than the equation. A little study makes it clear that a very large increase in sample size is needed above about 400 to get a small improvement in accuracy. Below about 100 a small decrease in sample size causes a large loss in accuracy.

Care should be taken not to alter the sampling conditions. Sampling should extend through the season, as previously, and include animals from all parts where hunting occurs.





FIGURE I





SEASONAL EFFECTS AND THE WESTERN REGION DEER HERD

by  
R. Boulton

In the Spring of 1956 Wildlife Management Officers in the Western Region predicted that hunting success would drop in the Fall from its position in 1955, and that the proportion of young animals would drop. Both predictions proved to be correct.

It will be interesting to see to what extent the six Fall deer checks made in Western Region vary from their average, and speculate on the part played by seasons, especially winters. Table one presents the six years data in percentage form.

TABLE I - Game Check Percentages

Check Years	A g e - c l a s s e s									Total
	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	
1951	21.4	15.5	25.7	18.9	9.2	6.8	1.0	1.0	0.5	100.0
1952	32.6	15.3	11.5	15.9	8.9	5.7	5.7	2.5	1.9	100.0
1953	37.4	30.1	16.4	7.5	3.4	2.7	2.3	0.2	0.0	100.0
1954	28.5	37.3	16.6	5.5	3.9	4.4	3.1	0.8	0.0	100.0
1955	28.3	29.6	21.8	10.1	3.7	2.6	2.6	1.3	0.0	100.0
1956	22.2	21.2	31.2	15.7	4.6	1.9	2.4	0.8	0.0	100.0
TOTAL	170.4	149.0	123.2	73.5	33.7	24.1	17.1	6.6	2.4	600.0
AVER.	28.5	24.9	20.5	12.2	5.6	4.0	2.8	1.1	0.4	

These are hunting figures broken into age classes, but are assumed to be a sample of the herd in the Fall. The bottom line is the average for the six years of the game check. Table two is a collection of the surpluses or deficits of table one above or below the six year averages. For instance in 1951 the value of 21.4 for animals aged 1.5 years is 7.1 below the average of 28.5. Table two shows a value of -7.1.

TABLE II - Surpluses and Deficits from Age-class Averages.

	A g e - c l a s s e s								
	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5
1951	-7.1	-9.4	+5.2	+6.7	+3.6	+2.8	-1.8	-0.1	+0.1
1952	+4.1	-9.6	-9.0	+3.7	+3.3	+1.7	+2.9	+1.4	+1.5
1953	+8.9	+5.2	-4.1	-4.7	-2.2	-1.3	-0.5	-0.9	-0.4
1954	0.0	+12.4	-3.9	-6.8	-1.7	+0.4	+0.3	-0.3	-0.4
1955	-0.2	-4.7	+1.3	-2.1	-1.9	-1.4	-0.2	+0.2	-0.4
1956	-6.3	-3.7	+10.7	+3.5	-1.0	-2.1	-0.4	-0.3	-0.4



The data of table two are easiest to interpret by reference to figure one. The prediction made for the 1956 hunt is easily checked because the deficit in young animals stands out clearly. A deficit may also be present in the oldest age classes but more shallow and spread out. The 1956 curve also shows a plain peak at age 3.5, indicating perhaps that this age-class is the hardiest by a distinct margin. In interpreting these curves it must be kept in mind that they are based on percentages, so that when one part goes down, another part must go up, resulting in differences showing up in sharper contrast than in other kinds of curves.

The preceding observations on the 1956 curve are obviously not firm conclusions but they are reasonable enough to justify some speculation on the other curves. The 1955 curve is almost flat and may represent an average winter in 1954/1955. The 1954 curve is the reverse of the 1956 curve and may represent better than average survival in the winter of 1953/1954. The 1953 curve shows ambiguous characteristics namely a high survival of young animals and a deficit in old animals. The curve of 1952 shows a high survival of young and old animals and may indicate a better than average winter in 1951/1952. An inconsistency in age 2.5 animals is perhaps attributable to error in aging since a previous study shows this age class to have been too low in 1952. The 1951 curve may indicate hard conditions in the winter of 1950/1951.

The 3.5 year age class served as a good determinant in each of the above curves. Surpluses and deficits are most easily seen in relation to the 3.5 year age-class, and the position of the 3.5 year age-class above or below the axis indicated the assumed severity or favourableness of the winters.

A check on the significance of the surpluses and deficits may be had from a Chi Square test. This is done in table three. Age-classes 7.5, 8.5 and 9.5 were joined in one group.

TABLE III

<u>Check Year</u>	<u>Chi Square</u>	<u>P (d.f. = 6)</u>
1951	15.33	0.02
1952	19.85	0.01
1953	8.51	0.23
1954	11.33	0.08
1955	2.52	0.86
1956	10.09	0.12

The curves for 1951 and 1952 vary from the average with strong significance. The curves for 1954 and 1956 are reasonably significant. The 1953 curve is not acceptable as different from the average, though the value of P is suggestive. The 1955 curve is

1000

1000

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distinctly average. These findings correspond with those made from figure one. It is only an assumption to say that they are due to winter conditions but the writer thinks they justify an investigation of correlation between snow station records and deer population checks.

Such a study may lead to the skill to predict the effects of winter on the deer herd in numerical terms. If this skill is added to the present practices of our Wildlife Management Officers the following annual routine might result:

1. Estimate of effects of winter on the herd as the winter progresses, and estimate of consequent effects on the hunt.
2. Confirmation and check of winter estimate coming from the Spring mortality survey, followed by a prediction of the coming hunt based on the two procedures.
3. Fall check on the hunt. This will serve as a check on the Spring prediction, and lead to further refinements in gauging winter effects and predicting from the Spring mortality survey.

The combination of several approaches to population conditions gives a greater total of information, and a greater insurance against a mistaken prediction. Spreading the various population checks through the year means that the Wildlife Management Officers will not "lose touch" with the herd.

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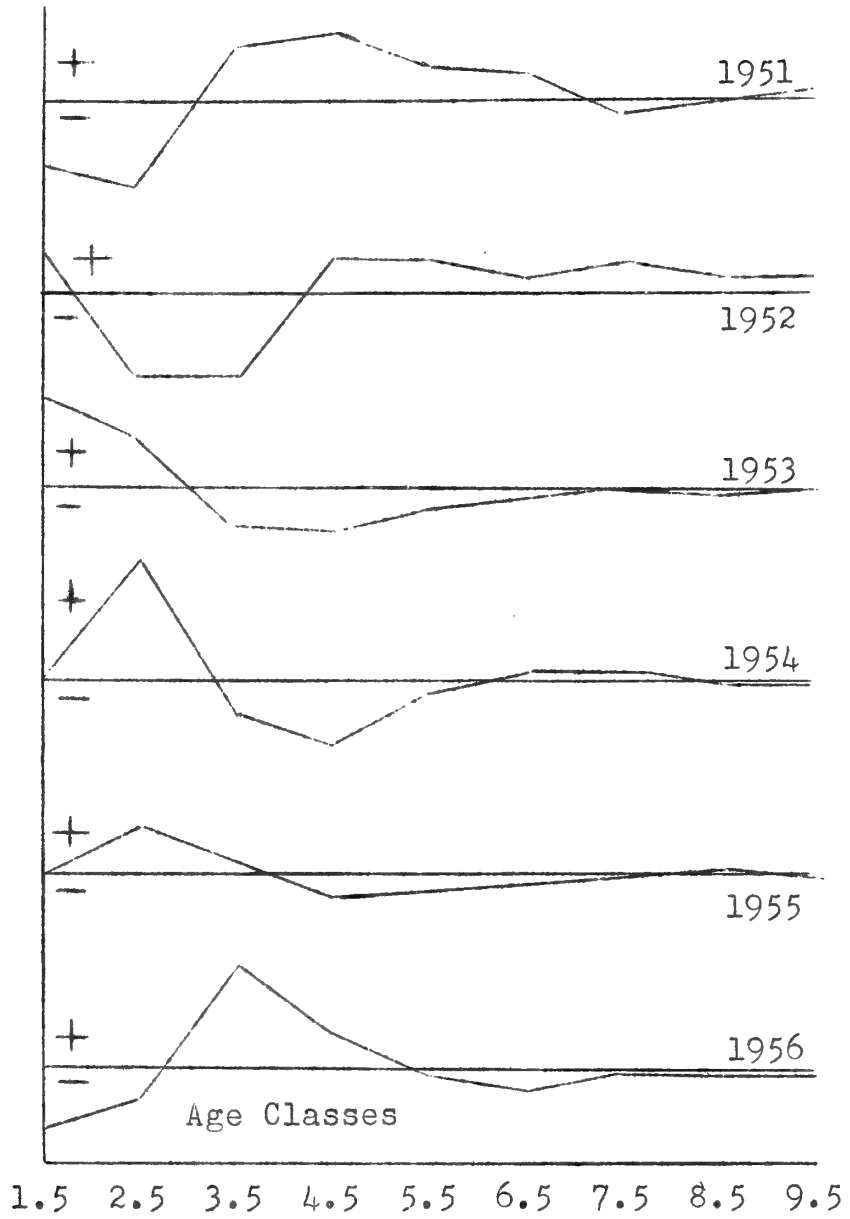
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FIGURE I - Surpluses and Deficits





## MANITOULIN ARCHERY SEASON IN 1956.

by  
William A. Morris

### Introduction

This report deals with the events leading to the first archery season on Manitoulin Island. The success of the hunt is outlined, and recommendations are made for future seasons.

The Sudbury office of the Department of Lands and Forests wishes to express its thanks to Mr. John Budd, Mr. W. J. Patterson, Mr. Art Racey, and Mr. Harry Loth for their efforts in initiating this season.

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A special archery season for Manitoulin Island was first suggested by Mr. John Budd, Biologist at the South Bay Fisheries Research Station. Mr. Budd made the suggestion while attending a meeting of the Manitoulin Conservation Council in May, 1956, because he was well acquainted with the successful archery season in his home state of Wisconsin. The idea met with only mild enthusiasm at that time; however, it did appeal to some of the local tourist operators, since it appeared to be a way to increase the length of the season and yet not seriously deplete the deer herd. W. J. Patterson, editor of the Manitoulin Expositor, also expressed interest in the plan. The topic was raised again at the following meeting of the Council in June, but still no definite decisions were made. In an effort to get a final answer, Mr. Art Racey, a forester with the Ontario Paper Company and also secretary of the Council, conducted a telephone poll in late August of all the township representatives. The results of this poll showed that ten of the sixteen townships were in favour of a trial season from October 27th to November 10th. A signed letter to this effect was sent to Dr. W. J. K. Harkness early in September for his consideration.

This proposed archery season was presented to the Fish and Wildlife Committee in early October, but during the intervening time, some of the Manitoulin residents, particularly landowners, became critical of the plan. It was suggested that the archers would "kill too many deer", "wound cattle" and so on. To offset these misunderstandings, the department initiated a public educational program. Two coloured films on hunting big game with the bow and arrow, and a film "The Michigan Deer Story", an excellent illustration of deer management were shown by William A. Morris, District Biologist, at Gore Bay, Little Current, Mindemoya, Manitowaning, and South Bay Mouth. During these film showings, which took place over the period of a week, it was noted that an increasing number of residents spoke in favour of the archery season proposal. By the time the last film

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

Additionally, it is noted that regular audits are essential to identify any discrepancies or errors. By conducting these checks frequently, potential issues can be resolved before they become significant problems.

CONCLUSION

In conclusion, the successful implementation of a robust financial system is crucial for the long-term stability and growth of any organization. This requires a combination of clear policies, consistent record-keeping, and regular oversight.

The following steps should be taken to ensure the system remains effective:

- 1. Establish a clear set of financial policies and procedures.
- 2. Implement a reliable accounting system that can handle all types of transactions.
- 3. Train staff on the correct use of the system and the importance of accurate record-keeping.
- 4. Conduct regular audits to verify the accuracy of the data.
- 5. Review and update the system as needed to accommodate changes in the organization's needs.

By following these guidelines, organizations can ensure that their financial records are accurate, complete, and secure, providing a solid foundation for decision-making and strategic planning.

showing was made, the archery season became law on October 5th, 1956, by Amendment 188/56 made under the Game and Fisheries Act. When the Sudbury office received word that the archery season had received official sanction, a specially prepared news release was forwarded to the twenty archery clubs throughout Ontario as well as to the names on the regular mailing list. A copy of this news release is included in the Appendix.

In order to keep in close contact with the archery season progress, the Sudbury office arranged with the Little Current Chamber of Commerce to conduct registration of all archers at its Information Booth. However, it was found that few hunters were recorded in this way, and the Department was obliged to contact a large percentage of the archers through information supplied by local residents. By using this method, this office was able to obtain the names and addresses of thirty-four archers who took part in the season. Each one of the thirty-four people was mailed a simple questionnaire to be completed and returned to the office. A copy of this questionnaire is included in the Appendix. Every archer was asked to submit other names of persons known to have participated in the hunt. The archery clubs (see appendix) also assisted by reporting the names of their members who hunted on the Island during the special season. In this way, the Sudbury office obtained the names and addresses of all archers who took part in the hunt, with the exception of two non-residents who hunted a few hours in an area south of Little Current while awaiting transportation to Killarney. The results compiled from the questionnaire are shown in Table #1.

It is of interest to note that aside from the actual residents, 59.3% of archers paid for accommodation in either a lodge, hotel or cabins. A minority (40.6%) camped or stayed at non-commercial establishments. These figures indicate that future archery seasons would be of financial benefit to the tourist business.

During the special season, there were no reports of infractions of the Game and Fisheries Act, wounding of cattle, or trespassing. The Department was notified that an archer's guide was using a dog to drive deer in the vicinity of Gore Bay. This action brought complaints from the residents and some criticism from other archers. The dog was used for one weekend, after which time there were no further reports. It would appear that the archer realized that he had deviated from the accepted practice of both the residents of Manitoulin and his fellow archers. This incident was the only issue which resulted in any criticism of the archers. On the other hand, letters were received by the Sudbury Office from the Manitoulin Tourist Association, and the West Manitoulin Board of Trade, as well as from numerous archery clubs, expressing their approval of the special archery season and asking that it be continued. Copies of some of these letters are included in the Appendix.

In order to further determine the public's reaction to a continuation of the archery season this year, William A. Morris, District Biologist, spent the greater part of a week in March, 1957, on Manitoulin Island, and with the cooperation of Conservation Officers C. J. Young and J. H. Bailey made personal contact with representatives of the Townships. The results of this poll are shown in Table #2.



TABLE I - Manitoulin Archery Season

Number of Archery Hunters .....	38
Number of questionnaires returned .....	37
Percentage return .....	97%
Total number of days hunted .....	158
Average number of days hunted .....	4.4
Average Pull of 37 bows, Low - 35 lbs., High - 63 lbs..	48.2 lbs.
Number of deer missed .....	21
Number of deer killed .....	0
Number of partridge killed .....	40
Number of rabbits killed .....	2

Accommodation:

Lodge .....	8
Hotel .....	3
Camping .....	4
Cabin .....	8
Residential Accommodation .....	9
Island Resident .....	5
	37

Percentage of archers visiting Island - paid lodging...	59.3%
Percentage of archers visiting Island - stayed at non-commercial establishments .....	40.6%

TABLE II - Poll of Representatives of Townships Regarding Manitoulin Archery Season in 1957.

<u>Township</u>		<u>Township</u>	
Allan	yes	Dawson	yes
Assiginack	yes*	Gordon	yes
Barrie Island	no	Howland	yes
Bidwell	yes	Mills	neutral
Billings	yes	Robinson	yes
Burpee	no	Sandfield	yes
Campbell	yes	Sheguiandah	yes
Carnarvon	yes	Tehkummah	neutral

\* The reeve suggested that archery kills should be certified, and that archery season should overlap with the time that the South Bay Mouth-Tobermory ferry is in operation.

During the poll (Table 2), it was found that twelve townships expressed a desire to continue the season, while two representatives were opposed and two were neutral. This indicates that more of the island is now in favour of archery hunting than prior to the opening of the experimental season, when the vote taken by Racey was ten "yes" to six "no".

APPENDIX I

1. The first part of the report deals with the general situation of the country and the position of the various groups. It is a very good summary of the situation and is well written.

2. The second part of the report deals with the economic situation and the position of the various groups. It is a very good summary of the situation and is well written.

3. The third part of the report deals with the social situation and the position of the various groups. It is a very good summary of the situation and is well written.

4. The fourth part of the report deals with the political situation and the position of the various groups. It is a very good summary of the situation and is well written.

5. The fifth part of the report deals with the cultural situation and the position of the various groups. It is a very good summary of the situation and is well written.

6. The sixth part of the report deals with the educational situation and the position of the various groups. It is a very good summary of the situation and is well written.

7. The seventh part of the report deals with the health situation and the position of the various groups. It is a very good summary of the situation and is well written.

8. The eighth part of the report deals with the housing situation and the position of the various groups. It is a very good summary of the situation and is well written.

9. The ninth part of the report deals with the transport situation and the position of the various groups. It is a very good summary of the situation and is well written.

10. The tenth part of the report deals with the communication situation and the position of the various groups. It is a very good summary of the situation and is well written.

The report is a very good summary of the situation and is well written. It is a very good summary of the situation and is well written.

The report is a very good summary of the situation and is well written. It is a very good summary of the situation and is well written.



## Conclusions

The Sudbury Office feels that the continuation of an archery season on Manitoulin Island in 1957 would meet with the approval of a large majority of the Island residents and it would also supply recreation for a large number of sportsmen.

## Recommendations

From this study of the 1956 experimental archery season and subsequent inquiries, the following recommendations are respectfully submitted:

- (1) The archery season for deer should be continued on Manitoulin Island in 1957.
- (2) The open season should be a period of two weeks or longer, prior to the regular gun season, which usually starts on November 15th.
- (3) Consideration should be given to having the season overlap with the time that the South Bay Mouth to Tobermory ferry is in operation. This would ensure easier access to the Island and greater revenue for the Islanders. The last scheduled trip is on October 28th, 1957.
- (4) The use of dogs to hunt deer on Manitoulin is subject to a great deal of controversy. Since most archers do not approve of the use of dogs for hunting, it is recommended that the use of dogs be prohibited during future archery seasons.
- (5) From a public relations standpoint, it would be an advantage and source of information for the Department to have each deer killed by archers certified by the local Conservation Officer.
  - (a) The suggested dates for the 1957 archery season are: October 19th to November 9th, 1957 or October 26th to November 9th, 1957.

The first part of the document  
 discusses the importance of  
 maintaining accurate records  
 and the role of the  
 various departments involved  
 in the process.

### CONCLUSION

In summary, the findings of this study  
 indicate that there is a need for  
 improved communication and  
 coordination between the  
 different units of the organization.

The results of the survey  
 show that the majority of  
 respondents are satisfied with  
 the current state of affairs,

although there are still some  
 areas that require attention.  
 It is recommended that the  
 management should take  
 appropriate measures to  
 address these issues.

The study also highlights the  
 need for continuous  
 improvement and the  
 implementation of effective  
 quality management systems.

Finally, it is important to  
 note that the success of any  
 organization depends on the  
 commitment and dedication  
 of its employees.

Therefore, it is essential  
 to create a positive work  
 environment and to provide  
 adequate training and  
 development opportunities  
 for the staff.

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APPENDIX

Weekly Report Sudbury District

For Period Ending October 6th, 1956

c o p y

Fish and Wildlife

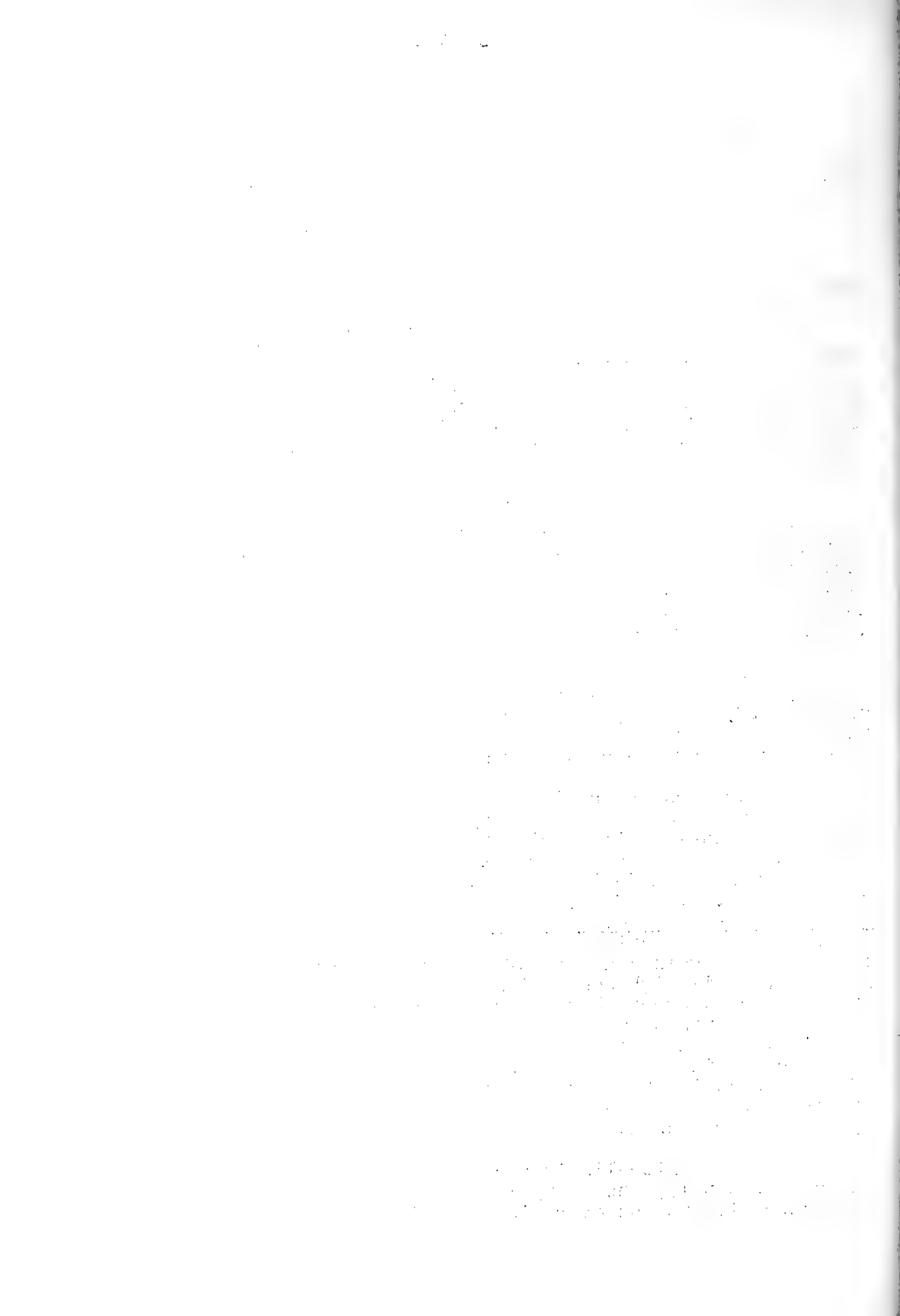
The Minister of the Department of Lands and Forests is pleased to announce a special archery season for deer on Manitoulin Island and Barrie Island from October 27th to November 10th inclusive. During this period, the hunting of deer with firearms will be illegal. The archery season on Manitoulin Island has been established this year by Order-in-Council on an experimental basis with the approval of a majority vote of all township councils on the Island.

