THE FUR RESOURCES OF CHAPLEAU DISTRICT, ONTARIO

By Randolph L. Peterson and Vincent Crichton

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Abstract

Records of the area trapped and of legally caught furs in the Chapleau district, Ontario, have been made for the seasons 1941-42 to 1946-47. From these records the area required to produce one harvested animal has been computed for most species, which should be of considerable value to persons concerned with fur production in Canada. These figures should also be useful to students of animal populations since they take into account, at least in part (specific areas actually trapped), the variation in trapping pressure that cannot be reflected in figures based on total numbers taken from large areas. This six year period seems sufficient to indicate significant trends in populations, which in certain cases might be predicted by study of past trends of province-wide returns.

During the six year period the average return value for each square mile trapped was $16.90, which netted each trapper using one township an average of $607.00 each year. The average total annual fur resources amounted to $74,000.00.

The distribution of the catch of marten and fisher in the district suggests that the Chapleau Crown Game Preserve may be influencing the catch of these two species in nearby territories.

Introduction

The value of wild caught furs of Canada's 31 million dollar fur resources amounted to approximately eighteen and one-half million dollars in the season 1944-45 (1). Although total fur return figures are available for the various Provinces and for the Dominion as a whole, these figures give no index to specific fur production from small comparable areas under various levels of trapping pressure. It appears desirable to know what furs have been taken from a specific area and what relation the trapping pressure has to the size of the area necessary to produce one trapped animal. Even within a district the size of Chapleau, the actual area trapped varies from year to year. In other words, how large an area is necessary to produce one harvested animal unit for each of the various species being taken from any given district?

The Chapleau Forest District (Fig. 1) is an administrative unit of the Ontario Department of Lands and Forests (formerly under the Game and Fisheries Department and later amalgamated with the Department of Lands and Forests as the Fish and Wildlife Division). Coauthor Crichton, an officer of the Fish and Wildlife Division of the Department, has the responsibility of administering the fish and wildlife resources of this district. His primary responsibility is law enforcement, with some biological investigations as well as administration. The area has been divided into trapping grounds

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and each trapper assigned to a definite trapping area. For the most part each trapping ground is equivalent to one township (36 square miles), although some trappers have been allotted one and one-half or two townships. These

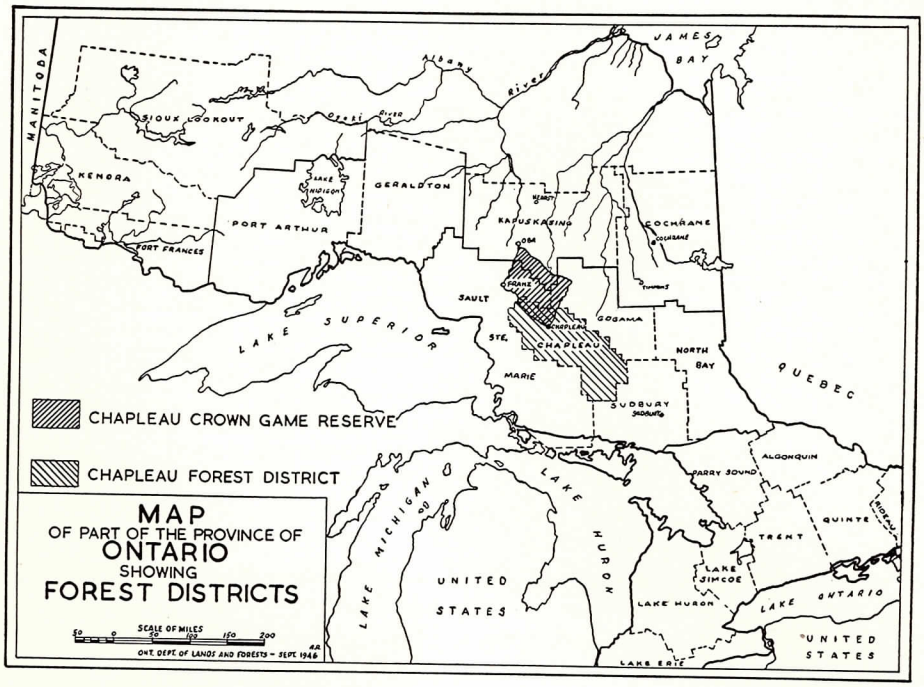

FIG. 1. *Map of part of the Province of Ontario showing the Chapleau Forest District and the Chapleau Crown Game Preserve.*