Archers who are residents of Ontario will require a regular \$5.00 deer licence. If they wish to take bear, rabbits, partridge, ducks or geese, they will require an additional \$1.00 resident hunting licence. Hunters who are not residents of Ontario will be permitted to take bear, rabbits, partridge, ducks and geese as well as deer during the season by obtaining a regular non-resident deer licence for \$36.00.

If an archer (resident or non-resident) succeeds in taking a deer, he will not be entitled to hunt deer during the regular gun season. If, however, the deer licence has not been filled during the archery season, he will be entitled to use the same licence to hunt deer during the regular gun season.

Archers are reminded that the success or failure of future archery seasons on the Island may well depend on good hunter-landowner relationships during the initial season. In this respect, it would be well to remember all land on the Island is private, and although the majority of landowners are in favour of archers, some are not. Therefore, before you start your hunt, please make the necessary arrangements with the land owner. It may be of interest to prospective archers to know that Manitoulin Island has long been recognized as one of the best deer hunting areas in the province. This high population of deer is due to the good production of second growth hardwoods which is used for summer food, and extensive growth of white cedar which supplies winter browse. In addition, the snowfall on Manitoulin is generally lighter than that which occurs in the more northern parts of the Province. The success of hunters during the past regular gun seasons from November 15th to November 25th has been as high as 50%. Each season, well over 1,000 deer are taken.

The Manitoulin is accessible by road, rail, and aircraft, but unfortunately, the ferry which runs between Tobermory and South Bay Mouth will not be operating at this time.



Bear are scarce on the Island, but the partridge and the snow-shoe hare (rabbits), are abundant enough to supply good small game hunting for the archer.

It is of interest to archers to note that the accommodation on the island ranges from well equipped lodges and hunting cabins to camping privileges. In addition, guides will be available and groceries and archery supplies may be purchased at local stores.

All enquiries regarding accommodation and maps should be addressed to:

Mr. John Tilston, Secretary,  
Manitoulin Tourist Association,  
MANITOWANING, Ontario.

or

Mr. Graydon D. Hay,  
Chamber of Commerce,  
LITTLE CURRENT, Ontario.

or

Mr. Adam Casson, Secretary,  
Rotary Club,  
GORE BAY, Ontario.

Sgd. "William A. Morris"

for W. G. Cleaveley,  
District Forester.

Vertical text on the right side of the page, possibly a page number or title, rendered as a faint, blurry image.

c o p y

- 38 -

MANITOWANING, Ontario,  
November 30th, 1956.

Dr. Clarke,  
Fish & Wildlife Division,  
Department of Lands & Forests,  
Parliament Buildings,  
TORONTO, Ontario.

Dear Dr. Clarke:

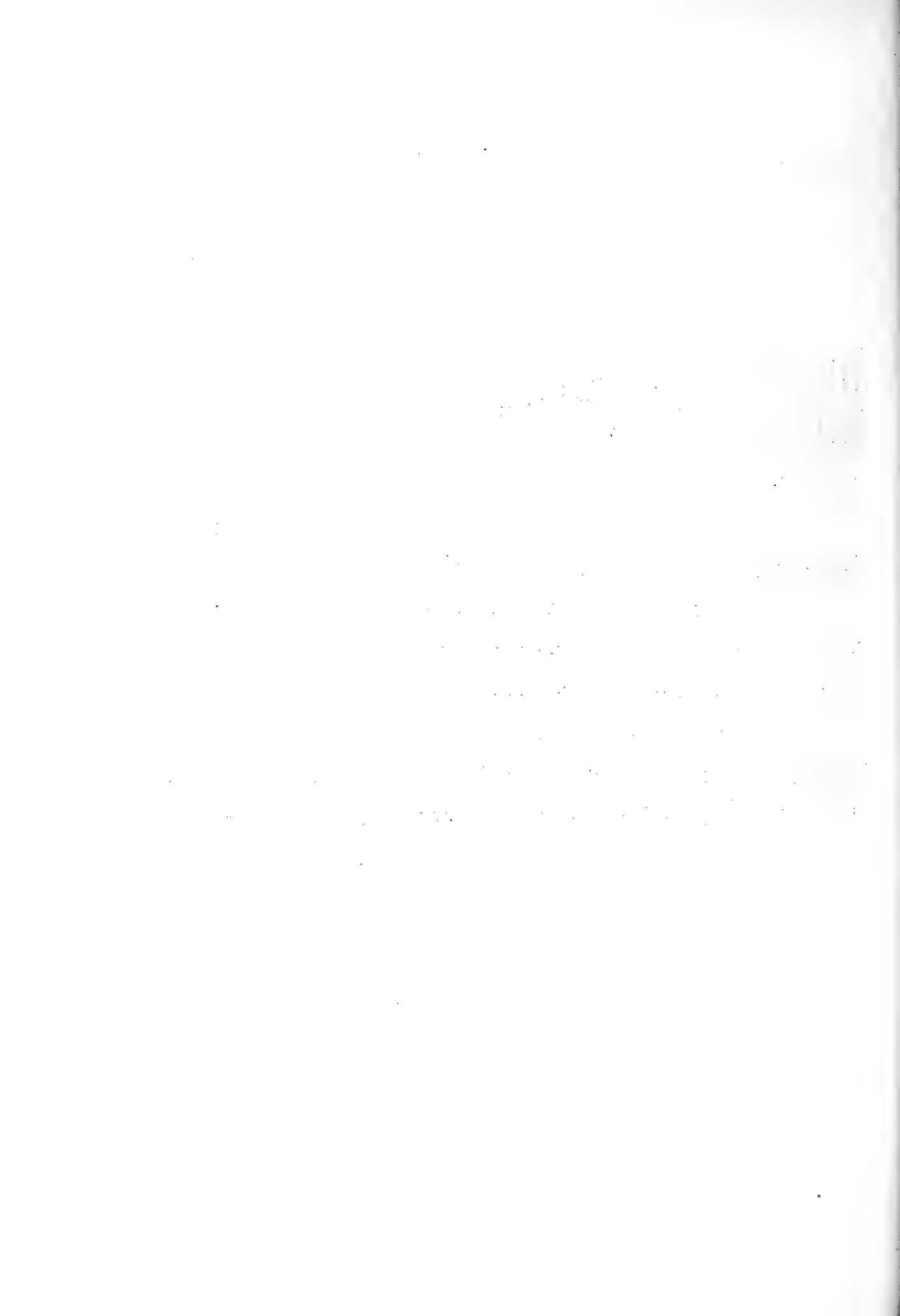
We are writing this in the hope that you will consider favourable an archery season on Manitoulin Island for 1957.

As far as the executive of Manitoulin Tourist Association can learn there has been nothing but favourable comments from the local people about the archers.

If there is to be a season in time that we can include that information in our 1957 folder. We would be much obliged if you can let us know as soon as possible the dates you may set.

Yours truly,

J. B. Tilston, Secty,  
Manitoulin Tourist Association.





WESTERN MANITOULIN BOARD OF TRADE  
GORE BAY, Ontario

GORE BAY, Ontario,  
December 5th, 1956.

Department of Lands & Forests,  
Fish and Wildlife Division,  
SUDBURY, Ontario.

Attention: Mr. C. Bibby

Dear Mr. Bibby:

Please be advised that at a recent meeting of our Board of Trade, the following resolutions were passed:

1. "That the Western Manitoulin Board of Trade go on record as being unanimously in favour of continuing the Archery Season for at least another year".
2. "That we ask the Department of Lands and Forests for a permanent resident manager to attend to our Fish and Wildlife problems".

Please let us hear from you on these two resolutions. If the Archery Season is going to be continued, it should be included in the Tourist Association Advertising for 1957.

Yours truly,

M. McQuarrie, Secty.



c o p y

- 40 -

Bushmaster Bowmen,  
217 Burton Road,  
OAKVILLE, Ontario,  
November 26th, 1956.

Department of Lands & Forests,  
Fish and Wildlife Division,  
SUDBURY, Ontario.

Dear Sir:

In reply to your letter, none of the Bushmasters participated in the deer hunt this year due to previous arrangements, but quite a few intend to, next summer.

Yours truly,

Sgd. Wendy Weyman,  
Sec.-Treasurer.



## BRANT BOWMEN

199 Grand River Avenue,  
BRANTFORD, Ontario,  
November 28th, 1956.

Mr. W. G. Cleaveley,  
District Forester,  
Department of Lands & Forests,  
SUDBURY, Ontario.

Dear Sir:

In answer to your letter wishing to contact all archers who participated in the recent archery season on Manitoulin Island, our club has no archers to add to your list.

We do wish, however, to draw to your attention that ten of our members who went to the archery season in Michigan, would have gone to Manitoulin Island had we only known soon that there would be an archery season there. We appreciate the opportunity we had to shoot in Manitoulin, but having arranged to get time off work and make reservations in Michigan, we could not make use of the opportunity.

We are definitely in favour of an archery season in Manitoulin Island and will certainly support it next year, provided we have enough time to make arrangements and reservations.

And we do wish to thank you for the work you have done in this regard.

Yours truly,

Sgd. George McGowan,  
Secretary,  
The Brant Bowmen.



Archery Clubs in Ontario, 1956

Blue Water Bowmen,  
c/o John E. Hammond,  
1275 - 3rd Ave., West,  
OWEN SOUND, Ontario.

Brockville Fish & Game Club,  
c/o John Dixon, Archery Chairman,  
68 George Street,  
BROCKVILLE, Ontario.

Chemical Valley Bowmen,  
c/o Robert Carter,  
496 Davis Street,  
SARNIA, Ontario.

Forest City Archers,  
c/o Norm Goody,  
470 Charlotte Street,  
LONDON, Ontario.

Glendale Archery Club,  
c/o Harry Loth,  
37 Glenridge Avenue,  
ST. CATHARINES, Ontario.

King's Forest Archers,  
c/o Mrs. V. Kolmer,  
172 London Street, South,  
HAMILTON, Ontario.

Oxford Archery Club,  
c/o Mrs. W. Stevenson,  
3 Vansittart Avenue, Apt. 5,  
WOODSTOCK, Ontario.

Renfrew Archers,  
c/o Bruce McPhail,  
168 Raglan Street, South,  
RENFREW, Ontario.

Woodland Field Archers,  
c/o Mrs. A. Kitchen,  
431 Centre Street,  
OSHAWA, Ontario.

Belleville Bowmen,  
Geoff Calvert,  
c/o C. Belch,  
R. R. #6,  
BELLEVILLE, Ontario.

Brant Bowmen,  
c/o George McGowan,  
199 Grand River Avenue,  
BRANTFORD, Ontario.

Bushmaster Bowmen,  
c/o Herb Brooks,  
84 Cross Street,  
OAKVILLE, Ontario.

Dunnville Bowmen,  
c/o Max Beckett,  
916 Pine Street,  
DUNNVILLE, Ontario.

Galt Bowmen,  
c/o Herm Walters,  
85 Edwin Street,  
KITCHENER, Ontario.

Grimsby Archery Club,  
c/o Art Harley,  
25 Elizabeth Street,  
GRIMSBY, Ontario.

Ottawa Bowmen,  
c/o W. L. Ross,  
201 Metcalfe Street, Apt. 10,  
OTTAWA, Ontario.

Port Colborne Bowmen,  
c/o Charles Goss,  
72 Homewood Avenue,  
PORT COLBORNE, Ontario.

Windsor Bowmen,  
c/o Len Gensens,  
1986 Ellrose Avenue,  
WINDSOR, Ontario.

York County Bowmen,  
c/o Miss Ella Inches,  
47 Brookmount Road,  
TORONTO, Ontario.

Humber Valley Archers,  
c/o Gerry Barbur,  
292 Evelyn Avenue,  
TORONTO, Ontario.

Compiled by: Mr. Harry Loth, Secretary,  
Hunting and Field Archers of Ontario,  
November 14th, 1956.

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1918



REPORT ON THE 1956 DEER SEASON  
IN THE SAULT STE. MARIE FOREST DISTRICT

by  
M. W. I. Smith, C. L. Perrie and M. T. Watson

Introduction

The value of accurate data on the total kill and on the composition of the kill during a deer season has been clearly demonstrated.

For several years now this district has obtained data on the non-resident kill including total numbers, percentage success of hunters, and age composition of the kill. In 1955 the first approach in this district to assessing the resident kill was made when the Elliot Haynes Company was engaged to conduct a ballot survey. In 1956, having learned some valuable lessons the previous year, an improved survey was carried out by our own staff and included, for the first time, the kill by farmer deer licensees.

This report, therefore, provides our most complete coverage of district deer hunters to date.

Resident Hunters

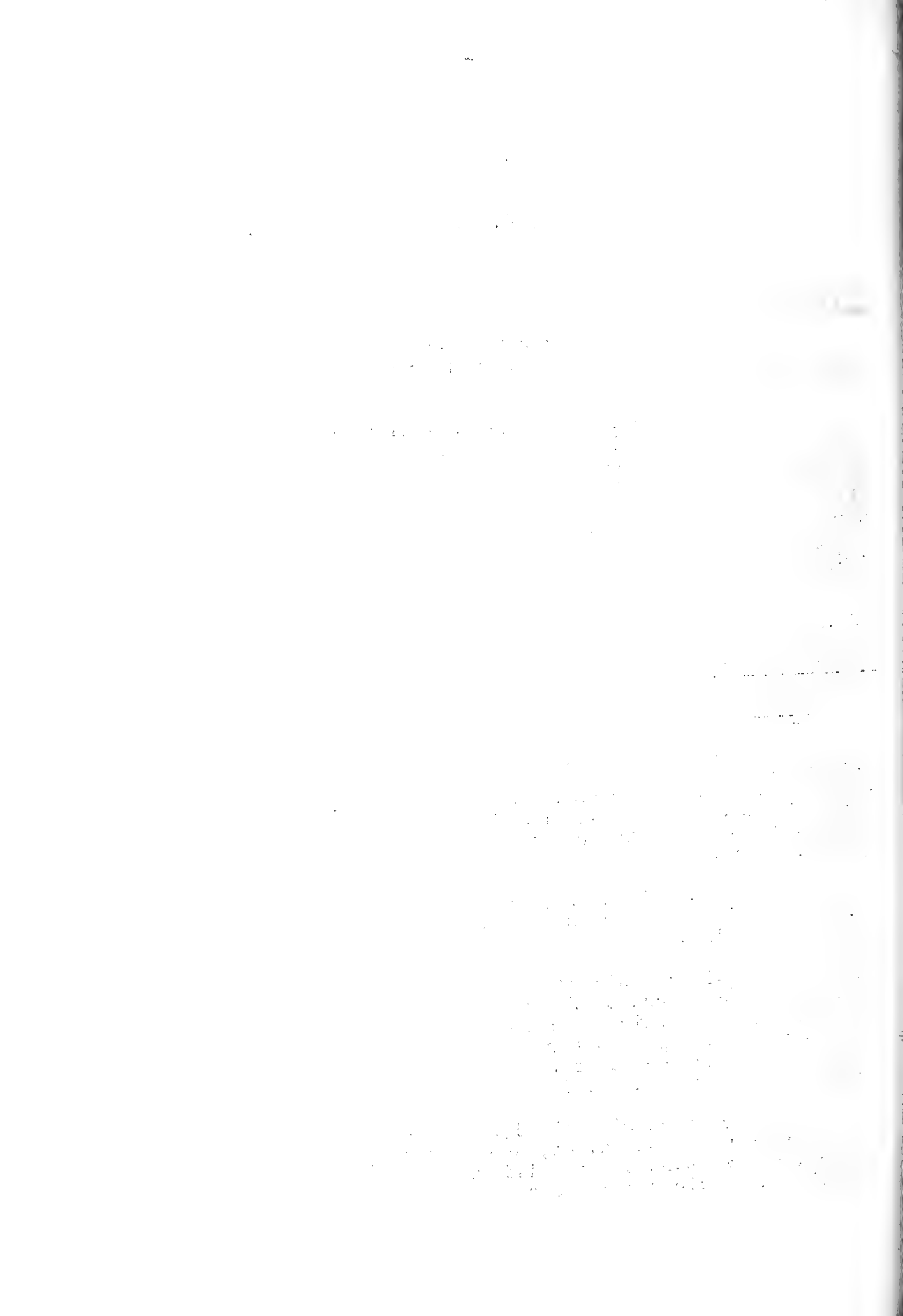
Methods

During December, 1956, and January, 1957, a mailed ballot survey was conducted among a 25% sample of the 5,000 Ontario deer hunters who bought licenses in this district. Lists of licensees were obtained from all license issuers and the hunter sample which comprised every fourth name appearing on these lists amounted to 1,238 hunters.

The questionnaire, or ballot, mailed to these hunters, a sample of which appears as Appendix "A", was designed to provide data on the following:

- (a) Total kill by residents
- (b) Percentage success of resident hunters
- (c) Townships in which deer were killed
- (d) Hunting days per hunter
- (e) Hunting days per deer bagged
- (f) Use of dogs, and opinion on use of dogs

Initial contact with the 1,238 sampled hunters was made on January 10th when the ballot, Appendix "A", was mailed. This was followed by two subsequent mailings on January 21st and on January 31st with Appendices "B" and "C", respectively.



Weather Conditions

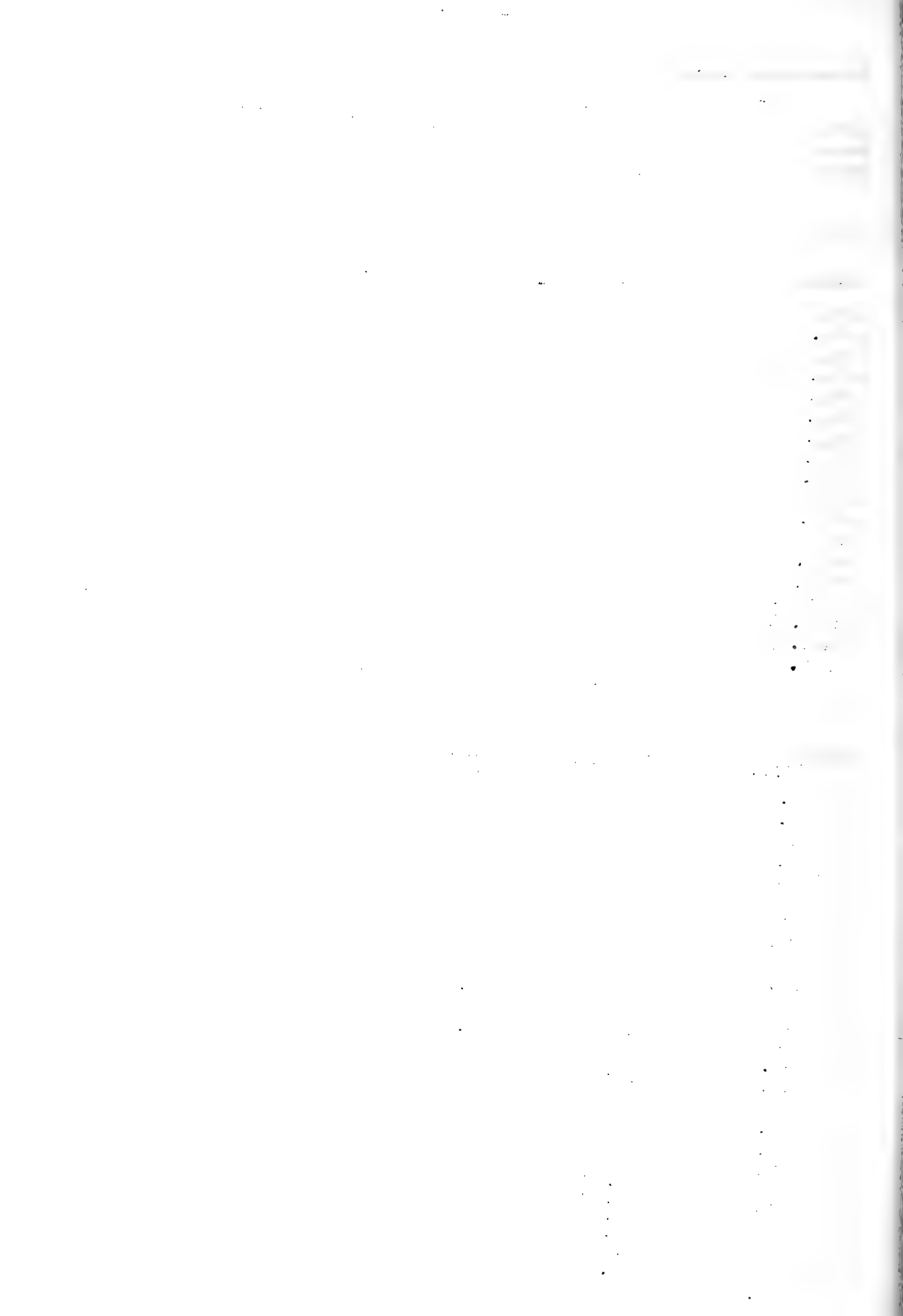
During the 1956 season temperatures were slightly above normal and precipitation was perhaps less than normal. Table #1 shows the noon temperature records for several points in the district just prior to the season.

TABLE I

<u>Date</u>	<u>Peshu L.</u>	<u>Sand L.</u>	<u>Blind R.</u>	<u>S.S.M.</u>	<u>Average</u>
Oct. 15	64	58	57	64	61
Oct. 16	64	66	54	60	61
Oct. 17	70	65	63	76	68
Oct. 18	43	48	53	52	49
Oct. 19	54	58	54	54	55
Oct. 20	58	58	52	60	57
Oct. 21	64	52	52	60	57
Oct. 22	58	63	54	54	57
Oct. 23	43	39	52	48	45
Oct. 24	42		48	46	45
Oct. 25	55		52	54	54
Oct. 26	46		48	46	46
Oct. 27	44		52	54	50
Oct. 28			44		
Oct. 29			56		
Oct. 30			56		
Oct. 31			58		

Snow stations were in operation from November 1st and Table #2 records this information.

<u>Date</u>	<u>Batchawana</u>	<u>Sand L.</u>	<u>Blind R.</u>	<u>S.S.M.</u>	<u>Twp. Wells</u>
Nov. 1	Nil	Nil	Nil	Nil	Nil
Nov. 2					
Nov. 3					
Nov. 4					
Nov. 5					
Nov. 6					
Nov. 7					
Nov. 8	trace			1"	
Nov. 9	trace	1"		1 1/2"	
Nov. 10	trace	1"		4"	
Nov. 11	trace	1.8"		4"	
Nov. 12	trace	1.8"		4"	
Nov. 13	trace	5.2"		1"	
Nov. 14	trace	5.2"		1 1/2"	
Nov. 15	2 1/2"	4.5"		1"	
Nov. 16	5 1/2"	10"		5"	
Nov. 17	6 3/4"	10"		7"	
Nov. 18	5 1/2"	10"		6"	
Nov. 19	3.3"	10"		4.8"	
Nov. 20	2.0"	10"		4.8"	
Nov. 21	5.5"	16"		3 3/4"	
Nov. 22	7.0"	18.8"		5"	
Nov. 23	6.5"	18.8"		6"	
Nov. 24	7.3"	18.8"	1 1/2"	6"	
Nov. 25	9.0"	20.0"	1 1/2"	11"	4"
Nov. 26	8.7"	20.0"	1 1/2"	11"	4"



Generally speaking, these weather conditions allowed access to all parts of the district but lack of snow reduced the opportunity of tracking. Small ponds first became frozen on November 14th.

Data

Initial sample ballots mailed - 1,238 = 100%  
 Ballots returned, completed - 978 = 79%

Since the original was a 25% sample, the nonrespondents, 260 in number, reduced the overall sample to 19.3 percent.

Of the 978 respondents, 40 - approximately 4 percent, hunted in areas outside the Sault Ste. Marie District. A further 28 hunters - 3 percent of those who bought licences, did not hunt. Of the nonrespondents, 9 were returned because of incorrect addresses.

As in 1955, the district has been broken into 6 areas for purposes of comparing success and total kill within the district. These areas are shown in Appendix "D". Table #1 presents, by area, the numbers and percentages of resident hunters and of resident-farmer hunters and their respective success.

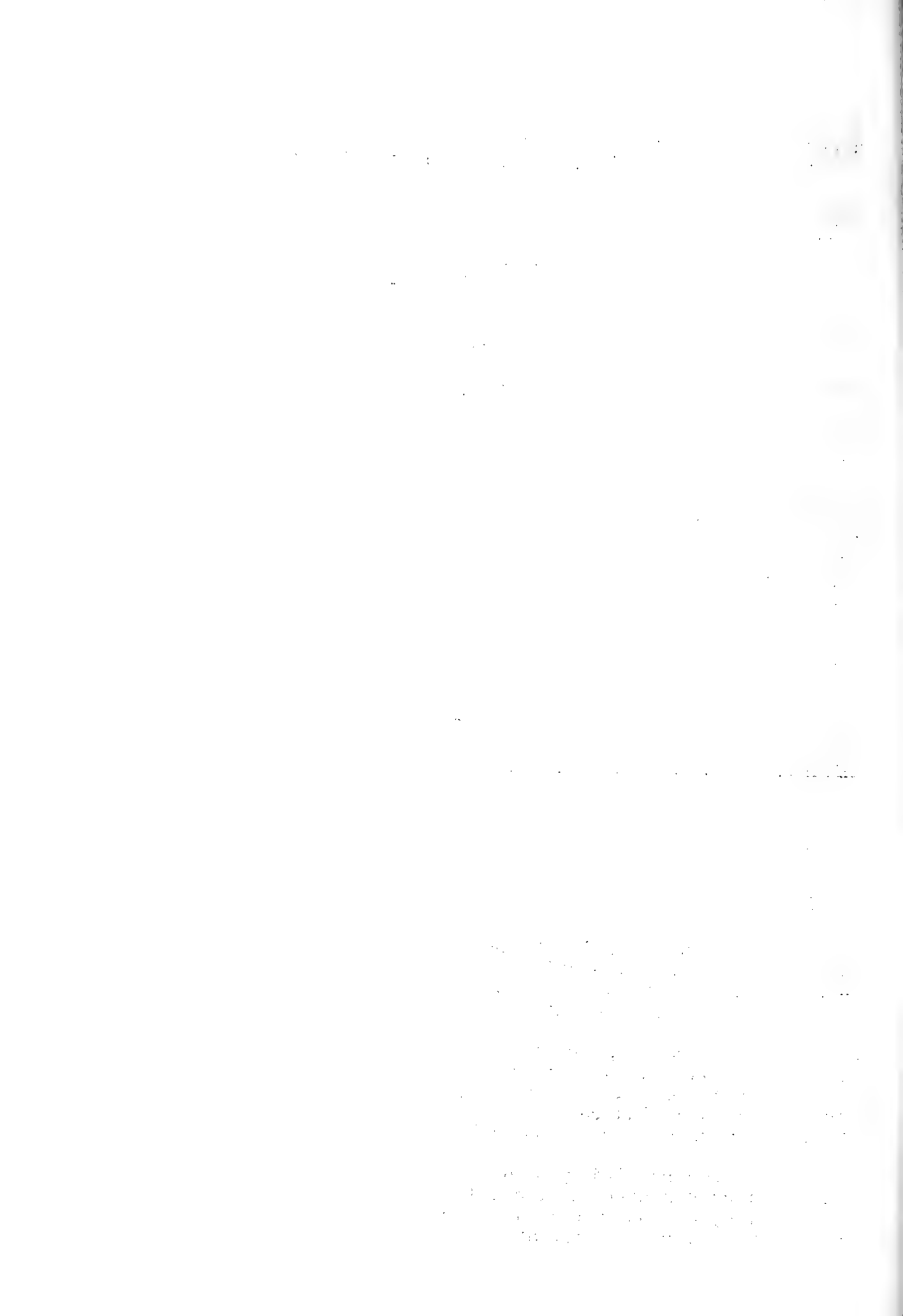
TABLE III

<u>Area No.</u>	<u>No. of Resident Hunters</u>	<u>No. of Resident-Farmer Hunters</u>	<u>Percentage of Hunters</u>	<u>Percentage Success</u>	
				<u>Residents</u>	<u>Farmers</u>
1	14	0	1.6	28.6	0
2	249	8	29.5	28.2	50.0
3	295	70	42.1	26.1	40.0
4	123	38	18.4	41.5	34.2
5	22	0	2.5	36.4	0
6	48	3	5.9	37.5	33.3

Ontario residents who purchased deer licenses in this district numbered approximately 5,000. Of this number, 4 percent - 200, hunted outside the boundaries of this district. Thus, of the total number, 4,800 actually hunted in the district.

Fourteen percent of the respondents to our survey indicated that they had hunted on a farmer's deer license. The total number of such licenses can, therefore, be calculated at 672. Returns by these licensees indicated a success of 38.7 percent. The total kill by these hunters is calculated, therefore, at 260 deer.

The remaining 86 percent of the Ontario residents sampled in the survey hunted on a regular resident license. These residents numbered 4,128 and reported a success of 30.4 percent. Kill by these resident hunters is estimated at 1,245 deer.



The total kill by resident hunters, therefore, is estimated at 1,505 deer. Of these, 47.8 percent were bucks, 38.7 were does and 13.5 percent were fawns.

The foregoing may be summarized as follows:

License sales to residents of Ontario .....	5,000
Licensees hunting outside of this district - 4%	200
District hunters (Ontario residents) .....	4,800
Farmer deer licensees - 14% of sample .....	672
Percentage success .....	38.7
Estimated kill by farmer deer licensees .....	260
Resident deer licenses - 86% of sample .....	4,128
Percentage success .....	30.4
Estimated kill by resident deer licensees .....	1,245
Total kill by Ontario residents .....	1,505
	deer.

The average hunter spent 6.4 days hunting and it required an average of 20 hunter days to bag a deer. The average hunter reported seeing 2.6 deer or almost nine times as many as were shot.

Approximately 29 percent of the hunters used dogs and 42 percent favoured their use. Forty-two percent of those using dogs bagged a deer, as compared to 27 percent success by hunters who did not use dogs.

### Non-Resident Hunters

The non-resident deer kill was sampled as in 1955 by personnel stationed at the ferry dock on weekends only. In this way a total of 224 non-resident deer hunters and 106 deer were checked. Of these, 72 hunters had bagged 45 deer outside this district.

Thus, 152 non-resident hunters shot and exported 61 deer from this district.

On the basis of this sample of 106, 57.5 percent, of the deer exported at the border had been shot in this district. Customs records show that a total of 515 deer were exported in 1956. It follows then that 57.5 percent - or 296 of these were bagged in the Sault Ste. Marie District.

The sample taken also indicated a 40 percent success by non-resident hunters. Thus, if non-resident hunters bagged 296 deer in this district with 40% of the hunters successful, we must have had a non-resident population of 740.

Percentage composition of the non-resident kill was as follows:

1. Introduction

2. Methodology

3. Results

4. Discussion

5. Conclusion

The first part of the study focuses on the theoretical framework and the development of the research hypotheses. The second part describes the data collection process and the statistical analysis used to test the hypotheses. The results show that there is a significant positive relationship between the variables studied. The discussion explores the implications of these findings and compares them with previous research. The conclusion summarizes the main findings and suggests directions for future research.

References

1. Smith, J. (2010). The impact of technology on the workplace. *Journal of Business Management*, 15(2), 123-135.

2. Johnson, A. (2012). Understanding organizational behavior. *Management Science*, 58(3), 456-470.

3. Brown, C. (2015). The role of leadership in organizational success. *Leadership Quarterly*, 26(1), 78-92.

4. Davis, P. (2018). The future of work: Trends and challenges. *Human Resource Management*, 37(4), 567-580.

5. White, E. (2020). The impact of remote work on employee well-being. *Journal of Applied Psychology*, 105(3), 345-358.



Bucks - 46 percent; does - 31 percent; and fawns - 23 percent. Aging was possible only on 50 of the 61 deer checked.

Age distribution was as follows:

$\frac{1}{2}$	-	10
$1\frac{1}{2}$	-	20
$2\frac{1}{2}$	-	7
$3\frac{1}{2}$	-	8
$4\frac{1}{2}$	-	5

Total deer kill in the district:	Resident hunters	-	1,245
	Farmer-hunters	-	260
	Non-resident hunters	-	296
			<hr/>
	Total		1,801

### Discussion and Summary

The survey of the 1956 deer season was conducted by: (a) a checking station at the ferry dock and (b) a mailed ballot survey for resident and farmer hunters patterned after that conducted in 1955 through Elliot Haynes Limited.

It was estimated that approximately 4,800 residents hunted in the district, and killed 1,505 deer. Of these, residents who hunted on farmers' licenses numbered 672 and killed 260 deer. The success of the farmers was estimated at 38.7 percent and that of other residents at 30.4 percent. The significant number of farmers' licenses sold and their relatively high rate of success emphasizes the need for continuing to obtain figures on this portion of the kill.

Non-residents numbered 740 in 1956 as compared to 1,400 in 1955. Their rate of success dropped only slightly from 43 percent to 40 percent but the total kill dropped from 615 in 1955 to 296 in 1956.

The total kill estimated at 1,801 deer, decreased from the 1955 kill of 2,030 by an amount nearly equal to the decrease in the non-resident kill.

Areas #'s 2, 3 and 4 were again the most popular and the most lucrative. Special attention was again given to the kill on St. Joseph Island and another sharp drop in the total kill for that part of the district has been noted. A special survey of the herd and range conditions on St. Joseph Island is now underway and a supplementary report of our findings will be issued shortly.

An attempt is being made to prepare a special report providing historical data for deer in the district. This report will also include the more complete data of recent years and it is hoped that information will emerge to show us how our present deer herd compares to that of earlier years.



APPENDIX A

DEER HUNTING SURVEY  
ONTARIO DEPARTMENT OF LANDS & FORESTS

We are conducting a survey among Ontario hunters regarding hunting practices and deer appearances and kills during the 1956 season. Your co-operation in answering the following questions will help improve hunting conditions in future years, and the three minutes you spend answering this questionnaire will be greatly appreciated. To show our appreciation, we are enclosing a carborundum stone that you will find useful on your next hunting or fishing trip.

Yours sincerely,

District Forester.

- 
1. Approximately how many days did you spend hunting deer during the 1956 season? ..... days
  2. In what township or general area did you hunt? .....
  3. (a) Approximately how many deer did you see during your hunting trip? .....  
(b) How many moose did you see? .....
  4. Did you bring home a deer this season? Yes ( ) No ( )  
If Yes, what was it? Buck ( ) Doe ( ) Fawn ( )
  5. (a) Did you hunt with dogs? ..... Yes ( ) No ( )  
(b) Are you in favour of or opposed to the use of dogs in deer hunting? ..... In favour ( ) Opposed ( )
- You may sign here if you wish .....
- 

Thank you sincerely for your help with this survey. All information will be treated confidentially.

Please fold and seal this self-addressed (return postage guaranteed) form and drop it in the mail box today.





DEPARTMENT OF LANDS AND FORESTS

Sault Ste. Marie, Ontario,  
January 21, 1957.

Dear Sir:

Recently we forwarded you a deer hunting survey questionnaire, which you have not returned to date.

We would appreciate your cooperation in returning this questionnaire, which will help us in our deer management program.

If your questionnaire is already in the mail, please accept our thanks and disregard this reminder.

Yours very truly,

A. J. Herridge,  
District Forester.

CFC/f





ONTARIO

## DEPARTMENT OF LANDS AND FORESTS

Sault Ste. Marie, Ontario,  
January 31, 1957.

Dear Sir:

On December 13, 1956, we forwarded you a deer hunting survey questionnaire which you have not returned to date. We also forwarded you a reminder on January 21, 1957. Would you please fill in the following information and return it to this office as soon as possible?

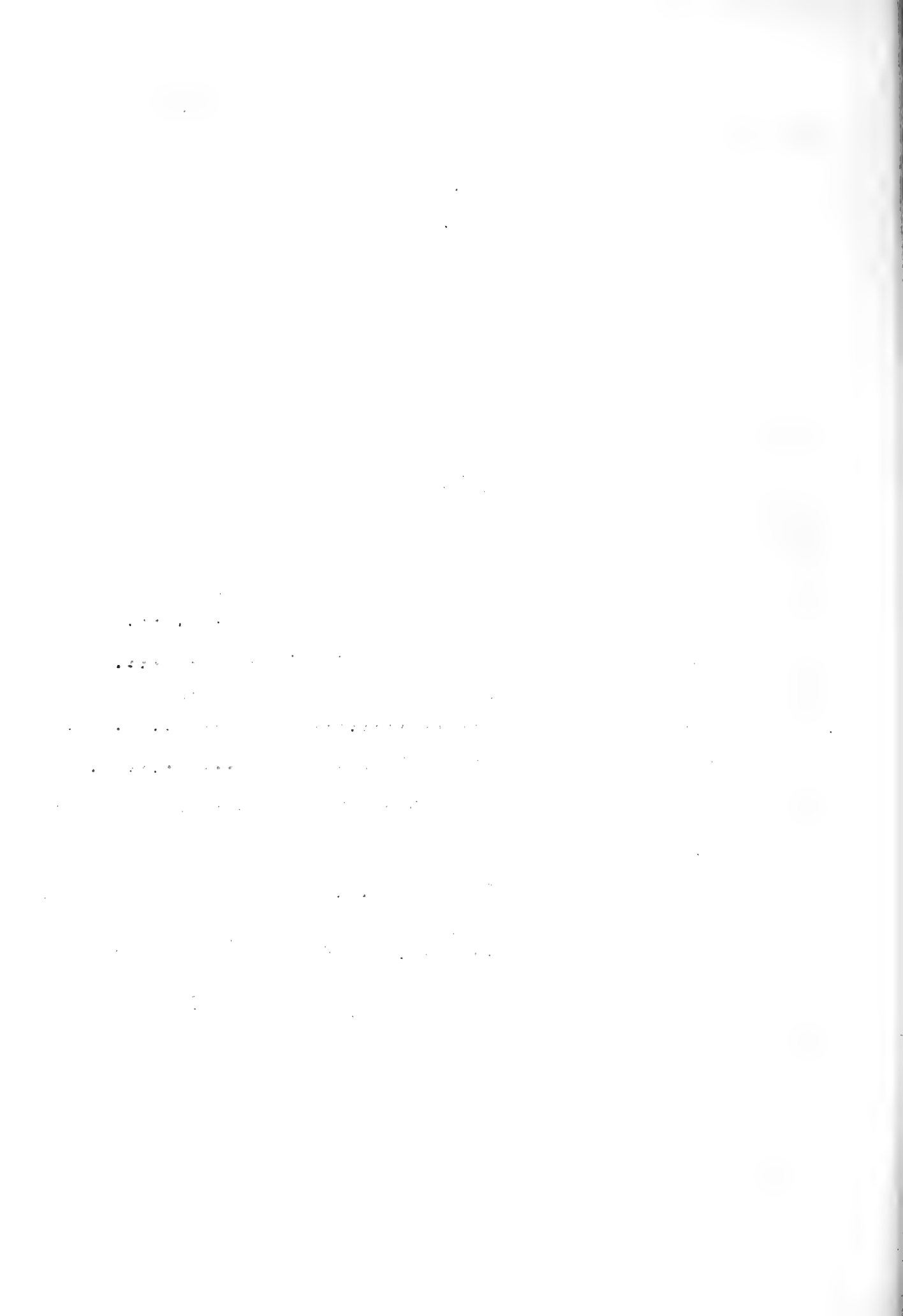
1. Approximately how many days did you spend hunting deer during the 1956 season? ..... days
2. In what township or general area did you hunt? .....
3. (a) Approximately how many deer did you see during your hunting trip? .....  
(b) How many moose did you see? .....  
(c) How many elk did you see? .....
4. Did you bring home a deer this season? Yes ( ) No ( )  
If yes, what was it? Buck ( ) Doe ( ) Fawn ( )
5. (a) Did you hunt with dogs? ..... Yes ( ) No ( )  
(b) Are you in favour of or opposed to the use of dogs in deer hunting? ..... In favour ( ) Opposed ( )

Your cooperation in returning this questionnaire will help us in our deer management program. If your questionnaire is already in the mail, please accept our thanks and disregard this letter.

Yours very truly,

MTW/f

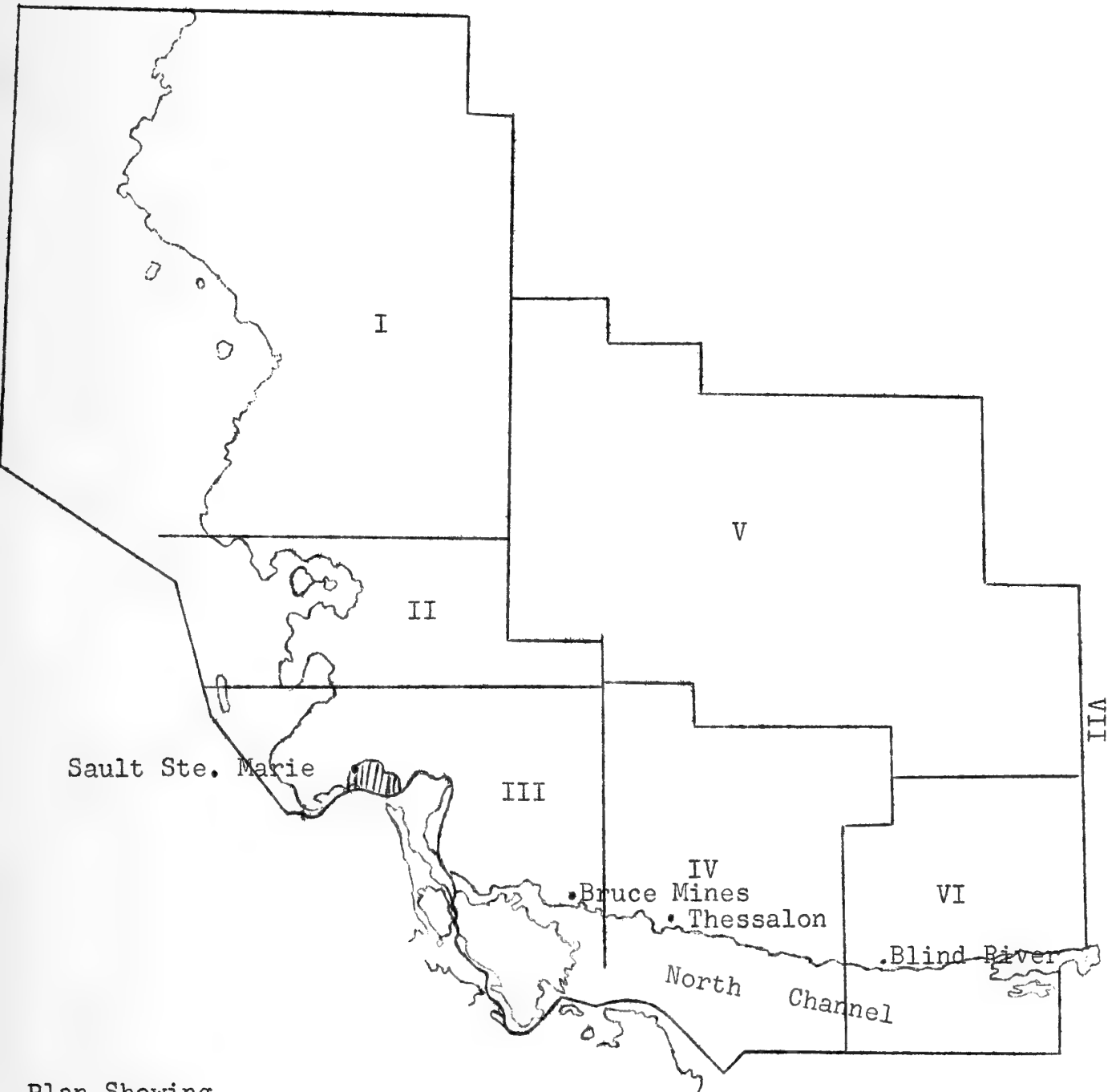
A. J. Herridge  
District Forester.





APPENDIX D

SAULT STE. MARIE  
DISTRICT



Plan Showing -

Areas for breakdown of deer  
hunter survey data.

VII - Area for all Non-District  
Data.





DEER SEASON - KEMPTVILLE DISTRICT - 1956

by  
J. B. Dawson

Deer kill data are difficult to obtain in Kemptville District since an extensive road system makes the use of checking stations impractical.

Three methods of data collection were used during the 1956 deer season. These were as follows:

- (i) Two survey teams, each composed of two men, collected information during the course of the hunt; one team spent one week, the other two weeks in the field.
- (ii) A checking station was set up on the Lanark road, near Perth, on November 17th and 18th.
- (iii) An appeal for deer heads or jaws for aging purposes was sent to District Licence Issuers for distribution to District hunters. 1500 mimeographed forms and a similar number of shipping tags were sent to approximately 90 issuers. The value of deer management was outlined and hunters were requested to ship the head or lower jaw of their deer, express collect, to the Kemptville District office.