grounds are usually held year after year by the same trapper (Fig. 2). Each trapper is required to report the exact number of furs of each species taken. (The illegal trapping presents a factor that cannot be properly evaluated here.) With the exception of beaver, there was no restriction on the number of pelts that could be taken. Over the period here discussed, the take of beaver was regulated by the Provincial Government to insure sustained annual yield and was limited roughly to an average of 10 beaver per trapping ground. Beginning with the season 1941-42, a careful record of each pelt legally taken from each ground has been made under the supervision of coauthor Crichton. The annual catch from each individual trapping ground has been compiled and these data computed for the entire area trapped in the Chapleau district, with the exception of the southernmost 14 townships, which were added to the district beginning with the 1946-47 season. For purposes of this paper these townships are considered as not being trapped and are not included with the area trapped except in the 1946-47 season. Thus, prior to 1946-47, the actual production of the entire district was greater than the figures here given but the size of the unit area required to produce each pelt was not affected.

The relative intensity of trapping pressure within the various trapping grounds cannot be properly evaluated or compensated for in computing the size area necessary to produce one animal unit because of differences in

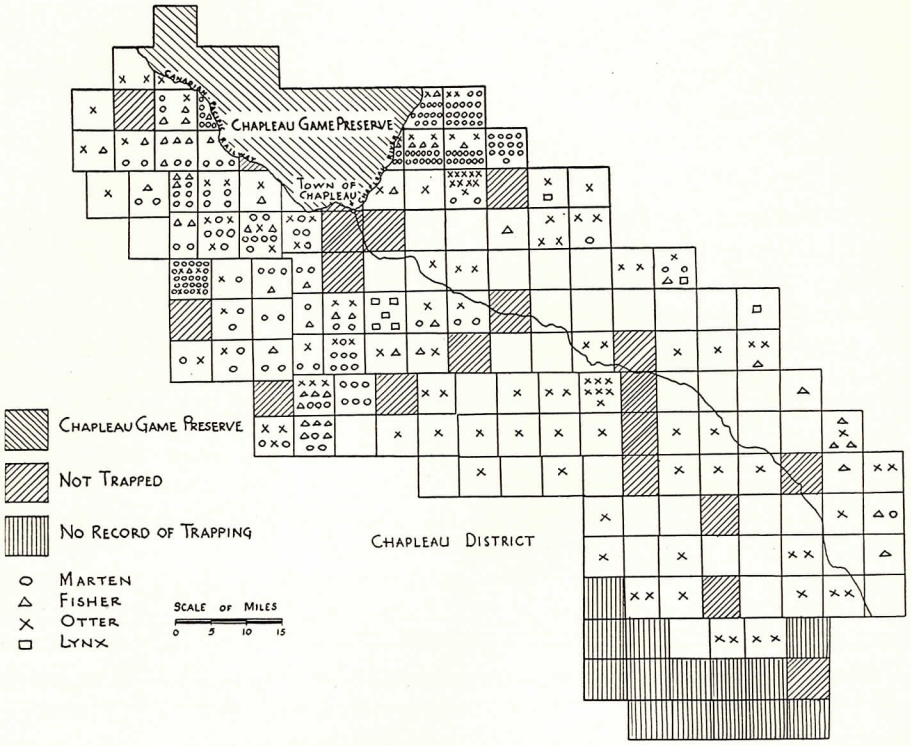

FIG. 2. *Map of the Chapleau Forest District showing area trapped in 1945-46 and distribution of catch of marten, fisher, otter, and lynx for that season.*

trapping techniques, number of traps utilized, general skill and ability of trappers, intensity and length of active trapping, amount of selective trapping, and various other uncontrollable factors. Further, it should be remembered that several types of habitat are found throughout the district, thus the productivity for the various species necessarily varies even within small localities. A notable example is the habitat of the muskrat; its aquatic habitat occurs only in certain townships and in those is often restricted to a small percentage of the area. On the other hand, most of these trapping grounds are trapped annually by the same trappers, which should tend to create fairly equal harvesting pressure except in cases where changes in relative value of various species and other factors have tended to cause selective trapping for the more valuable types. Even so, it still seems highly desirable to know what the average productivity of a given tract of northern Ontario land might reasonably be expected to be under more or less "normal" trapping pressure.

Although comparable figures for fur production of other districts within Ontario are not available, the Chapleau district probably rates well above average in fur production for areas of comparable size throughout the Province.

We are grateful to Prof. J. R. Dymond, Director, Royal Ontario Museum of Zoology; Dr. C. H. D. Clarke, Wildlife Supervisor, Ontario Department of Lands and Forests; Dr. Walter P. Taylor, Senior Biologist, United States Fish and Wildlife Service; and others for their co-operation, suggestions, and reading of the manuscript.

Description of Area

The Chapleau Forest District, lying east of Lake Superior, averages roughly 60 miles wide and extends some 190 miles northwest and southeast along the Canadian Pacific Railway, which bisects the area lengthwise (Fig. 1). The total area is approximately 6384 square miles, about 600 square miles of which lies within the Chapleau Game Preserve, which extends into the northern portion of the forest district, leaving roughly 5780 square miles of trapping grounds.

The topography is made up of many lakes and streams winding through low rolling ridges with considerable outcroppings of rocks, especially along and south of the height of land that extends across the northern portion of the district. The geologic formations are chiefly Precambrian, with most of the district lying on the Canadian Shield. The town of Chapleau, situated just north of the height of land, has an elevation of 1412 ft. above sea level. The district is divided into three watersheds. The drainage of the northern portion flows into the Moose River drainage to James Bay. The northwestern portion lies in the Lake Superior drainage, while the remaining southern portion is situated in the Lake Huron drainage.

The entire Chapleau district would fall within the Canadian Life Zone of Merriam, Bailey, Nelson, and Preble (13) but certainly there are marked differences between the flora of the northern and southern portions of the district. Several species of trees reach their northern limits in the Chapleau vicinity. These include white pine, hemlock, yellow birch, red maple, sugar maple, striped maple, basswood, red oak, black cherry, beech, and others. This would seem to indicate a valid separation of biotic areas within this area as proposed by Halliday (8) and Dice (7). Jack pine is the only pine found to any extent in the far northern portion of Chapleau district, while both white and red pine occur with it in the southern portions. The common species found throughout the district include black spruce, white spruce, white birch, white cedar, quaking aspen, balsam poplar, large-toothed aspen, cherries, Juneberry, and several smaller shrubs such as alders, dogwood, and willows. The southeastern half of the district has been extensively logged and burned, resulting in large areas of second growth poplar and white birch on rather thin soils.

For a list of the summer birds for the Chapleau area see Baillie and Hope (2).

History of the Area

During the early exploration and trading in northern Canada the Hudson's Bay Company restricted most of its posts and settlements to the coastal areas. One of their earliest inland posts was a temporary one called Brunswick House built about 150 miles north of the Chapleau area on the Missanabie River in 1776 (10). According to Voorhis (14) this post was abandoned in 1790 and a New Brunswick House was substituted. The latter was built in 1778 at the north end of Brunswick Lake, which is now a part of the Chapleau game preserve. Later several other Hudson's Bay posts were established in this general area, which included the Chapleau Post, Biscotasing Post, Flying Post, Missanabie Post, and Peterbell Post. With the exception of the last two, these posts were subsequently abandoned by the Company. "The North West Company also built a post on Missinaibi lake in 1800" (14).

At the close of the century the country was traversed by railroads and the forest began to be opened up by extensive logging and burning. It is reported that many extensive fires were deliberately set by the invading white men. Undoubtedly this change in forest composition has had its effect on the indigenous furbearing mammals. Our present day knowledge of the ecology of many of our native furbearers is so sketchy that it is extremely difficult to evaluate the effects of changes that have taken place in their environment.

Account of Furbearing Species

Order RODENTIA

Castor canadensis—Beaver

The beaver production in Chapleau district has fared well under a regulated harvest (Table I). The steady increase beginning in 1942-43 seems to indicate clearly the value of such a system for producing a sustained annual yield.

TABLE I

THE ANNUAL HARVEST OF BEAVER IN CHAPLEAU DISTRICT

	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	Average
Total catch of beaver	1067	798	840	955	1081	1571	1052
Total number of sq. mi. trapped	4332	3657	3946	4285	4580	5563	4394
Sq. mi. trapped per animal unit harvested	4.1	4.6	4.7	4.5	4.2	3.5	4.2
Av. value per pelt, $	24.00	26.00	34.00	38.00	56.00	30.00	35.00
Total revenue, $	25,600.00	20,700.00	28,600.00	36,300.00	60,500.00	47,100.00	36,500.00
Av. return value per sq. mi. trapped	5.91	5.67	7.24	8.47	13.22	8.47	8.30

The area necessary to produce one harvested beaver varied only slightly for the period. On the average a little over four square miles of Chapleau country, if properly managed, will produce one harvestable beaver. Perhaps it may be possible to increase the number of animals that may be taken from certain areas, thus reducing the size area required to produce each individual; however, carefully regulated control should be exercised in such an attempt.