Of the above three methods of data collection, the survey teams were the most effective. 311 Kemptville District deer were checked; 200 of these were checked by one team, 56 by the other.

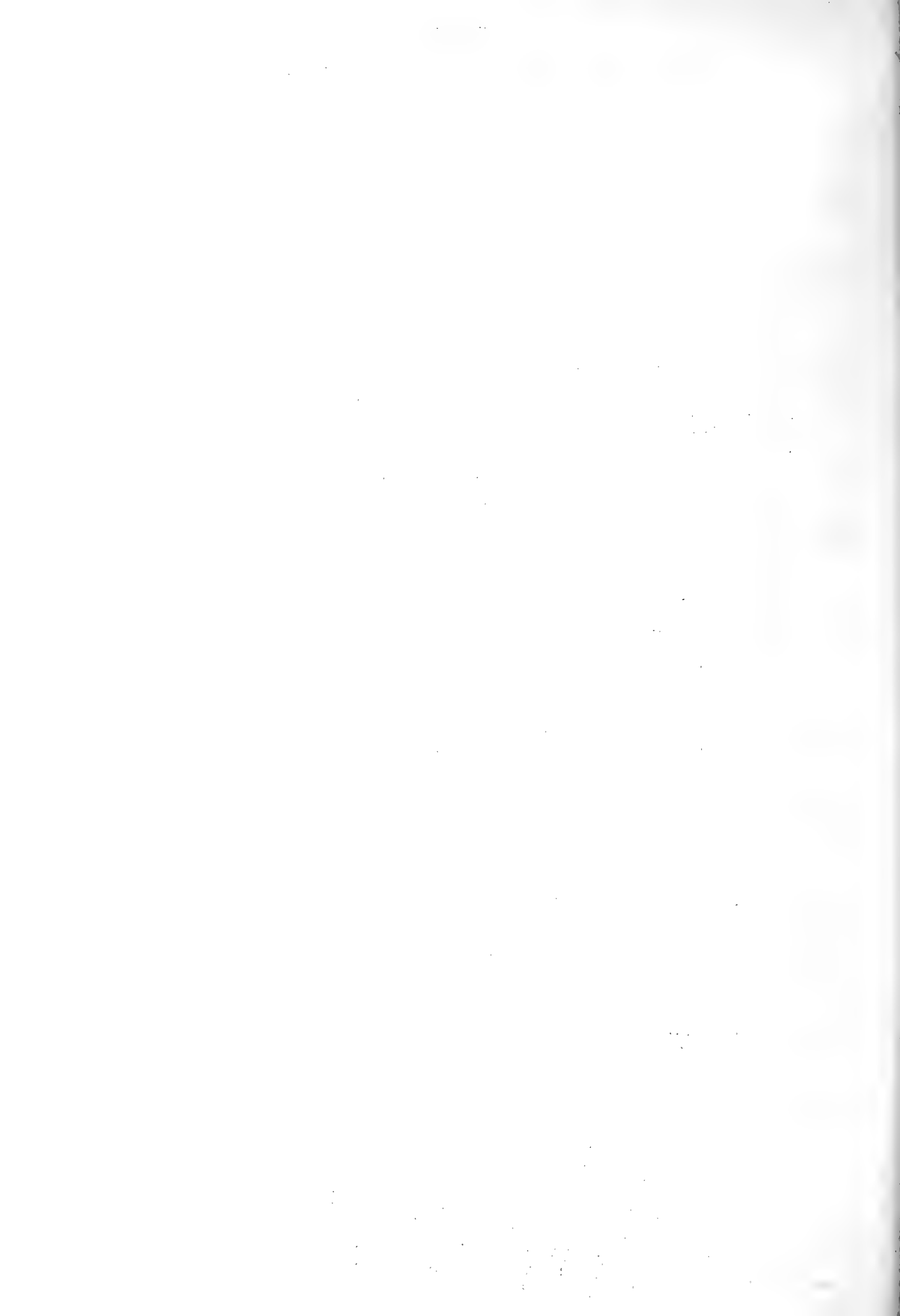
The Lanark road station provided information on only 15 Kemptville deer, although 92 Tweed District deer were aged during the two-day check.

The appeal for aging material made through the licence issuers was disappointing, since only 55 jaws or heads were received at District Office. Co-operating hunters represented only 3.2% of the total number of appeals. It is believed however, that approximately one third of the forms were not distributed to hunters. If this was so, and if hunter success is considered to be about 30%, then the 55 returns represent a return of nearly 20% of those successful hunters receiving forms and tags. Some of the deer aged in the field were potential returns; this, of course, influenced the amount of aging material received at District Office.

### Hunter Success

Although reliable figures are limited, hunter success appeared to be good in Kemptville District.

The method of data collection influenced hunter success rates. Field crews located many deer for aging purposes by questioning farmers and local storekeepers. Thus, hunter success information was biased by the fact that most of the parties interviewed had already bagged one or more deer.



Data collected in the above manner is as follows:

<u>No. of Hunters*</u>	<u>Deer Shot</u>	<u>Percent of Success</u>	<u>Man-days of Hunting</u>	<u>Man-days per deer</u>
170	88	51.7	1051	11.9

More reliable hunter success figures were obtained on opening day. 181 hunters who had bagged 20 deer, were checked in Marlborough Township of Carleton Count, on November 12th. This indicated a hunter success rate of 11.6% and a figure of 9.0 man-days per deer bagged. The hunter success figure is low since hunters were questioned throughout the day and some, no doubt, shot their deer after they had been checked.

For several reasons, no attempt was made to distinguish between organized and casual hunters. Casual hunters predominate in this District, and those that do hunt in an organized fashion are usually farmers.

High hunter densities in many areas no doubt tended to equalize organized and casual hunter success rates. Many hunters shot their deer in front of other men's dogs and organized drives, and numerous deer, wounded by organized groups, were claimed and tagged by casual hunters.

\* includes organized, local and casual hunters.

Received of the Treasurer of the State of New York

the sum of \$1000.00

for the purchase of land

for the State of New York

THE STATE OF NEW YORK

Deer Age-Class Distribution Summary

District Kemptville

195 6

Total Deer Checked:	311	Percentage of Deer Checked:	
Adult Bucks .....	125	Adult Bucks .....	40.51%
Adult Does .....	87	Adult Does .....	27.97%
Buck Fawns .....	49	Total Fawns .....	31.52%
Doe Fawns .....	41		
Unsexed .....	8		100.00%
	<u>311</u>		
Adults unaged .....	25		

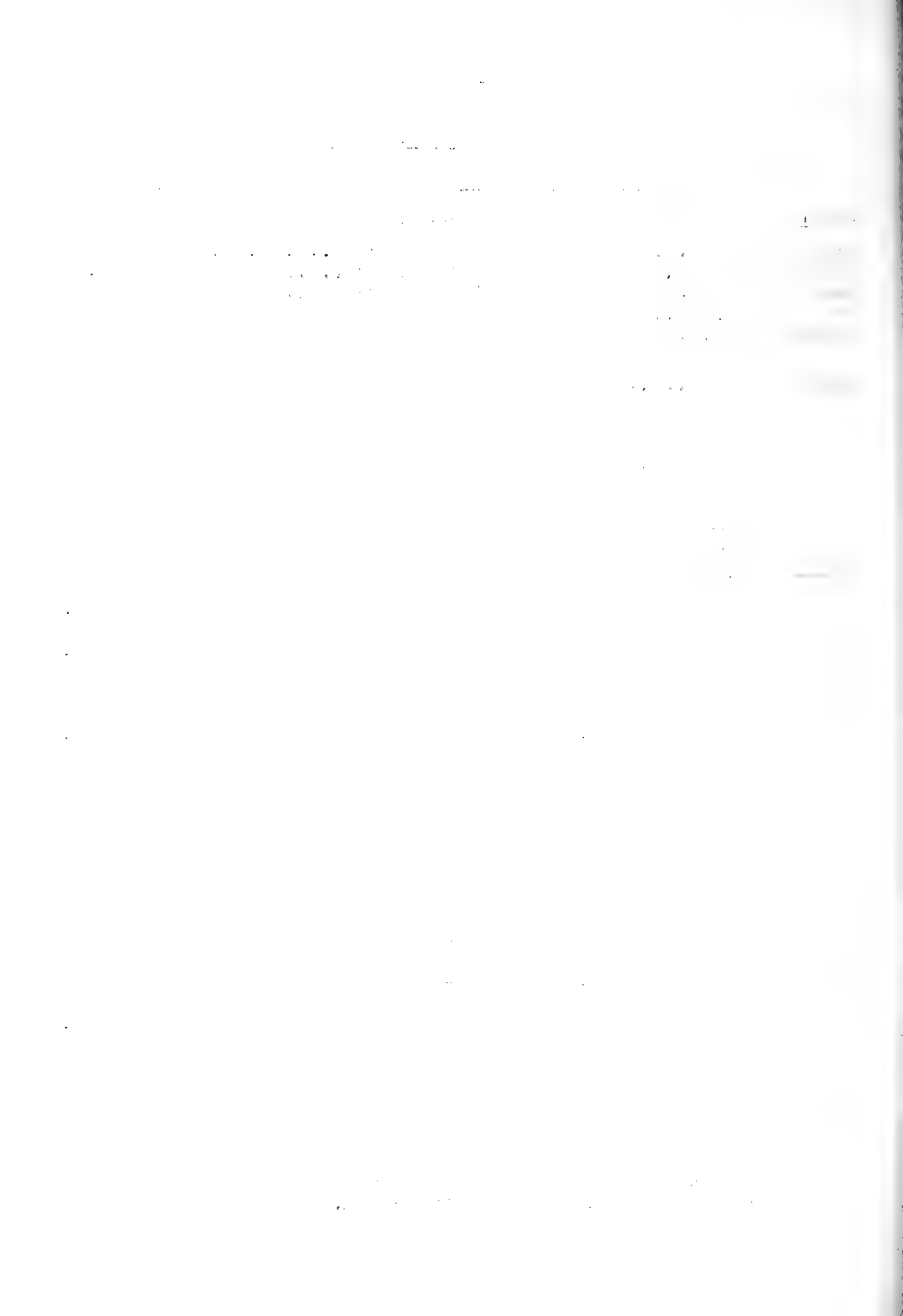
Percentages of Adult Deer in Each Age Class

Age	Bucks		Does		Sexes Combined	
	No. of Deer	Percent of Total	No. of Deer	Percent of Total	No. of Deer	Percent of Total
1½	43	36.4	23	32.9	66	35.1
2½	19	16.1	9	12.8	28	14.9
3½	14	11.9	9	12.8	23	12.2
4½	17	14.4	11	15.7	28	14.9
5½	16	13.5	11	15.7	27	14.4
6½	5	4.3	2	2.9	7	3.7
7½	2	1.7	3	4.3	5	2.6
8½	-	0.0	2	2.9	2	1.1
9½	2	1.7	-	0.0	2	1.1
10½	-	0.0	-	0.0	-	0.0
TOTALS	118	100.0	70	100.0	188	100.0
UNAGED	8		17		25	11.7
GRAND TOTAL	126		87		213	

Average age of Adult Bucks 3.32

Average age of Adult Does 3.58

Average age of all adults 3.42





### Age-Class Distribution

Age-class distribution figures, for 188 adult deer aged in Kemptville District, indicate

- (i) that 37.8% of all adult deer aged were  $4\frac{1}{2}$  years of age or older.
- (ii) that 22.9% of all adult deer aged were  $5\frac{1}{2}$  years of age or older.

The 1954 and 1955 Ontario Deer Season summaries show that only 16.35% of adult deer aged were  $4\frac{1}{2}$  years or older, and only 8.4% were  $5\frac{1}{2}$  years or older. (Ave. of nine Districts 1954, 10 Districts 1955).

The number of  $2\frac{1}{2}$  and  $3\frac{1}{2}$  year olds in the Kemptville sample is low and the reasons for this are not well known. It has been suggested that the deep snows of late winter in 1955 may have influenced the survival rate of the 1954 fawn crop and thus lowered the number of  $2\frac{1}{2}$  year old deer in the sample. If this was true, an appreciable mortality must have occurred, which is questionable.

Certain sampling errors may have occurred; these are, however, not obvious.

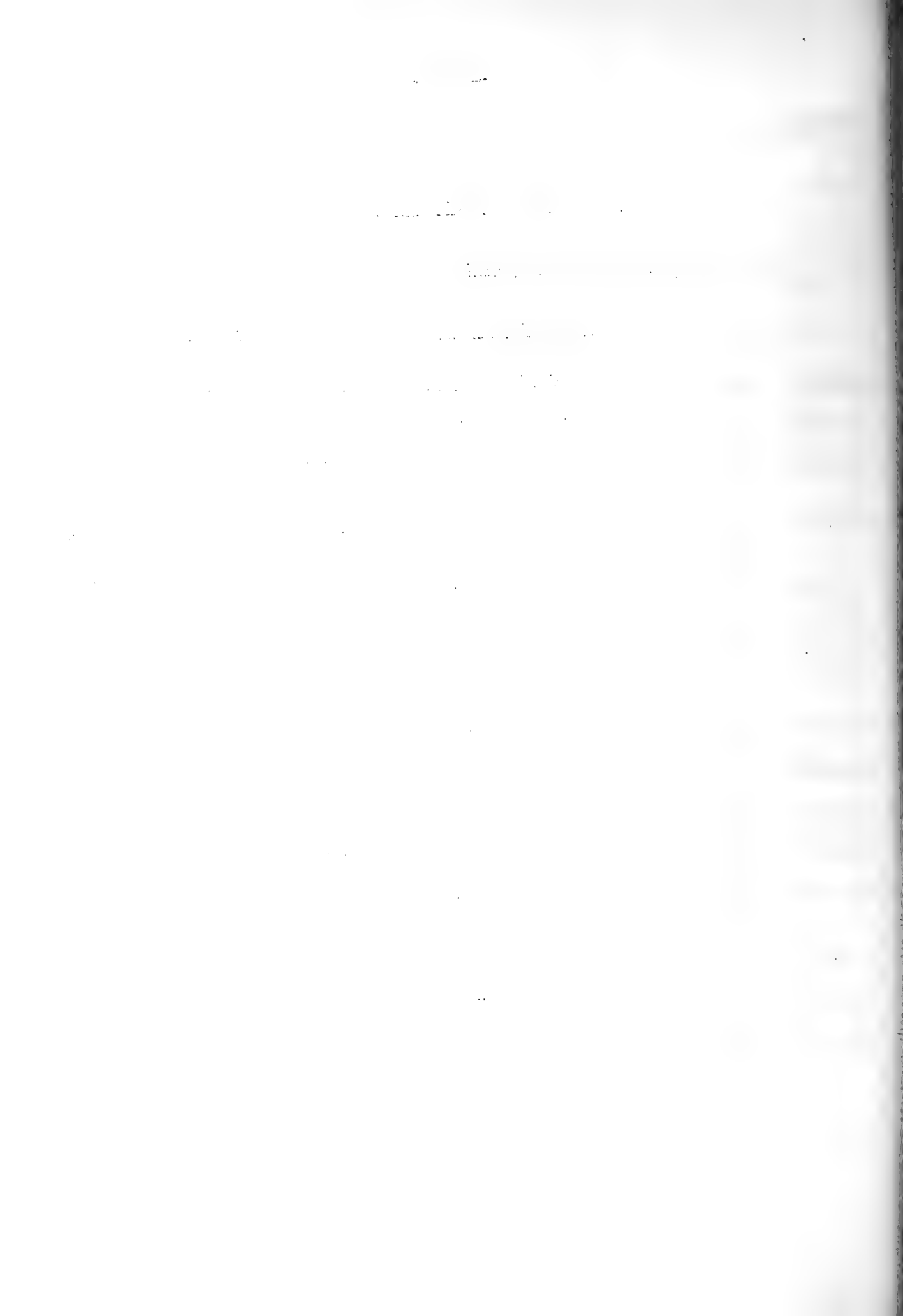
If a representative sample of the deer herd was obtained the abundance of older deer would seem to indicate that the herd has not been over-harvested during recent years.



H 32 - A

Deer Season Weather Report

Station	<u>General Conditions</u>			District	<u>Kemptville</u>
	<u>Snow Conditions</u>			<u>Ground Conditions</u>	
<u>1956</u>	<u>% of Ground Covered</u>	<u>Soft or Crusted</u>	<u>Average Depth</u>	<u>Frozen or Soft</u>	<u>Wet or Dry</u>
Nov. 12	nil	-	-	Soft	Dry
Nov. 13	nil	-	-	lightly frozen in A.M.	Dry
Nov. 14	100% in a.m. nil in p.m.	soft	$\frac{1}{2}$ "	soft	Wet-rain all day
Nov. 15	nil	-	-	soft	Wet-rain all day
Nov. 16	nil	-	-	soft	Wet-rain in a.m. - high winds in p.m.
Nov. 17	nil	-	-	soft	wet
Nov. 18					
Nov. 19	nil	-	-	soft	dry
Nov. 20	nil	-	-	soft	dry
Nov. 21	nil	-	-	soft	wet-rain all day
Nov. 22	nil	-	-	frozen	wet
Nov. 23	nil	-	-	frozen	wet
Nov. 24	nil	-	-	frozen	wet



Temporal Distribution of the Deer Kill - November 12th-17th.

Since hunters were interviewed continuously during the hunt, temporal distribution figures for the deer kill are limited.

One survey party worked sections of Lanark County only during the second week of the hunt. The temporal distribution of 114 deer killed in these areas during the previous week was as follows:

<u>Date</u>	<u>No. of Deer Killed</u>	<u>Percent of Total</u>
November 12	37	32.4
November 13	25	21.9
November 14	17	14.8
November 15	14	12.4
November 16	8	7.0
November 17	13	11.5
TOTALS	114	100.0

This sample indicates a gradual decrease in hunter success following that of November 12th. The kill was lowest on November 16th, a day of rain and high winds.

Milk Teeth

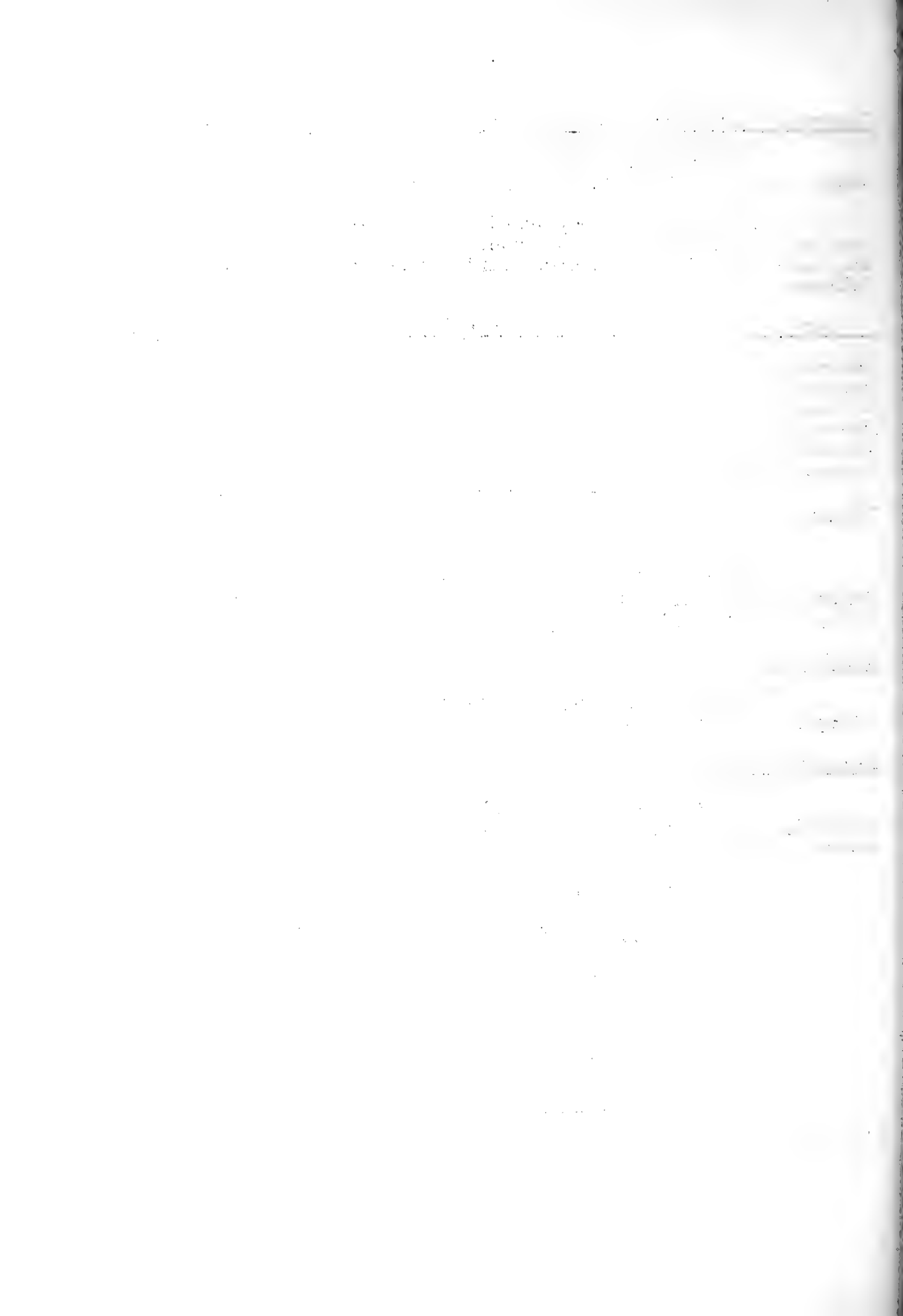
Condition of the milk teeth was noted on 35 deer  $1\frac{1}{2}$  years of age. Of these 17 had shed and 18 had not shed their milk teeth.

Lactation in Does

The state of lactation was noted in only 37 of the 87 does checked, since many deer had been cut up when the survey teams arrived.

Lactation, by age-classes, was as follows:

<u>Age Class</u>	<u>Milking</u>	<u>Dry</u>
$1\frac{1}{2}$	3	6
$2\frac{1}{2}$	5	2
$3\frac{1}{2}$	6	-
$4\frac{1}{2}$	8	-
$5\frac{1}{2}$	4	1
$6\frac{1}{2}$	-	-
$7\frac{1}{2}$	1	1
TOTALS	27	10

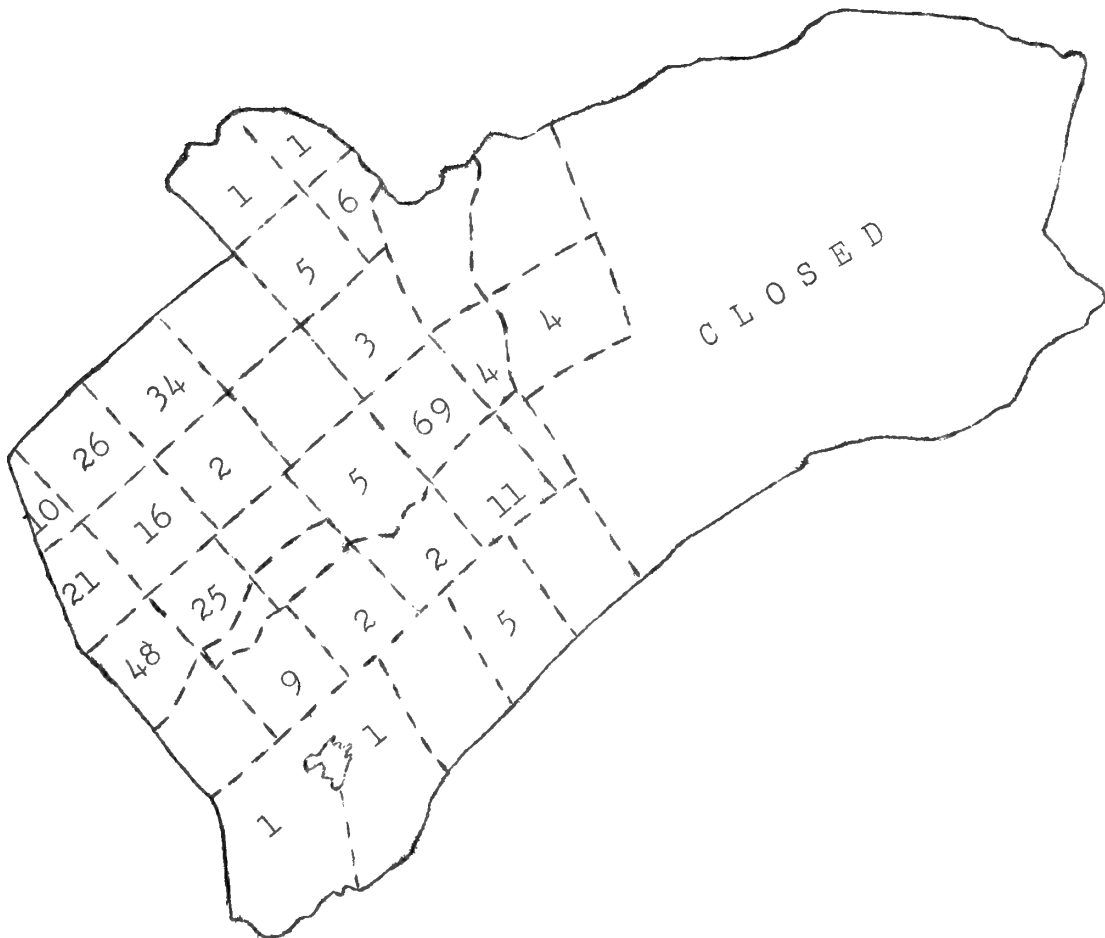


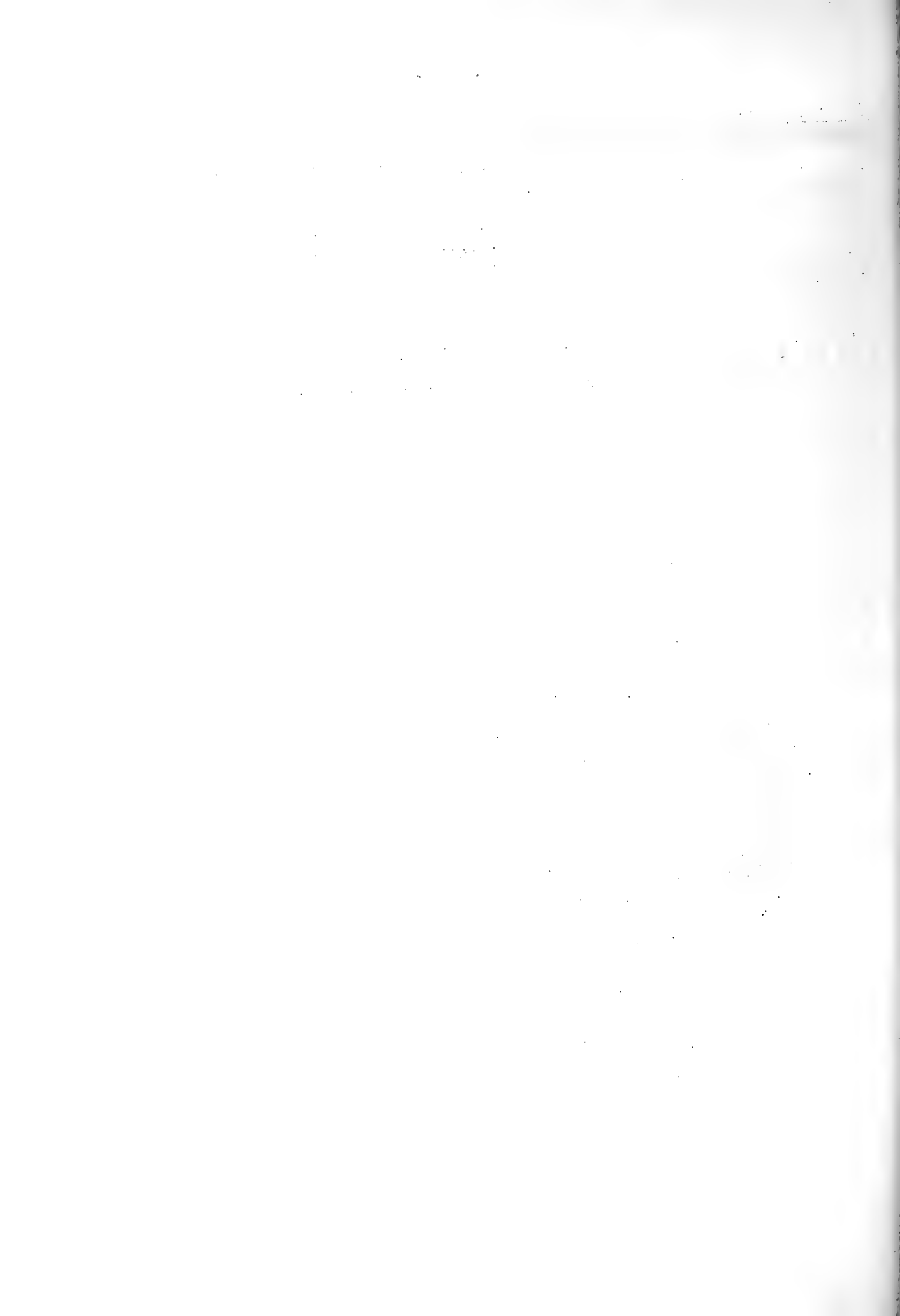
Distribution of Deer Checked

Map #1 shows the number of deer checked in each of the Townships open for hunting during the 1956 season.

The number of deer checked is not correlated with the actual number of deer killed per Township in any way, since the survey crews, of necessity, confined their activities to certain areas.

MAP #1 - Deer Checked by Townships, Kemptville District,  
November, 1956.







1956 Deer Data - Marlborough Township\*, Kemptville District

This Township, in Carleton County, has an assessed acreage of 54,609\*\* (The amount of Crown Land is negligible). Of this 85 square miles, only 29% is cultivated. 32% is abandoned farm land, much of which is woodlot and swamp, and the remainder, 39%, is woodlot or unimproved land.

Much of the Township is excellent deer habitat, and since the area is located about 15 miles from the city of Ottawa, annual hunting pressure is high.

Several factors contributed to an even heavier concentration of hunters than usual in Marlborough Township in 1956. For the first time in several years, the five eastern Counties of Kemptville District were closed to deer hunting. This, coupled with the fact that adjacent areas to the south and east of the Township opened two days later, resulted in a very high hunter density, especially during the first two days of the hunt.

In an attempt to check as many deer kills as possible during the period of highest hunting pressure, a section of the Township covering approximately 48 square miles was cruised extensively by automobile on November 12th and 13th.

On November 12th, 181 hunters, with a total kill of 20 deer, were checked - a hunter success of 11.6%.

On November 13th, about the same number of hunters bagged 16 deer. After the 13th, as the season opened to the south and east, hunting pressure fell considerably and the intensive check was abandoned.

In two days, 36 deer kills were checked on the 48 square miles. It is estimated that about 70% of all deer killed were checked during the two days; if this assumption is correct, then about 50 deer, (slightly over one deer per square mile) were killed on the first two days.

This rate of kill was certainly not maintained during the last three days of the season due to a greatly reduced hunting pressure. A kill of slightly over two deer per square mile is estimated for the entire six-day season. If this figure is applied to the Township as a whole, then a kill of 85 x 2 or 170 deer occurred. This figure is probably high, since the 48 square miles checked comprise a large percentage of the Township's best deer range.

x see map #2.

xx Canada Bureau of Statistics, 1951 Census.



Sixty-nine deer from Marlborough Township were aged. The results are contained in the deer age-class distribution summary on page 61.

This summary indicates that deer in the older age-classes constituted the bulk of the sample. Several causes of this age-class distribution are suggested:

- (i) Since the sample is small, a random sample of the kill was probably not accomplished.
- (ii) The sample may indicate a trend towards older age classes in the population. If this is so, it may be that although high densities of hunters occur, hunting is done in a very inefficient manner. Hunting pressure was higher this season than in previous years. It is quite possible that the harvest of recent years has not affected the Township's deer herd appreciably.

No definite conclusions can be made from one sampling of the population and special efforts will be made to collect data from Marlborough Township in the future.



H 30

Deer Age-Class Distribution Summary

Marlborough Township, Kemptville District

1956

Total Deer Checked:	69	Percentage of Deer Checked:	
Adult Bucks .....	26	Adult Bucks .....	37.7
Adult Does .....	21	Adult Does .....	30.4
Buck Fawns .....	11	Total Fawns .....	31.9
Doe Fawns .....	11		
Unaged & Unsexed ..	-	Total .....	100.0

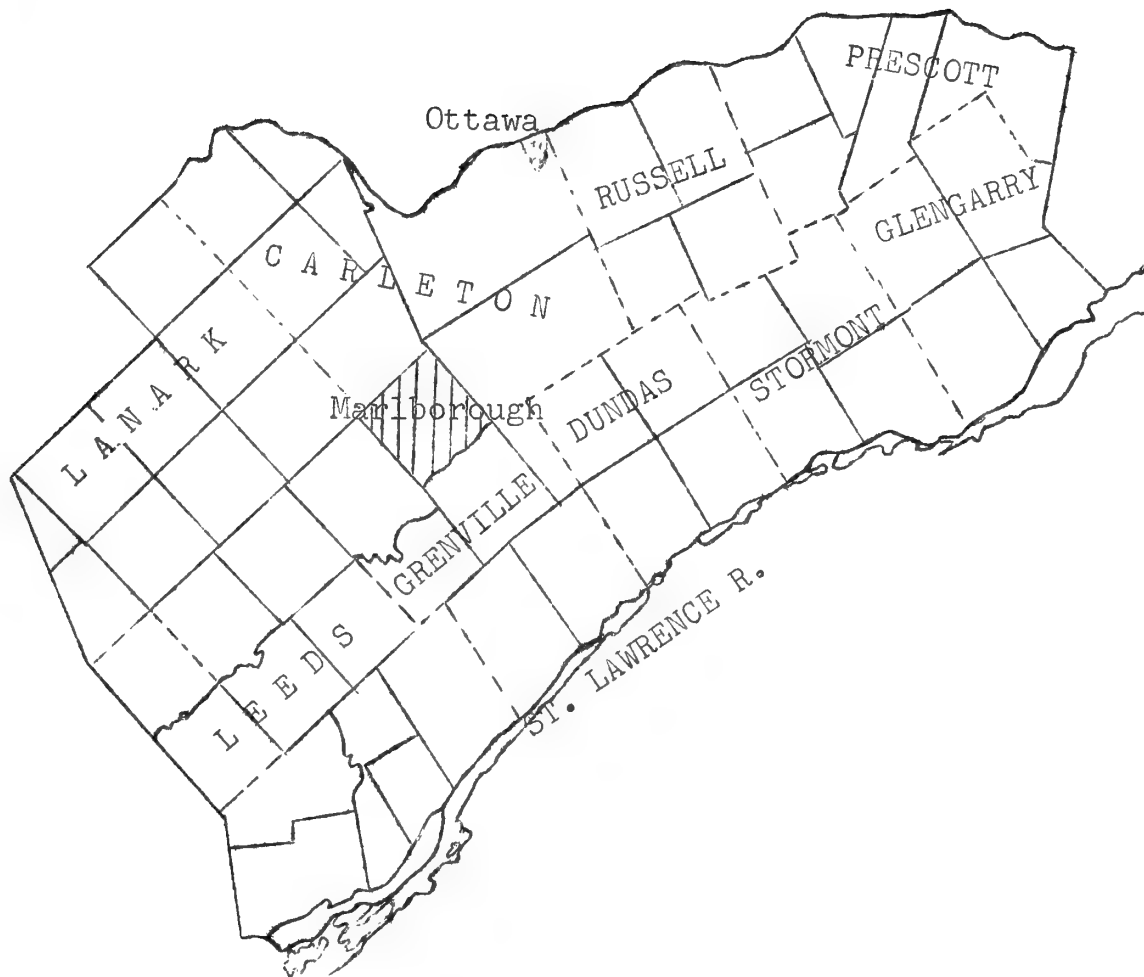
Percentages of Adult Deer in Each Age Class

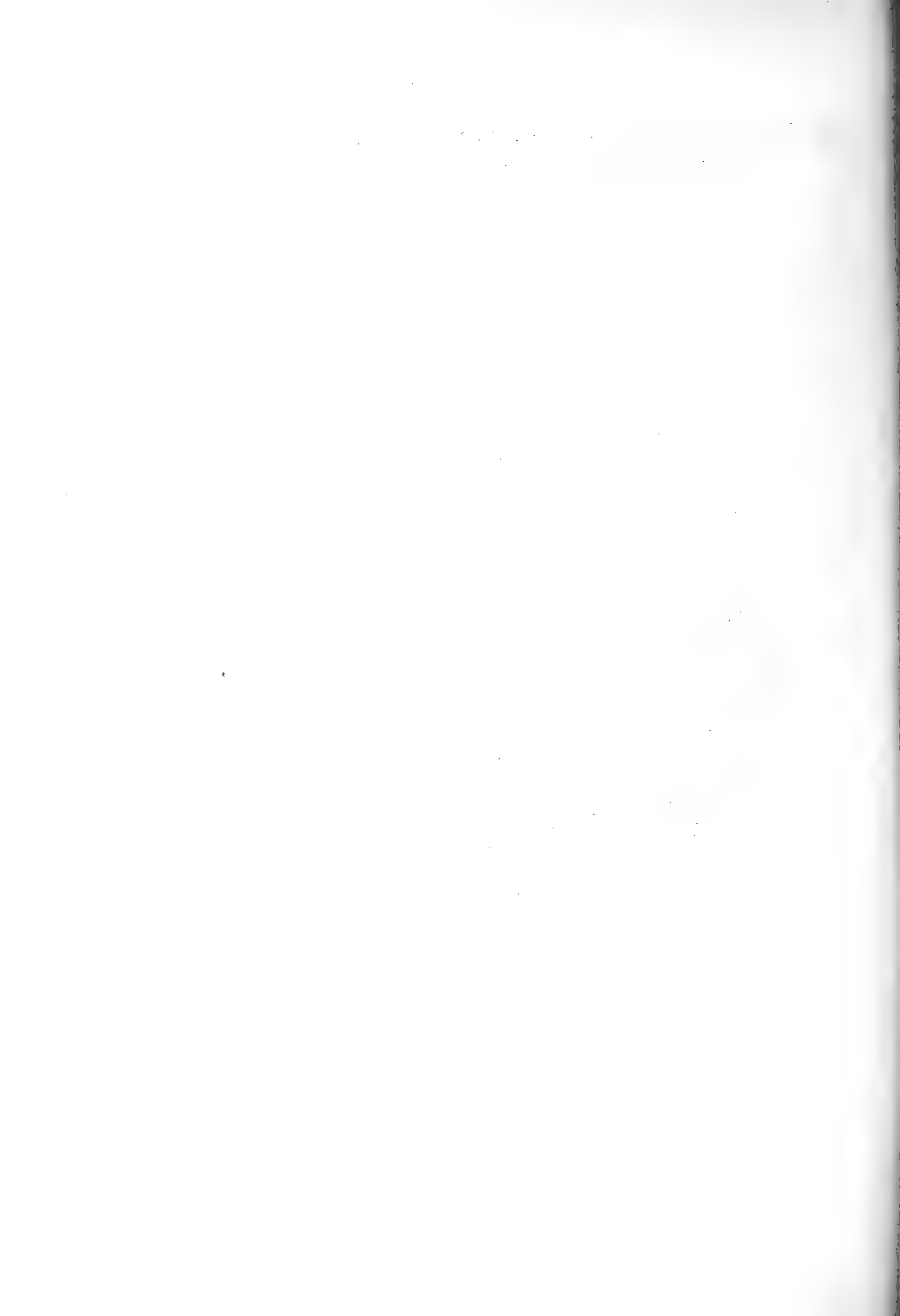
Age	Bucks		Does		Sexes Combined	
	No. of Deer	Percent of Total	No. of Deer	Percent of Total	No. of Deer	Percent of Total
1½	5	19.2	6	28.5	11	23.4
2½	3	11.5	3	14.3	6	12.8
3½	-	-	2	9.4	2	4.3
4½	9	34.7	3	14.3	12	25.5
5½	7	26.8	5	23.7	12	25.5
6½	1	4.0	1	4.9	2	4.3
7½	-	-	1	4.9	1	2.1
8½	-	-	-	-	-	-
9½	1	4.0	-	-	1	2.1
10½	-	-	-	-	-	-
TOTALS	26	100.0	21	100.0	47	100.0

Average age - Bucks 4.23  
 Does 3.74  
 All Adults 4.12



MAP #2 - Location of Marlborough Township,  
Kemptville District







KENORA DISTRICT WINTER DEER MORTALITY SURVEY, 1957

by  
V. Macins

Areas Checked For Deer Winter Kill in the Spring of 1957

- (1) May 6, 1957 check on the Long Bay area North of Sioux Narrows (Lake of the Woods) by Carl Liddle (Conservation Officer) and Val Macins. Area covered: three miles long, one chain wide (3/80 mi. sq.).

In this area the remains of two deer were found. The lower of one 3 - 4 year old deer was collected. Part of skull, chips of bone and hair also found in the same vicinity.

At the other location (30 chains S. E. of the first) only chips of bone, contents of the stomach and large amounts of hair found. No sex could be determined and no femur was collected in either case. Evidence points to predator kill. Sufficient browse available throughout the area covered, but in places heavy browsing on Juneberry, Mountain Maple, White Birch, Hazel and Aspen was noted.

- (2) May 11, 1957 the area north of Granite Lake (up to Deception Lake) was checked.

Area covered: 5 miles long, one chain wide (1/16 mi. square).

In this area no dead deer were found. Browsing only moderate. Browse most utilized - Dogwood, Mountain Maple, Juneberry and Fly Honeysuckle. Browsing on Hazel very light, no signs of heavy concentrations of deer in this area.

On May 13th. and 14th. areas east and west of Cygnet Lake were checked. Both areas covered were of a similar size five miles x one chain wide (1/16 mi. square).

No deer that died the previous winter were found. Remains of few from the winter of 1955/56 were noted.

- (3) In the area east of Cygnet Lake moderate browsing on Hazel, Juneberry, Birch, Aspen and Balsam Fir. The effects of the heavy browsing in the winter of 1955/56 were noticeable. In this area more present signs of moose than deer were noted.
- (4) The area west of Cygnet Lake is moderately to heavily browsed utilizing mainly the same species of browse. In this area deer populations seem to be much more abundant than on the east shores of the lake (estimated from fresh pellet groups).

The total area covered in all four checks on the spring of 1957 was .23 square miles.



## 1956 DEER HUNT REPORT - PEMBROKE FOREST DISTRICT

by  
K. K. Irizawa

Information on the 1956 deer hunting was collected at the highway checking stations, by using hunt camp survey forms and through field checks of camps and hunters by Department personnel. This report presents a summary of our findings. In most cases comparisons will be made with similar data from previous years so that you may follow the trends which occur in deer populations and hunting in general.

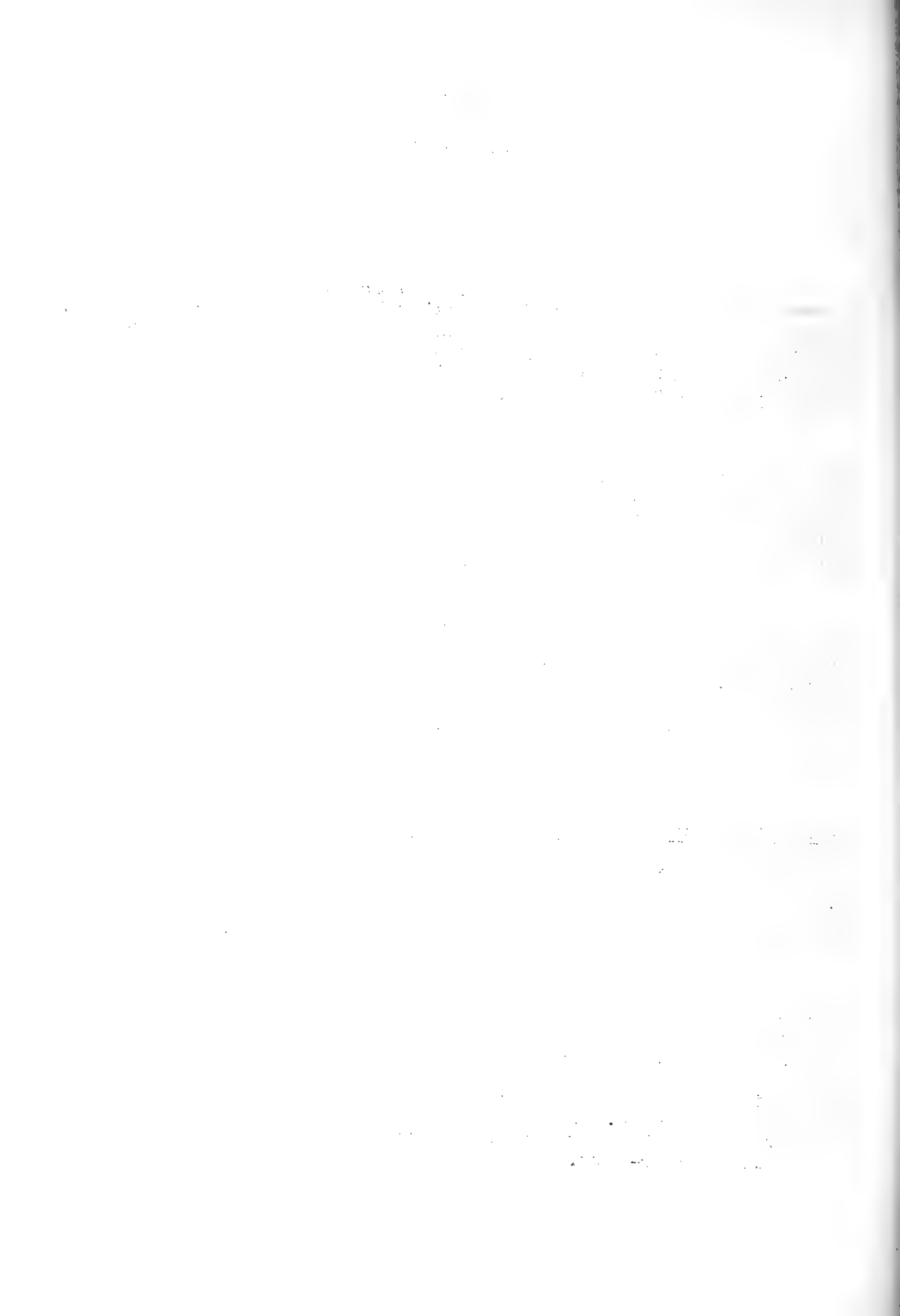
This year, 179 hunt camp report forms were sent or handed out to the parties compared with 103 in 1955 and 107 in 1954. Prior to January 7, 1956, when a reminder was sent out, 87 returns were made. Following the reminder another 69 returns were received for a total of 156 or 87% returns. This compares very well with 1955 when 85% made returns and with 1954 when 82% made returns. At this rate by 1965 we should be getting close to 100% returns.