Ondatra zibethica—Muskrat

Although the number of muskrats produced in Chapleau district has been relatively small compared to other areas containing more extensive favorable marshes, the harvest of the entire district for the past six years appears to be a fairly direct reflection of fluctuations in the total populations. The size area required to produce one harvested muskrat would seem to be a better reflection of the size of the actual population than the total number taken from the district because of the variation in the amount of land actually trapped (Fig. 3). The fluctuation in numbers has not been violent since each trapper

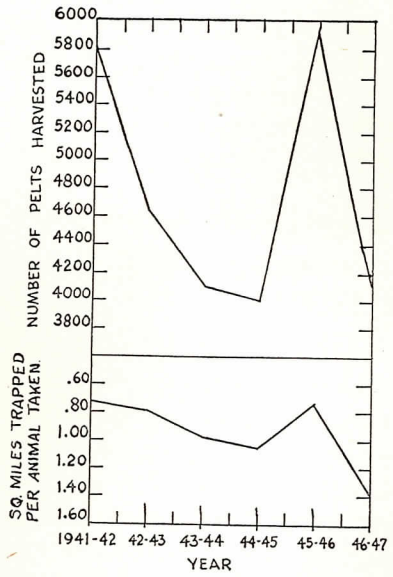

FIG. 3. *Top. Total muskrat produced from Chapleau district. Bottom. Area (in square miles) trapped to produce one animal unit.*

took, on the average, between 25 and 46 animals annually with an average of 37 pelts (Table II); however, a general downward trend is suggested, which could be forecast by the study of past fluctuations in Provincial production (1).

Order CARNIVORA

Canis latrans—Brush Wolf, Coyote

Brush wolves seem to have entered the Chapleau district rather recently. According to Cross (4) they probably came from the west between 1900 and 1936. They have never become abundant in the area and only recently

TABLE II

THE ANNUAL HARVEST OF MUSKRAT IN CHAPLEAU DISTRICT

	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	Average
Total catch of muskrat	5857	4613	4122	4009	5906	4118	4771
Total number of sq. mi. trapped	4332	3657	3946	4285	4580	5563	4394
Sq. mi. trapped per animal unit harvested	0.74	0.79	0.98	1.07	0.77	1.35	0.92
Av. value per pelt, $	2.00	2.00	2.25	2.75	3.40	2.00	2.45
Total revenue, $	11,700.00	9200.00	9300.00	11,100.00	20,100.00	8200.00	11,600.00
Av. return value per sq. mi. trapped	2.70	2.52	2.35	2.60	4.38	1.48	2.65

have we been able to obtain valid records of their occurrence substantiated by specimens. On Feb. 21, 1947, one specimen was killed by a train in Delmadge Township and turned over to the Royal Ontario Museum of Zoology. Since then several additional specimens have been obtained from the Chapleau district. There is little value in their pelt on current markets.

Canis lupus—Timber Wolf

Timber wolves are not uncommon in the Chapleau district. They do not constitute a noteworthy fur resource since there is a very poor market for this type of fur in Ontario.

Vulpes fulva—Red, Cross, and Silver Fox

The number of foxes has been increasing across Canada and at the same time showing cyclic fluctuations (3, 5). The harvest from Chapleau is given by color phases in Table III. As shown by Cross (6) and Butler (3), the color ratios vary from one geographical area to another with fairly consistent reduction in the percentage of occurrence of silver and cross phases in recent years. When comparing the color ratios of foxes of the Chapleau district with those of the two nearest Hudson's Bay Company posts listed by Cross (6) (Table IV), closer agreement is found with ratios from Gogama to the east than from Missanabie to the northwest.

Ursus americanus—Black Bear

Bear in the Chapleau district increased until 1945, then apparently decreased. The entire take of bear reported for 1944-45 in all of Ontario amounted to only 333 skins (1). Since the average values of these pelts amounted to only three dollars it is quite understandable why few are skinned for pelts. No record of sale of bear skins was made for the Chapleau area during 1941-47.