Of the 179 hunt camps contacted 101 were operating with a land-use permit on crown land. The remainder were camp parties hunting from camps on patented land or from summer cottages and farm-houses. Of the final returns totalling 156, 14 indicated their camps were not in use for a variety of reasons leaving 142 whose information is used in this report.

Let us look now at the overall summary of success and effort for the hunt camps and of checking station data.

<u>For Hunt Camps</u>	<u>1956</u>	<u>1955</u>	<u>1954</u>
Number of deer reported	604	374	376
Total number of hunters	1131	646	607
Total days of hunting	7010	4499	3977
Hunter success	53.4%	57.9%	61.9%
Hunter - days per deer	11.6	12.0	10.6

In addition to the 604 deer reported above six moose were reported killed. If these moose are added to the deer the "new" success and effort figures become 53.9% and 11.5 hunter-days, respectively. Some people have suggested that one moose is worth five deer because the average weight of moose and the cost of the special "moose licence" are both approximately five times as much as that for deer. Following this reasoning further we added 30 (6 x 5) to 604 and got a "revised" hunter success of 56.1% and effort of 11.1 hunter-days.



<u>At The Checking Stations</u>	<u>1956</u>	<u>1955</u>	<u>1954</u>
Number of deer checked	381	394	295
Total number of hunters	1137	1004	844
Total days of hunting	6343	5720	4434
Hunter success	33.5%	39.2%	35.0%
Hunter - days per deer	16.6	14.5	15.0

Although the success dropped somewhat and the time required to kill a deer increased slightly there is no need to panic because this was the general picture in this part of the Province last fall. The averages for this district still remain better than those of similar districts adjacent to us.

The age-sex breakdown for hunt camp and checking station deer are shown next as percentages of the total.

<u>For Hunt Camps</u>	<u>1956</u>	<u>1955</u>	<u>1954</u>
Adult bucks	45.9%	47.6%	51.6%
Adult does	28.8%	27.5%	30.6%
Total fawns	25.3%	24.9%	17.8%

<u>At The Checking Stations</u>	<u>1956</u>	<u>1955</u>	<u>1954</u>
Adult bucks	46.4%	42.1%	40.7%
Adult does	27.6%	31.5%	31.5%
Total fawns	26.0%	26.4%	27.8%

A total of 573 deer were aged at the checking stations and in the field. Of these 134 were classed only as "unaged adults" so that 439 actually aged animals of both sexes are represented in the table below.

Age	$\frac{1}{2}$ (fawn)	$1\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$	$7\frac{1}{2}$	$7\frac{1}{2}$ +
No.	130	122	71	52	34	15	8	5	2

The average ages of adult deer shown below are based on checking station data only.

	<u>1956</u>	<u>1955</u>	<u>1954</u>
Adult Bucks	2.56 yrs.	2.58 yrs.	2.76 yrs.
Adult Does	3.14 yrs.	3.22 yrs.	2.99 yrs.
All Adults	2.78 yrs.	2.87 yrs.	2.84 yrs.

Complete weight figures are not available this year because very few deer were weighed at the checking stations. We recall one buck at 218 lbs. but the rest of the "big bucks" were just over or under 200 lbs.

Hunters checked at the checking stations this year were classed as "casual" or "organized" again. Calculations show that organized camp hunters are more than twice as successful as casual



hunters and bag their deer in almost half the time.

1956 - Casual hunters - 17.1% success, 27.6 hunter-days  
Organized hunters - 39.4% success, 15.1 hunter-days  
1955 - Casual hunters - 18.6% success, 26.0 hunter-days  
Organized hunters - 45.3% success, 14.1 hunter-days

Based on success and effort figures for hunt camp and checking station data combined, the following general areas of the Pembroke Forest District were rated on a one, two, three - basis for your best chances of getting a deer in the least time.

<u>Area</u>	<u>1956</u>	<u>1955</u>	<u>1954</u>
I Deux Rivieres - Stonecliffe - Rolphton	4	2	2
II Deep River - Chalk River - Petawawa	1	1	1
III Alice - Westmeath - Lake Dore	6	6	6
IV Indian - Round Lake - Bonnechere	2	5	5
V Paugh Lake - Barry's Bay - Ayles Lake	3	3	4
VI Madawaska - Hay Lake - Whitney	4	4	3

Area II has established itself as the best deer unit in the district every year. This year Area IV replaced Area I as the second best unit. There were no clear-cut differences between positions 2, 3, 4 and 5, in fact Area I and Area VI ended up in a virtual tie.

"To Use Dogs or Not To Use Dogs"

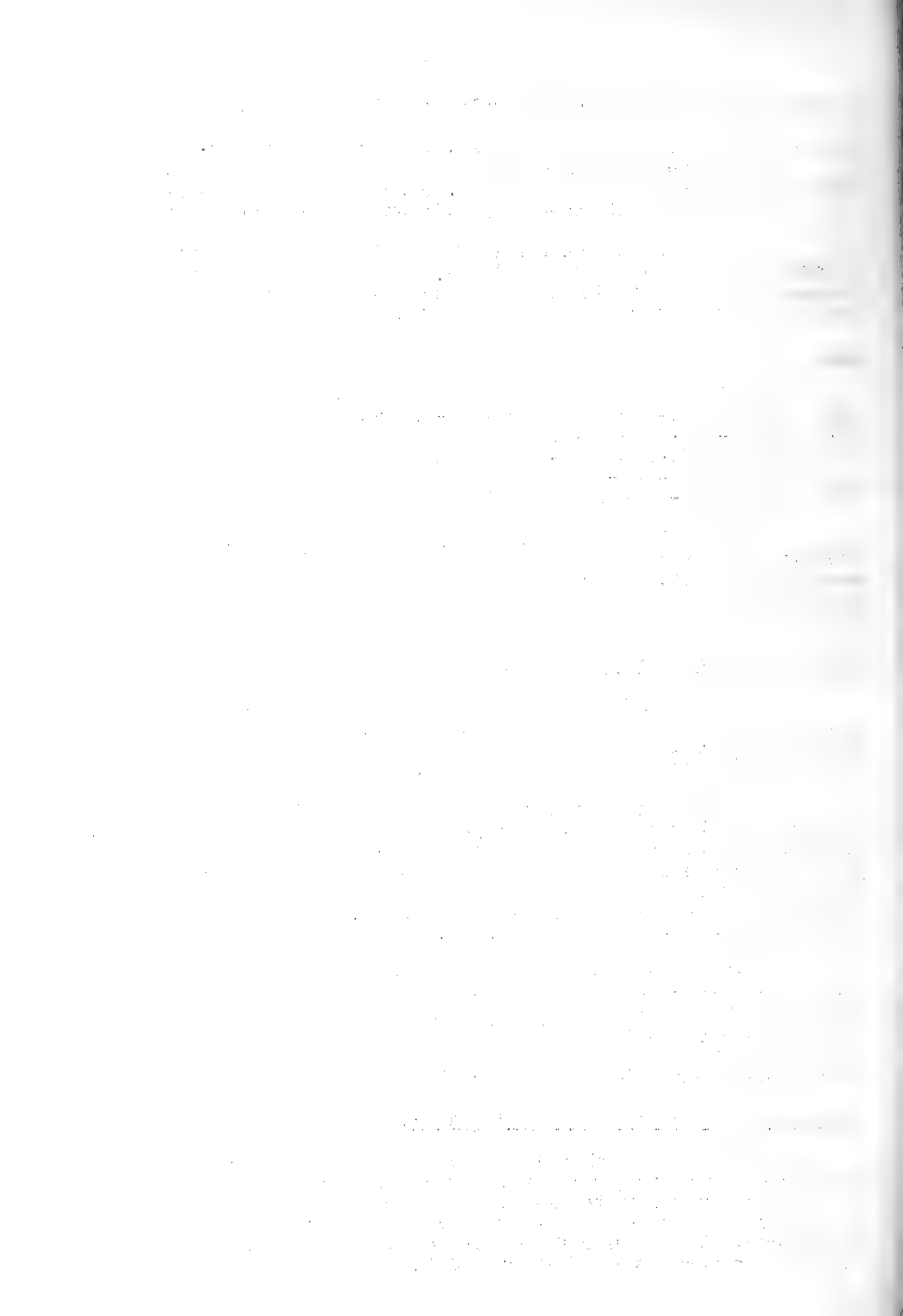
Dogs remain as one of the controversial topics among deer hunters. We are not proposing any solutions but we present the following information extracted from the 142 hunt camp returns made as being of possible interest to you.

Four parties did not state whether they used dogs or not, (we presume they didn't). Sixty-eight parties did not use dogs at all and seventy parties reported using dogs. Of the latter, 16 parties had one dog each, 17 parties used two dogs each, 13 parties used three dogs each, 20 parties used four dogs each and four parties had five or more dogs in camp. The average number of dogs used per dog-using party was 2.8 or nearly three dogs per party.

The average number of hunters per party reported was eight but in actuality there was an average of 6.6 hunters per party out each day. This difference, we believe, is due to the practice of some camps designating one licensee as "cook-for-the-day", while other camps have some hunters with that familiar "morning-sickness", which renders them hors de combat for the day's hunt.

"You'll Take the High Road and I'll Take the Low Road"

Do you recall that you were asked at the checking stations whether you went to your camps entirely by land or whether any water travel was involved. We have found out that for this district one party out of 13 have some water travel before they can reach their camp. This information is necessary if the season were to be extended or perhaps set back later in the month.





Re: Special Moose-Deer Licences

A total of 127 licences were sold in this district. In addition 14 hunters who had bought their licences elsewhere hunted in this district for a grand total of 141 "moose hunters". Returns amounted to 115 or 81% and the reported kill was 40 moose (18 bulls 13 cows and nine calves) and 19 deer (10 bucks, five does and five fawns) for a hunter success of 51.3%. There were 56 unsuccessful hunters (48.7%). The most disappointing feature of the moose survey we conducted was that only 10 sets of lower jaws (out of 40) and two sets of reproductive tracts from cow moose (out of 13) were turned in.

Bear Facts

Hunt camp parties numbering 19 reported killing 31 bears of which six were male adults, nine female adults, 11 male cubs and five were female cubs.

The Winter of 1956-57 and Deer

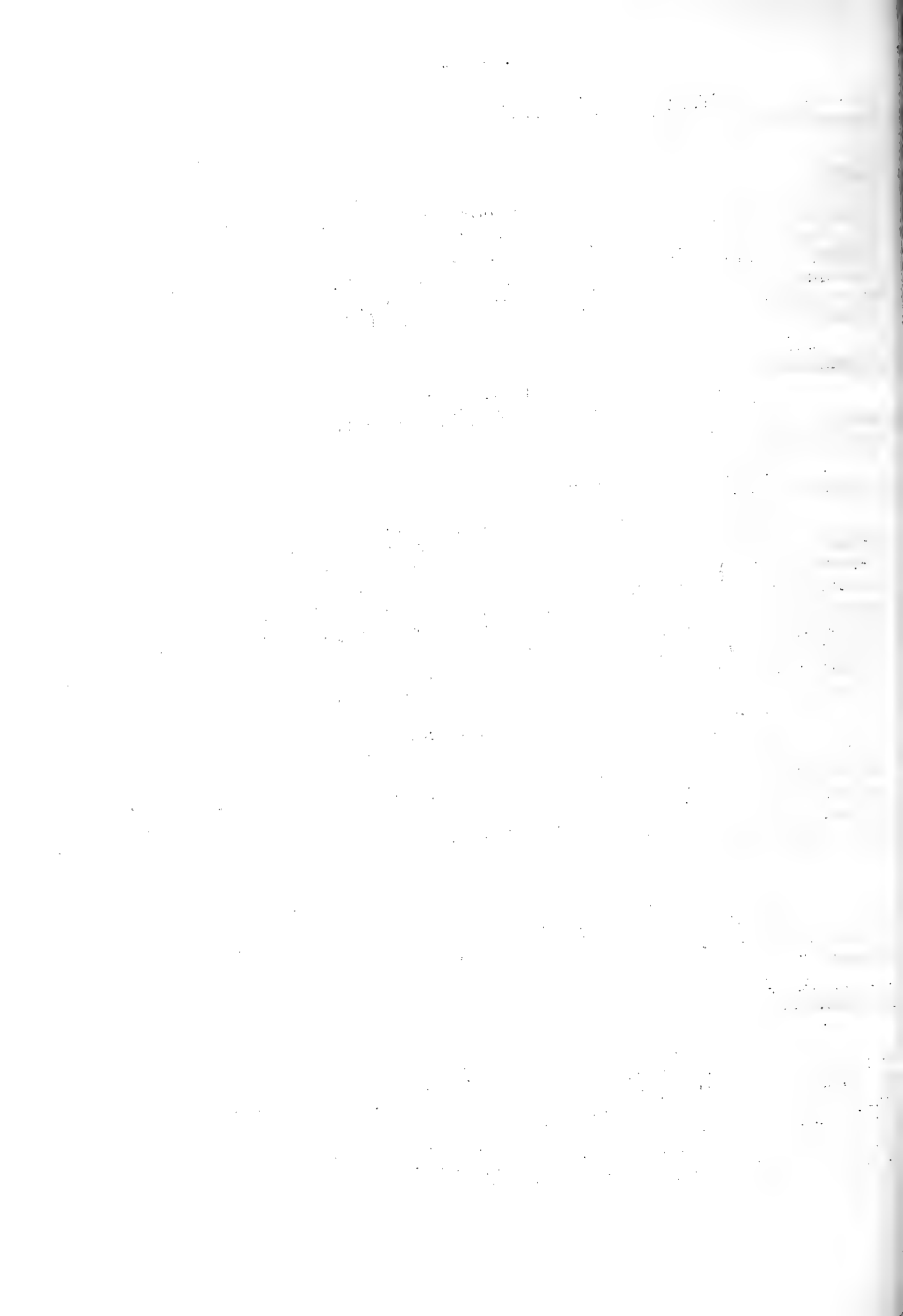
Some preliminary field work was started this winter in a census of our deer herd. In late January and early February we covered the district by aircraft for the aerial survey of deer and moose populations and distributions. Later a follow-up was done on the ground using the pellet-group census technique. This involves counting the number of deer dropping groups that can be found on plots as we walk along measured strips in the bush. From this we can compute the number of deer in a chosen area if we know the period of time, say the number of days after a heavy snowfall.

As far as snow conditions are concerned we had a very mild winter. The highest standing snow depth reported was 21 inches in the Stonecliffe area in mid-February. Other snow stations run by the Department in this district reported an average of 15 inches as the deepest snows in mid-January. These low standing depths of snow and the absence of any serious crust conditions certainly would not impede deer in their movements.

With the passage of time we will be concentrating more of our efforts on the field work aspects of deer investigation. The facts we dig up, we hope, will aid us in deer management and thus ensure "good deer hunting" for you every fall.

How to Age Deer

Many hunters whom we have interviewed in the field, at the checking stations or at their camps have expressed an interest in the techniques used in determining the age of deer by the teeth of the lower jaws. (Editor's note - a series of diagrams were included in the original paper). First, you have to recognize that certain changes occur in deer dentition with increasing age just as in human beings. Until deer reach the age of 1½ years (18 months) or so the number of teeth present and the replacement of the "milk" premolars



are the guides used in aging. Once the "milk" teeth have been replaced by the permanent premolars at about 18 months, there is no more replacement taking place. From then the amount of wear as reflected by the relative widths of the whitish enamel to the brownish dentine is the key used in age-reading. It is rather difficult to state simply the innumerable subtle changes that occur in wear pattern from 2½ years (30 months) on, but in general principle if the teeth are sharp and shows lots of white, the animal is younger than that whose teeth are flattened from grinding and hence show lots of brown.

### Do You Know

- That within the U. S. and Canada white-tailed deer inhabit 1,500,000 square miles of range and number about 6,500,000 animals?

- That doe fawns may breed their first year? Where deer were getting all they wanted to eat as high as 35% of the fawns born in the spring were breeding in the late fall.

- That the rate of reproduction in a deer herd is affected by food conditions? Does living in a range where food conditions were good were producing nearly twice as many fawns as were does living where food conditions were poor.

- That availability of food rather than disease, poachers, parasites or predatory animals is the factor limiting the size of our deer herd?

- That antler size and formation is a reflection of nutrition and condition of bucks and not of age? We have checked yearling bucks with forked horns and older bucks with only "spike" horns.

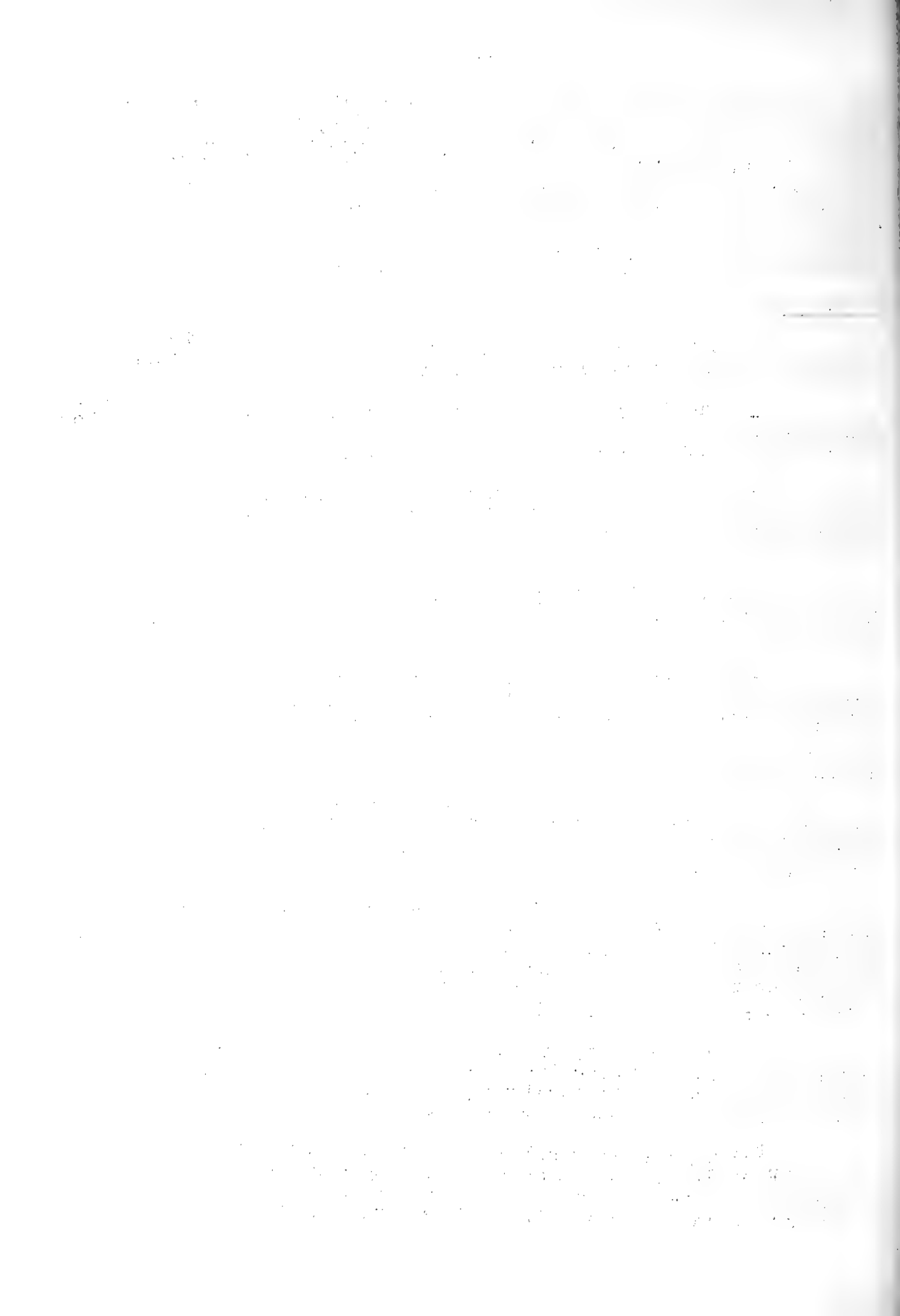
### About Hunter Safety

Do you know why many of us are scared of becoming deer hunter casualties? We are scared because we do not know why we have such accidents and it is only human to be frightened of something that is not understood.

One good tip for the hunter - wear RED - scarlet - not the black and red plaid. The latter, especially when faded, looks black and bear-like when seen at a distance. Better still, wear some of that fire orange or neon red material that is available now. It is almost four times brighter than scarlet in bright light and the difference increases as the light fades.

Gun accidents, particularly deer hunting accidents, seem to be a little more spectacular than most forms of sudden death. We become calloused to the ordinary, such as vehicle accidents or drownings, which we read about every day.

The greatest single cause of deer hunting gun accidents is the hunter himself or a member of his own party - an accidental discharge at point-blank range, cleaning or unloading rifle, horseplay or stumbling and falling. All of us have read the 10 Commandments of



Firearm Safety, maybe so often that they sound trite. Read them again!

However, if all this sounds too gloomy and you need reassuring see you insurance man. He probably will tell you that you are a lot safer watching a run way on a frosty morning than you are painting your house, driving to the movies or even having a nice quiet game of golf!

(adapted from Mich. Cons.)

S a f e   H u n t i n g   I n   1 9 5 7



c o p y

- 70 -

Pembroke, Ontario, April 9th, 1957.

Dear Sir:

We are sending you a copy of the 1956 deer hunting report for the Pembroke Forest District. You will notice that special emphasis has been placed in putting out a more informative report so that you will have a better understanding of the problems we encounter in deer management. We hope that after you have read the report you will pass it along to the rest of your hunt camp members.

Along with sending you this report we would like to voice our appreciation for the splendid cooperation shown by most hunt camp parties. It goes without saying that without your encouraging support it would not have been possible to complete this report.

When the 1957 deer season rolls around we shall be appealing to you again for information on the hunt. We trust that at that time we will get the same high degree of cooperation and help which you have given us in the past.

Yours very truly,

K.K. Irizawa/SS

D. N. Omand,  
District Forester.





THE 1956 DEER SEASON IN PEMBROKE DISTRICT

by  
K. K. Irizawa

The 1956 deer season in the Pembroke District was from November 12th to 24th inclusive, excepting Sunday, the 18th. As in past years, information on the hunt was collected at the highway checking stations, through hunt camp report forms and on field checks of hunters and camps.

I Checking Stations

About 49% of the data shown in this section was obtained at the Arnprior station. The rest came from stations in adjoining districts in the following approximate proportions: Burleigh Falls - 29%; Gravenhurst - 14%; and Millbridge-Kaladar - 8%. One card from the Union Creek Station (Lindsay) was grouped with Burleigh Falls and one from North Bay was grouped with Gravenhurst. In the summaries following, the data from Millbridge and Kaladar, both in the Tweed District, are combined and listed under Millbridge.

The composite summary of hunter success and effort-per-deer for this district is shown below.

Number of deer checked	-	381
Number of hunters checked	-	1,137
Total days of hunting	-	6,343
Hunter success percentage	-	33.5
Hunter-days per deer	-	16.6

A breakdown of these data by checking stations is presented below. The percentage of the total of deer, hunters and days are listed in parentheses.

<u>Station</u>	<u>Deer</u>	<u>Hunters</u>	<u>Days</u>	<u>Success</u>	<u>Effort</u>
Arnprior	181 (47.5)	554 (48.7)	3260 (51.4)	32.7	18.0
Burleigh	106 (27.8)	343 (30.2)	1764 (27.8)	30.9	16.6
Gravenhurst	70 (18.4)	133 (11.7)	722 (11.4)	52.6	10.3
Millbridge	24 ( 6.3)	107 ( 9.4)	597 ( 9.4)	22.4	24.9
TOTALS	381	1137	6343	33.5	16.6

Each station where deer and hunters from this district are checked is unique inasmuch as the origin and destination of the hunters is concerned. At Arnprior hunters from Ottawa and the lower Ottawa valley and St. Lawrence valley towns are checked. They have hunted chiefly in our deer management units I, II and IV. (For a description of these units the reader is directed to pp. 2-3 of the August 1955 Fish and Wildlife Management Report. Alice Township formerly in unit IV has been placed in unit III this year.) At

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2097-2098  
2099-2100

Gravenhurst, hunters headed for the Toronto - Southwestern Ontario areas have hunted in Units I, V and VI. At Burleigh Falls, hunters bound for the Toronto - Western Lake Ontario region have hunted in units IV, and V and VI. At Millbridge and Kaladar the hunters checked are from the Eastern Lake Ontario - Bay of Quinte and lower Trent valley towns and their hunting was confined mainly to units IV, V and VI.

In addition to hunter-success and effort data, data on age and sex of deer, premolar condition of yearling animals and lactation in adult does were collected at the stations. Owing to the difficulty in attempting to age frozen animals on the second week-end, the numbers of unaged adults is quite high when compared with those of 1954 or 1955.

Age-Class Distribution

<u>Total Deer Checked</u>		<u>Percentage of Deer Checked</u>	
Adult bucks	- 177	Adult bucks	- 46.4%
Adult does	- 105	Adult does	- 27.6%
Total fawns	- 99	Total fawns	- 26.0%

Percentages of Adult Deer in Each Age-Class

<u>Ages</u>	<u>Bucks</u>		<u>Does</u>		<u>Combined</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
1 $\frac{1}{2}$	53	46.5	23	33.3	76	41.5
2 $\frac{1}{2}$	25	21.9	16	23.2	41	22.4
3 $\frac{1}{2}$	19	16.7	11	15.9	30	16.4
4 $\frac{1}{2}$	11	9.6	11	15.9	22	12.0
5 $\frac{1}{2}$	5	4.4	3	4.4	8	4.4
6 $\frac{1}{2}$	1	0.9	2	2.9	3	1.6
7 $\frac{1}{2}$	-	-	1	1.5	1	0.5
7 $\frac{1}{2}$ +	-	-	2	2.9	2	1.1
TOTAL	114	100.0	69	100.0	183	100.0
UNAGED	63	35.6	36	34.3	99	35.3
GRAND TOTAL	177	100.0	105	100.0	282	100.0

Average age of adult bucks - 2.56 years  
 Average age of adult does - 3.14 years  
 Average age of all adults - 2.78 years

This year, hunters interviewed at the stations were classed as either "Organized" or "Casual". The former includes organized camp hunters and guided hunters, the latter consists of hunters who hunt on varying roadsides and locales from day to day.

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Success and Effort by Units and Categories

<u>Unit</u>	<u>Category</u>	<u>Deer</u>	<u>Hunters</u>	<u>Days</u>	<u>Success</u>	<u>Effort</u>
I	Organized	70	178	1172	43.7%	16.7
	Casual	13	65	342	20.0%	26.3
II	Organized	77	157	970	49.0%	12.6
	Casual	11	45	198	24.4%	18.0
III	Organized	5	23	108	21.7%	21.6
	Casual	2	20	72	10.0%	36.0
IV	Organized	36	80	391	45.0%	10.9
	Casual	7	39	127	17.9%	18.1
V	Organized	55	157	923	35.0%	16.8
	Casual	13	77	358	16.9%	27.5
VI	Organized	87	243	1418	35.8%	16.3
	Casual	5	53	264	9.4%	52.8

Summary by Categories

Organized	330	838	4982	39.4%	15.1
Casual	51	299	1361	17.1%	26.7

Percentages of Deer, Hunter and Days by Category

<u>Category</u>	<u>Percent Deer</u>	<u>Percent Hunters</u>	<u>Percent Days</u>
Organized	86.6	73.7	78.5
Casual	13.4	26.3	21.5

Summary by Units

<u>Unit</u>	<u>Total Deer</u>	<u>Total Hunters</u>	<u>Total Days</u>	<u>Hunter Success</u>	<u>Hunter Effort</u>
I	83	243	1514	34.2%	18.2
II	88	202	1168	43.6%	13.3
III	7	43	180	16.3%	25.7
IV	43	119	518	36.1%	12.0
V	68	234	1281	29.1%	18.8
VI	92	296	1682	31.1%	18.3
TOTAL	381	1137	6343	33.5%	16.6



Condition of Premolars in Yearlings

Special attention was paid to the condition of premolar replacement in 1½ year old animals. Those with the milk teeth shed completely or in the process of shedding with perhaps P3 and P4 shed and P2 still intact were classed as shed. Those with all the milk teeth intact were classed as unshed. In the sample 34 animals had milk teeth shed, 34 had the teeth unshed and nine animals were unchecked for a total of 77 yearling animals.

Condition of Lactation in Adult Does

Udders on adult does were slit and examined to see if the does were milking (wet) or dry. This gives an indication of the reproduction in the deer herd. On the second weekend particularly, some difficulty was encountered in checking for lactation owing to the frozen condition of the animals. A total of 105 does were examined in the following proportions.

Milking (wet) - 36;                      Dry - 32;                      Unchecked - 37.

Land - Water Route to Camps

Every party interviewed was asked whether they travelled by land only or by water as well to get to their camps. This would have a bearing on the open season especially if the season was extended for a week or two or if it was set back into December. The summary is as follows.

	<u>By Land</u>	<u>By Water</u>
No. of Parties	431	35
No. of Hunters	1024	113
Average No. hunters per land party -	2.38	
Average No. hunters per water party -	3.23	
Ratio - water: land parties - 1.0:	12.3	
Ratio - water: land hunters - 1.0:	9.1	

Weather Record

Weather reports from Cormac, Round Lake, Whitney, Stonecliffe and Pembroke were kept during the season. Average conditions throughout the district for the two weeks may be summarized by stating that the first week was mild, and wet, snow falling on Tuesday and rain on Thursday and Friday; the second week was still mild and wet at the beginning but became colder towards the end with snow flurries on Thursday and Friday. Detailed reports on snow and ground conditions have been sent in to Maple.

II Hunt Camps

A substantial increase in hunt camps data this year resulted from extensive field work during the hunt and from concerted efforts by the staff at the Arnprior checking station to seek the identity of established hunt camps hitherto unknown. In all, 179





hunt camp report forms were sent or handed out to the parties this year. (cf. 1954 - 107 and 1955 - 103). Prior to January 7, 1957 when a reminder was sent out, 87 returns were made. Following the reminder another 68 returns were received for a total of 155 (86.6%). This compares favorably with 1954 - 82.2% and 1955 - 85.4%. Of the 155 returns made, 14 indicated that their camps were not in use for a variety of reasons leaving 141 whose information is used in this section.

Of the 179 hunt camp parties contacted 101 were operating with a land use permit on crown land. The remainder were either patented land camps or parties hunting from private summer cottages and farm houses.

Summary of Success and Effort

Number of deer reported .....	604
Total number of hunters .....	1131
Total days of hunting .....	7010
Hunter Success percentage .....	53.4
Hunter days per deer .....	11.6

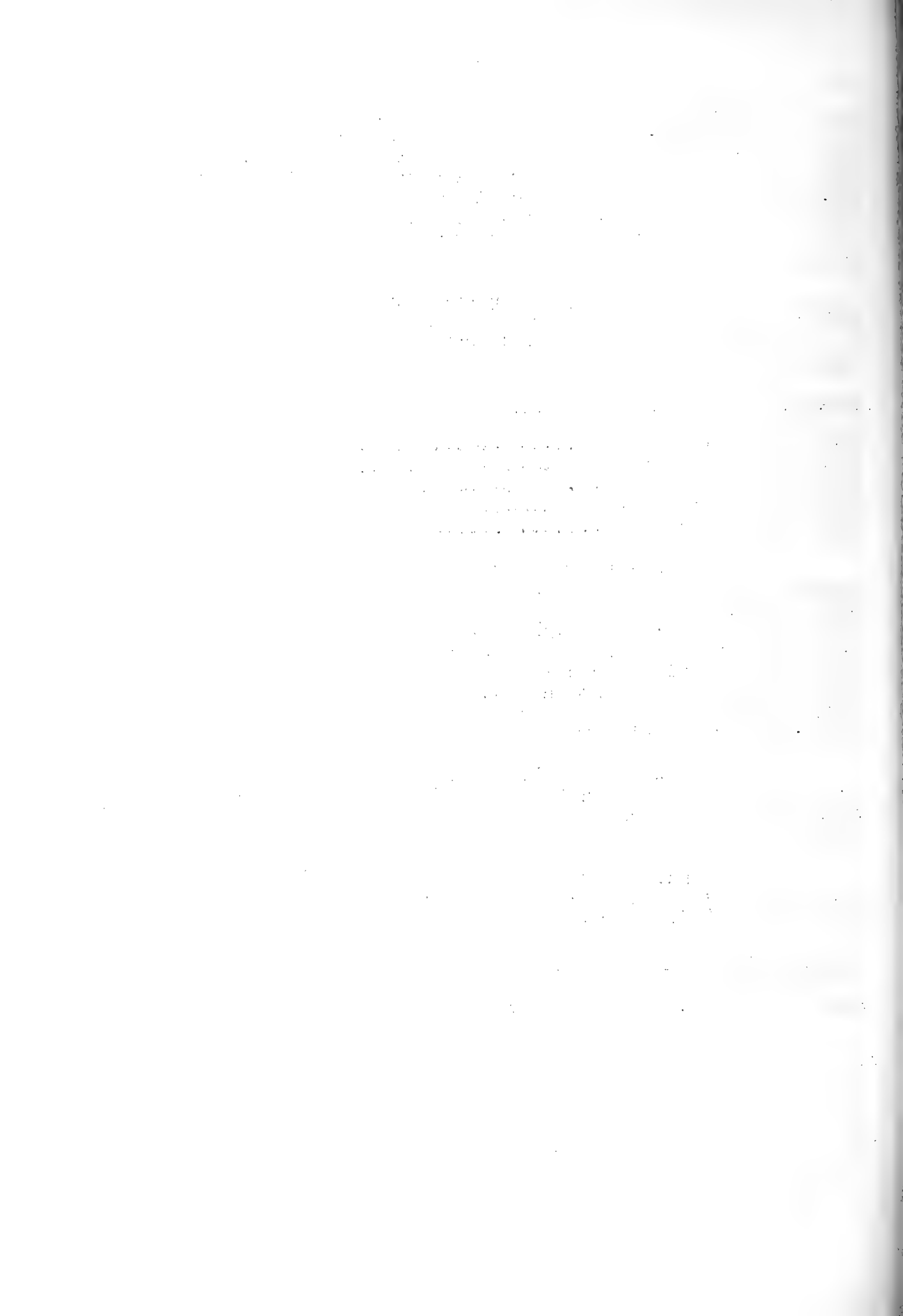
In addition to the deer reported above six moose were reported killed. If these moose are added to the deer to total 610 animals, then the success and effort may be revised to 53.9% and 11.5 man days. If the weight differential and licence cost differential between moose and deer is taken into consideration it may be justifiable to conclude that a moose is worth five deer. Upon pursuing this reasoning and adding 30 moose to 604 deer the success and effort would be "improved" to read 56.1% and 11.1 hunter-days respectively.

The six moose killed consisted of two bulls, two cows and a male and female calf each. Two of these were killed in Airy Township and one each in Cameron, Wylie, Dickens, and Sabine Townships.

A total of 19 parties reported killing 31 bears. These consisted of six adult males (19.4%), nine adult females (29.0%), 11 male cubs (35.5%) and five female cubs (16.1%).

Success and Effort by Units

<u>Unit</u>	<u>Deer</u>	<u>Hunters</u>	<u>Days</u>	<u>Success</u>	<u>Effort</u>
I	113	259	1767	43.6%	15.6
II	194	289	1878	67.1%	9.7
III	5	15	70	33.3%	14.0
IV	115	224	1172	51.3%	10.2
V	94	163	1064	57.7%	11.3
VI	83	181	1059	45.9%	12.8
TOTAL	604	1131	7010	53.4%	11.6



Age Class Distribution

Total Deer Reported

Adult bucks - 277  
 Adult does - 174  
 Total fawns - 153

Percentage of Deer Reported

Adult bucks - 45.9%  
 Adult does - 28.8%  
 Total fawns - 25.3%

The ages obtained of hunt camp deer will be found in section III.

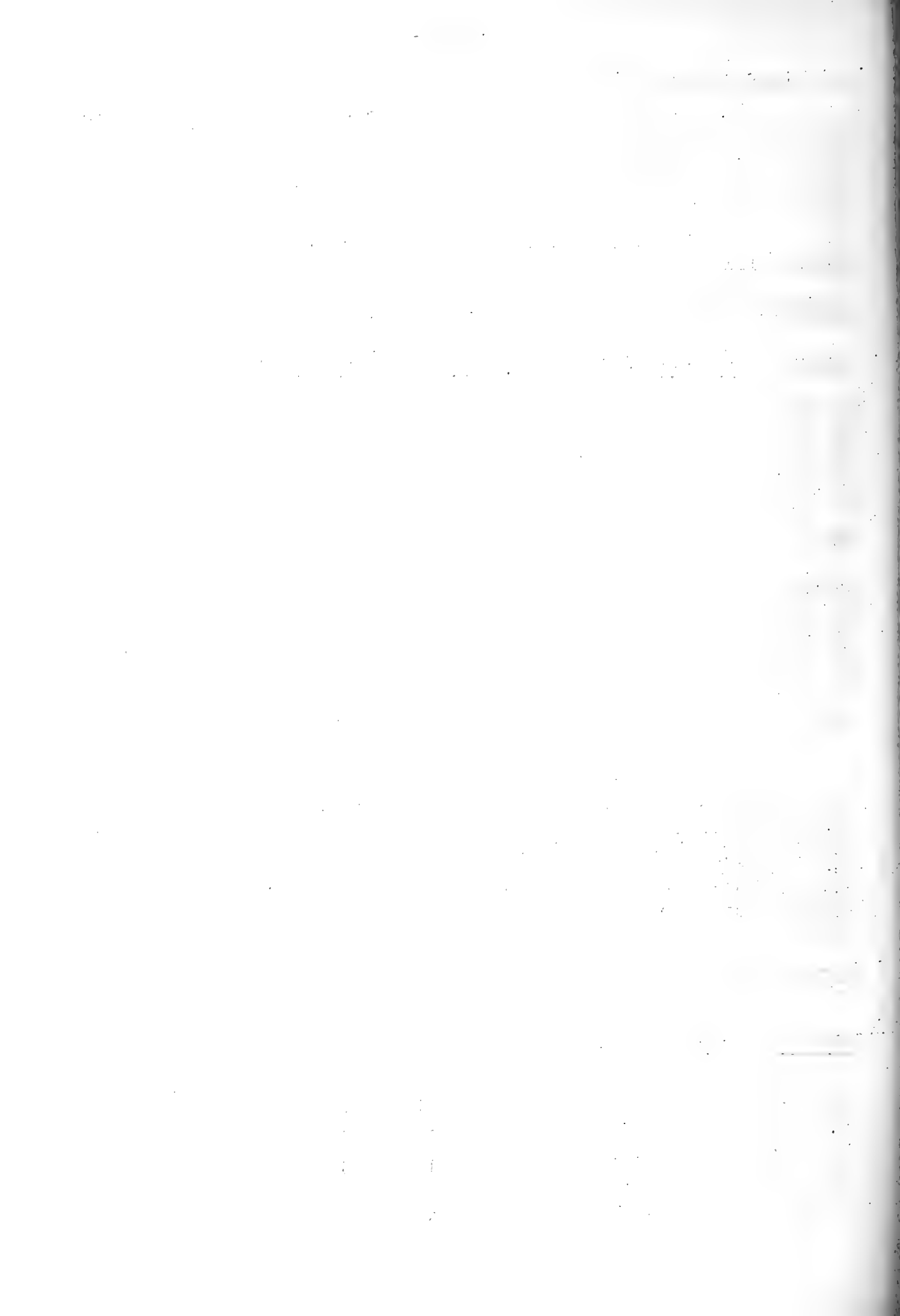
Temporal Distribution of Hunt Camp Deer Kills

<u>Date</u>	<u>No. of Hunters</u>	<u>No. of Parties</u>	<u>No. of Deer</u>	<u>Percent of Total Kill</u>	<u>Percent of Hunter Success</u>
12 Nov.	943	133	163	27.0	17.3
13 Nov.	900	125	107	17.7	11.9
14 Nov.	874	123	81	13.4	9.3
15 Nov.	758	111	35	5.8	4.6
16 Nov.	798	112	46	7.6	5.8
17 Nov.	750	109	49	8.1	6.5
TOTAL	5023	713	481	79.6	55.4
19 Nov.	392	66	34	5.6	8.7
20 Nov.	372	61	23	3.8	6.2
21 Nov.	292	55	13	2.2	4.5
22 Nov.	323	58	19	3.1	5.9
23 Nov.	318	58	17	2.8	5.3
24 Nov.	290	52	17	2.8	5.9
TOTAL	1987	350	123	20.4	36.5

The pattern of temporal distribution of kill conforms to the general pattern throughout the Province. The importance that weather plays in determining the size of the kill is reflected in the data for Thursday, November 15, when rain was responsible for the low kill and success. By expanding on the deer kill in the temporal distribution table it was possible to determine the temporal distribution of the deer kill composition which is shown below.

Temporal Distribution of Deer Kill Composition

<u>Date</u>	<u>Bucks</u>		<u>Does</u>		<u>Fawns</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
12 Nov.	81	49.7	39	23.9	43	26.4
13 Nov.	49	45.8	34	31.8	24	22.4
14 Nov.	41	50.6	20	24.7	20	24.7
15 Nov.	18	51.4	7	20.0	10	28.6
16 Nov.	20	43.5	15	32.6	11	23.9
17 Nov.	18	36.7	15	30.6	16	32.7
TOTAL	227	47.2	130	27.0	124	25.8



Date	Bucks		Does		Fawns	
	Number	Percent	Number	Percent	Number	Percent
19 Nov.	20	58.8	11	32.4	3	8.8
20 Nov.	9	39.1	9	39.1	5	21.7
21 Nov.	1	7.7	7	53.8	5	38.5
22 Nov.	9	47.4	3	15.8	7	36.8
23 Nov.	5	29.4	8	47.1	4	23.5
24 Nov.	6	35.3	6	35.3	5	29.4
TOTAL	50	40.7	44	35.8	29	23.6
GRAND TOTAL	277	45.9	174	28.8	153	25.3

Although there is inconclusive evidence in the table to show clear-cut patterns, there is a suggestion that the buck composition decreases and the doe composition increases between the first and second week. The fawn composition is relatively unaltered between the two weeks.

#### Average Size of Hunt Camp Parties by Days

<u>First Week</u>	<u>Mon.</u>	<u>Tues.</u>	<u>Wed.</u>	<u>Thurs.</u>	<u>Fri.</u>	<u>Sat.</u>	<u>Total</u>
No. Hunters	943	900	874	758	798	750	5023
No. Parties	133	125	123	111	112	109	713
Average size	7.1	7.2	7.1	6.8	7.1	6.9	7.0
<u>Second Week</u>							
No. Hunters	392	372	292	323	318	290	1987
No. parties	66	61	55	58	58	52	350
Average size	5.9	6.1	5.3	5.6	5.5	5.6	5.7

The totals for the two week period were 7010 hunters, 1063 parties and an average party size of 6.6 hunters. This figure does not indicate the true average size of the party but merely the average party size of hunters out each day. The true figure may be arrived at by dividing the total numbers of hunters listed on the hunt camp return forms by the number of returns. In this case the hunters total 1131 and returns 141 hence the average size would be 8.0 hunters per party. The discrepancy between 8.0 hunters and 6.6 hunters is likely due to the fact that some camps designate one licensee as cook-for-the-day or other camps have hunters with that familiar "morning sickness" which renders them "hors de combat" for the day's hunt.

#### III Field Checks

The data in this section are results of field work done by the biologist and conservation officers and include district road checks, age studies and a brief summary of the Camp Petawawa military area hunting.

The first part of the document discusses the general principles of the law of contracts, and the second part discusses the law of torts. The author, who is not named, writes in a clear and concise style, and the book is well organized and easy to read. It is a valuable resource for students of law, and for anyone interested in the legal system.

The author begins by discussing the elements of a contract, and then moves on to discuss the law of torts. He discusses the various types of torts, and the remedies available for each. He also discusses the law of negligence, and the standard of care required in such cases.

The book is well organized, and the author's writing is clear and concise. It is a valuable resource for students of law, and for anyone interested in the legal system.

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### Orange Road Check

On opening day, between 3.30 and 5.30 p.m., 124 hunters with eight deer were checked at Duke's Crossing on Orange Road which taps the civilian hunting zone on the military area. The hunter success and effort-per-deer of this group of casual hunters was 6.5% and 15.5 hunter-days, respectively. When these are compared with the hunt camp hunters' opening day figures of 17.3% and 5.8 hunter-days there is certainly conclusive evidence of the higher success enjoyed by organized hunters. The ages of these deer will be found elsewhere in this section.

### Camp Petawawa Forms

Survey forms were prepared and distributed by the camp authorities to each casual hunter who registered to hunt on the military area. The return address on these forms was that of the Department of Lands and Forests at Pembroke. Our experience with this type of form last year was very discouraging, hence it was surprising to see that the Camp authorities had gone along with the forms again this year without consulting the Department. Our skepticism was borne out when only 52 forms were returned of the 1000 or so distributed. The return of 5.2% (cf. 4.7% in 1955) does not warrant continuing the use of these forms.

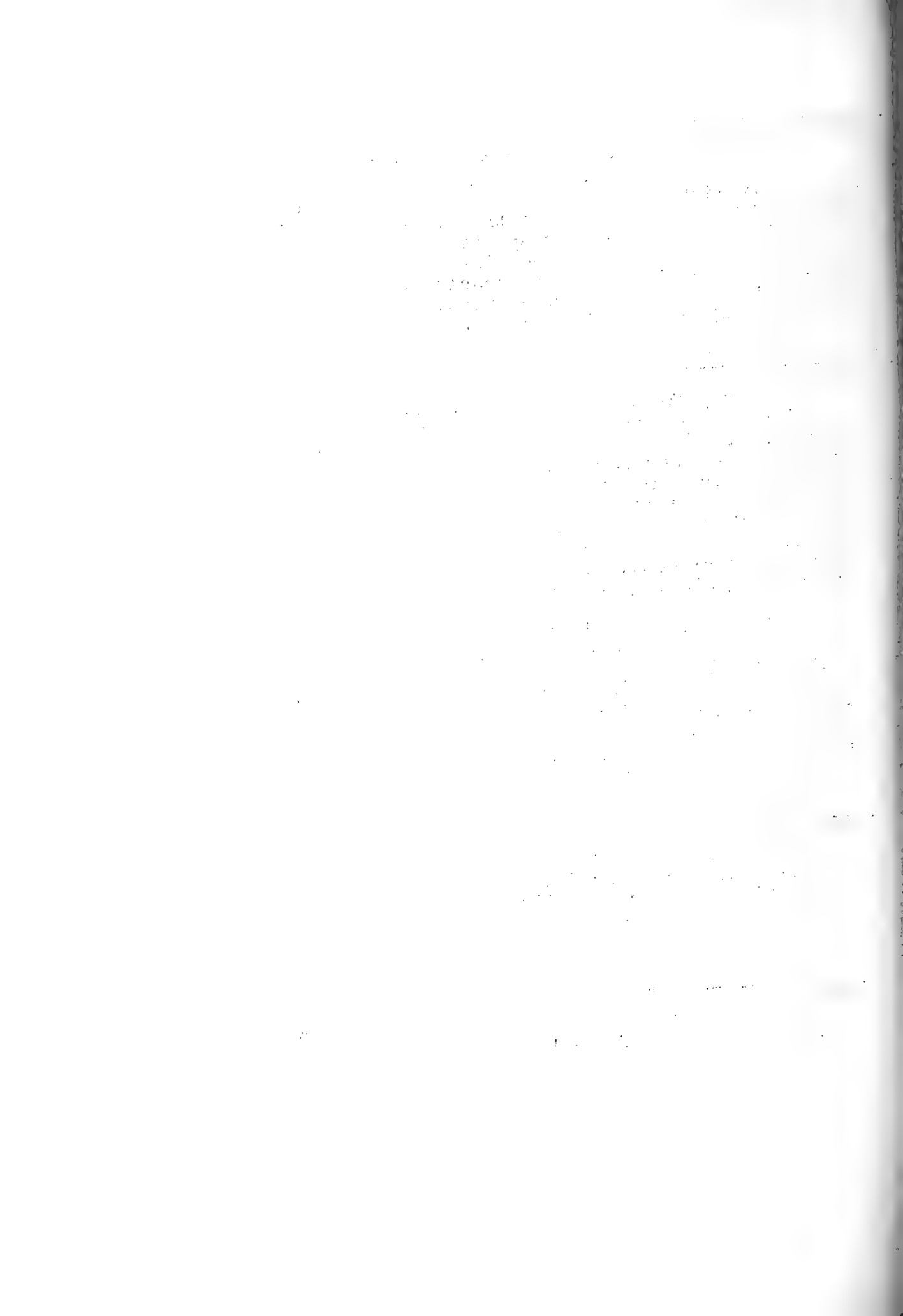
There was a tendency of the successful hunters replying for 29 (58.8%) of the respondents were successful and 23 not successful. The age-class distribution shows 16 adult bucks (55.2%), eight adult does (27.6%) and five fawns (17.2%). The effort was very low - 217 hunter-days for 29 deer or 7.5 hunter-days per deer. Temporal distribution of the kill was not calculated for such a small sample but it was noted that 23 deer were killed in the first week and six in the second.

### Age Studies

A total of 191 deer ages were obtained from deer checked in the field and from deer jaws turned in by local hunters and by the local frigid locker establishment. Several sets of jaws were voluntarily mailed in by hunt camp hunters who had gone out on a week day and had not been checked at a checking station.

### Age-Class Distribution

Total number checked:	Adult bucks - 103	(53.9)
(Percentages in parentheses)	Adult does - 58	(30.4)
	Total fawns - 31	(15.7)





Percentages of Adult Deer in Each Age-Class

<u>Ages</u>	<u>Bucks</u>		<u>Does</u>		<u>Combined</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
1 $\frac{1}{2}$	34	43.6	12	25.0	46	36.5
2 $\frac{1}{2}$	21	26.9	9	18.8	30	23.8
3 $\frac{1}{2}$	12	15.4	10	20.8	22	17.5
4 $\frac{1}{2}$	3	3.8	9	18.8	12	9.5
5 $\frac{1}{2}$	5	6.4	2	4.2	7	5.6
6 $\frac{1}{2}$	3	3.8	2	4.2	5	4.0
7 $\frac{1}{2}$	-	-	4	8.3	4	3.2
TOTAL	78	99.9	48	100.1	126	100.1
Unaged	25	24.3	10	17.2	35	21.7
GRAND TOTAL	103	100.0	58	100.0	161	100.0

Average age of adult bucks - 2.64 years  
 Average age of adult does - 3.54 years  
 Average age of all adults - 2.98 years

Comparison of these average age figures with those in Section I show the same general pattern without any significant difference.

Since little information on premolar condition in yearlings and lactation condition in adult does was collected in the field, comparative analysis with similar information in Section I was not feasible.

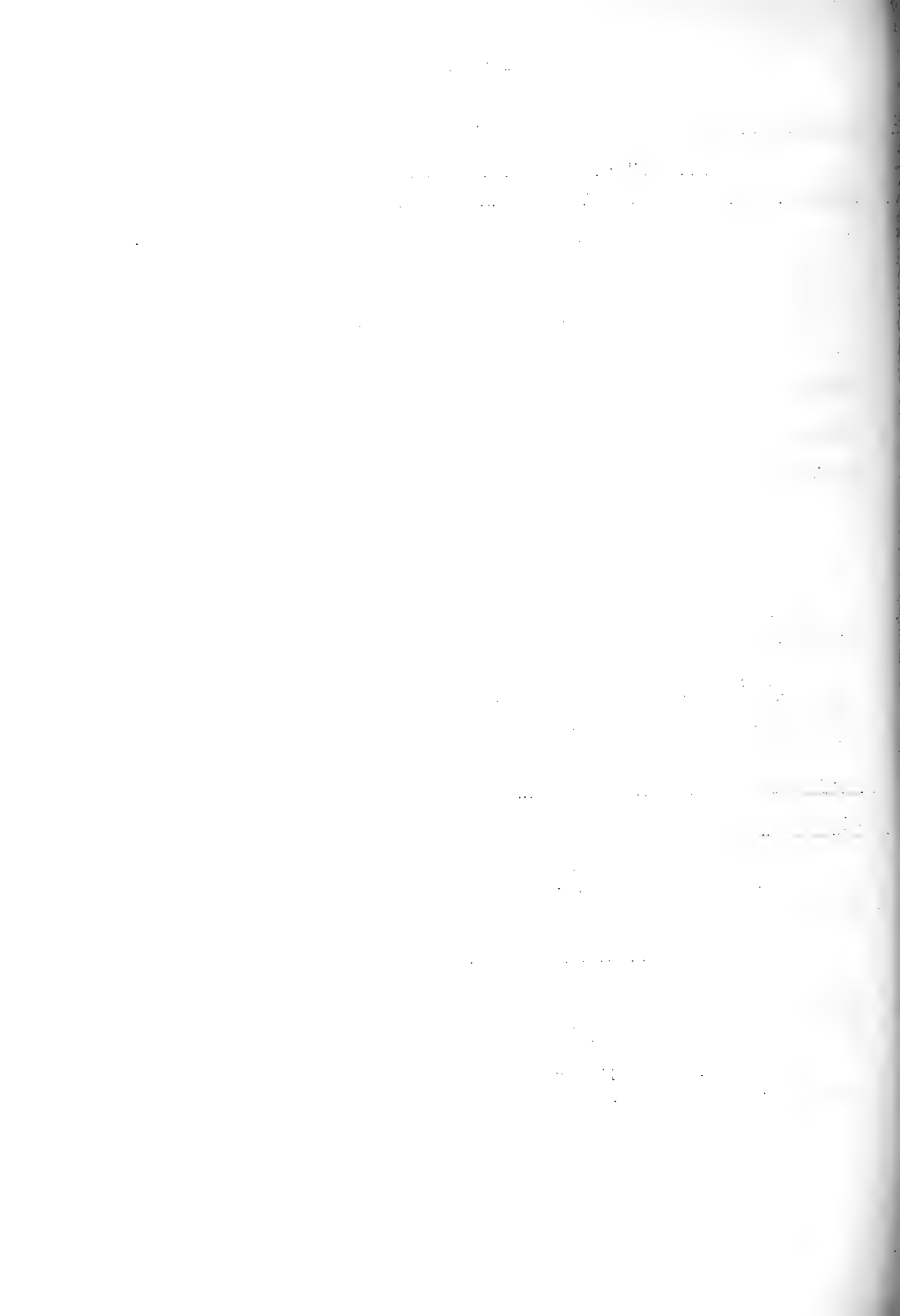
IV Comparisons, Discussion and Recommendations

Checking Stations

The data for the years 1954-56 show a decline in 1956 of success and increase in effort but not sufficiently so to worry about.

	<u>Deer</u>	<u>Hunters</u>	<u>Days</u>	<u>Success</u>	<u>Effort</u>
1954	295	844	4434	35.0%	15.0
1955	394	1004	5720	39.2%	14.5
1956	381	1137	6343	33.5%	16.6

The age-class distribution over the same period has remained fairly constant.



	<u>Adult Bucks</u>	<u>Adult Does</u>	<u>Fawns</u>	
1954	40.7%	31.2%	27.8%	(plus 0.3% unknown)
1955	42.1%	31.5%	26.4%	
1956	46.4%	27.6%	26.0%	

When the percentages of adult deer in each age-class for the last three years were plotted on semi-logarithmic paper a good straight line relationship without any severe departure points was noted. The slopes of these lines have been remarkably consistent suggesting a well balanced herd.

An analysis of the hunting summaries by the unit system indicates again that Unit II is the best area from the stand point of success and effort. A notable exception in 1956 was the resurgence of Unit IV as one of the better areas. Formerly Unit V enjoyed the runner-up position behind perennial leader Unit II.

### Hunt Camps

A comparison of success and effort for the past three years shows a consistency in spite of the greatly increased sample in 1956.

	<u>Deer</u>	<u>Hunters</u>	<u>Days</u>	<u>Success</u>	<u>Effort</u>
1954	376	607	3977	61.9%	10.6
1955	374	646	4499	57.9%	12.0
1956	604	1131	7010	53.4%	11.6

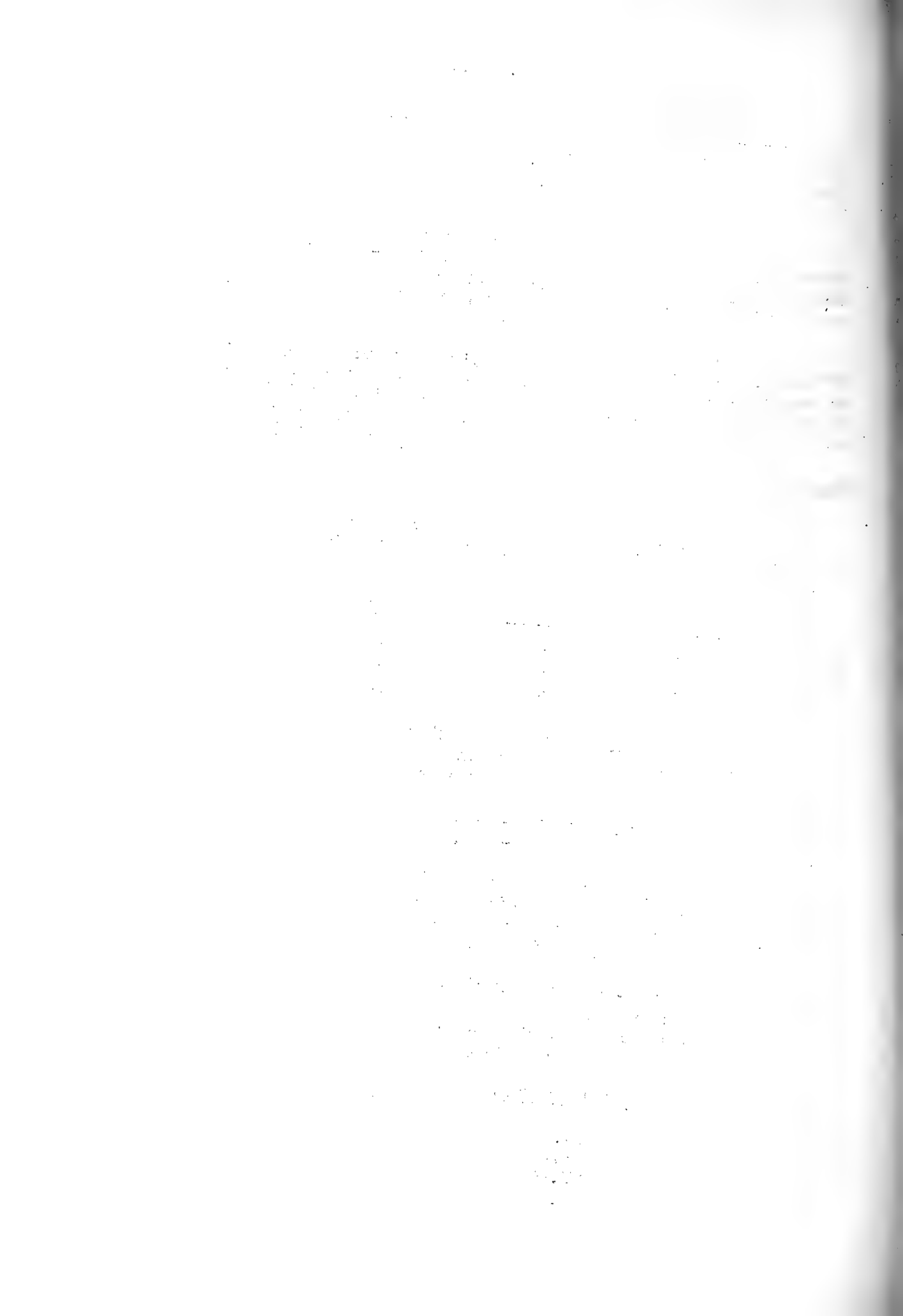
The success and effort for 1956 would be enhanced and brought up to the standard of the other two years if as suggested in section II the figures are revised to include moose as follows:

- (a) addition of six moose - 53.9% and 11.5 days
- (b) addition of 30 moose - 56.1% and 11.1 days (weighted version)

Hunt camp success and effort figures on the unit system basis corroborate the checking station figures for the three years. Unit II remains the best area and Unit V the second best, a position formerly held by Unit I in both 1954 and 1955.

The age-class distribution of hunt camp deer, with the exception of 1953 and 1954 when doubtful returns were made conform to the established pattern shown annually in the checking station data and in the 1955 hunt camp data.

	<u>Adult Bucks</u>	<u>Adult Does</u>	<u>Fawns</u>
1953	53.0%	33.0%	13.9%
1954	51.6%	30.6%	17.8%
1955	47.6%	27.5%	24.9%
1956	45.9%	28.8%	25.3%



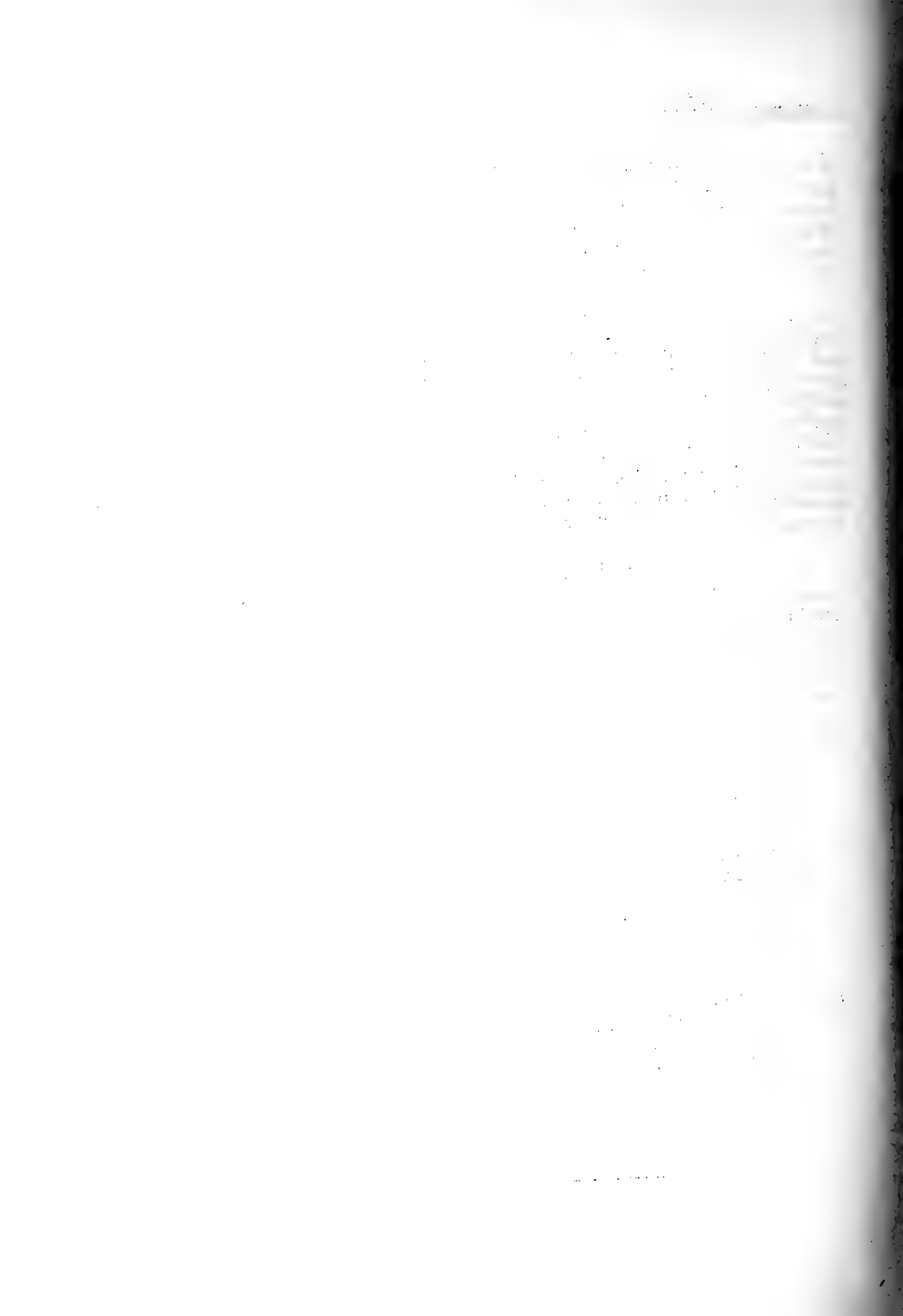
## Recommendations

As usual, some hunters in the field, at the checking station and through the medium of survey forms and correspondence gave freely of their opinions and recommendations on the deer season, the deer populations, the congestion of hunters in certain areas, the use of dogs, pro and con, and similar pertinent hunting conditions. Generally speaking, hunters were quite satisfied with the 1956 deer hunt.

Dogs continue to be one of the main focal points in deer hunting controversy. The use or non-use of dogs as listed in the 141 hunt camp report forms received were tabulated. A total of 68 parties did not use dogs at all, 16 parties used one dog each, 17 parties used two dogs each, 13 parties used three dogs each, 19 parties used four dogs each and four parties used five or more dogs each during the hunt for a grand total of 69 parties using an average of 2.7 dogs per party. The parties using five or more dogs each had in addition to their regular complement of four dogs, an average of two pups at camp for "breaking-in" or orientation purposes. Finally, four parties did not signify whether they used dogs or not.

In conclusion, it is felt by this district that the deer season could be extended for one week without any adverse effect on the deer herd. Another recommendation is that the deer season open yearly on the Monday before and including the 15th of November for this area. This would mean that the opening would be set to open on the ninth at the earliest and 15th at the latest. If this is adhered to, the following benefits may accrue:

- (1) Officials of the Department of Lands and Forests at the district level are besieged with queries from the public on the dates of the forthcoming deer season from January on. This is because many people have to declare their choice of holiday time to their employers well in advance.
  - (2) Early openings with consequent warmer weather contribute to deterioration of venison in the woods.
  - (3) There is better likelihood of ideal weather conditions for hunting with a later start. This would undoubtedly result in a larger harvest, a sound principle, management-wise.
  - (4) Bush road accessibility to hunt camps would be ideal under frosty conditions. At the same time there would be insufficient freezing of the waterways to discourage those using water routes.
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