TABLE III

THE ANNUAL HARVEST OF FOX IN THE CHAPLEAU DISTRICT

	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	Average
Total catch of red fox	198	315	333	304	389	375	319
Total catch of cross fox	36	36	21	32	34	24	31
Total catch of silver fox	—	4	1	6	5	1	3
Total catch all types fox	234	355	355	342	438	400	352
Sq. mi. trapped per animal unit harvested	18.5	10.3	11.1	12.5	10.7	13.9	12.5
Av. value per pelt red fox	5.00	6.00	6.25	7.25	8.75	4.00	6.30
Av. value per pelt cross fox	17.00	15.00	20.00	15.00	17.00	13.00	16.00
Av. value per pelt silver fox	18.00	18.00	18.00	18.00	25.00	18.00	20.00
Total revenue (all foxes)	1600.00	2500.00	2500.00	2800.00	4100.00	1800.00	2550.00
Av. return value per sq. mi. trapped (all foxes)	0.37	0.69	0.64	0.65	0.90	0.33	0.58

TABLE IV

COMPARATIVE RATIOS OF COLOR PHASES IN RED FOX (*Vulpes fulva*)

Area	Period	Red fox	Cross fox	Silver fox	Bastard fox
Chapleau district	1941-46	90.5	8.6	0.8	—
Gogama post	1916-20	91.3	8.6	—	—
	1934-38	92.9	5.7	0.5	0.7
	1916-35	86.6	10.1	3.0	0.1
Missanabie post	1916-20	81.1	16.2	2.5	—
	1934-38	84.7	12.3	0.7	2.1
	1916-35	83.4	13.7	2.0	0.7
Ontario	1916-20	71.1	23.9	4.4	0.4
	1934-38	78.0	18.7	2.2	0.9

Procyon lotor—Raccoon

The raccoon is a rare animal as far north as the Chapleau district. None was sold on the market from this area, although one was shot along the Wakami River in Benton Township in November, 1946, by a resident of Chapleau, and examined by us. It was reportedly mistaken for a "young wolf" and the pelt turned in to the Chapleau district office.

Mustela erminea—Ermine, Weasel

The Chapleau production of ermine (Table V) is comparatively small. The area involved in producing one harvested animal unit in this case probably has little significance since the average value of the pelts is so low. The trapping pressure for this species is only sporadic for the main efforts are directed toward more valuable furs.

TABLE V

THE ANNUAL HARVEST OF ERMINE IN CHAPLEAU DISTRICT

	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	Average
Total catch of ermine	234	294	500	531	631	593	464
Total number of sq. mi. trapped	4332	3657	3946	4285	4580	5563	4394
Sq. mi. trapped per animal unit harvested	18.5	12.4	7.9	8.0	7.2	9.4	9.5
Av. value per pelt, $	0.50	0.55	0.80	0.90	1.30	1.30	1.00
Total revenue, $	117.00	162.00	400.00	478.00	820.00	771.00	458.00
Av. return value per sq. mi. trapped, $	0.03	0.04	0.10	0.11	0.18	0.14	0.10

Mustela vison—Mink

The production of mink has been fairly constant in the Chapleau area in recent years. A low for the period was the first year, 1941-42, when only 555 pelts were taken at the rate of one animal for each 7.8 square miles trapped. This was followed the second year, 1942-43, by a high for the period when 770 pelts were taken at the rate of one animal for each 4.7 square miles trapped. The rate for the remaining four years (Table VI) remained near the six year average of one animal for each 6.8 square miles trapped.

Martes americana—Marten

The trend in production of marten has been most encouraging in the Chapleau district (Table VII). There was almost a steady increase in numbers taken during the six year period 1941-42 to 1946-47 from a low of 58 to a high of 241. The area required to produce each individual (Fig. 4) is only a partial indication of the relationship of trapping pressure to the total numbers taken. The increasing in value per pelt undoubtedly affected a selective trapping pressure upon this species. It is of considerable interest to examine the distribution of the catch of marten as shown in Fig. 2 for the season 1945-46. If a line is drawn across the district dividing equally the trapping areas of the southeastern portion from the northwestern portion, it will be found that 98% of the marten are taken in that half of the district

TABLE VI

THE ANNUAL HARVEST OF MINK IN CHAPLEAU DISTRICT

	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	Average
Total catch of mink	555	770	613	591	603	750	647
Total number of sq. mi. trapped	4332	3657	3946	4285	4580	5563	4394
Sq. mi. trapped per animal unit harvested	7.8	4.7	6.4	7.2	7.6	7.4	6.8
Av. value per pelt, $	12.00	11.00	18.00	20.00	33.00	22.00	19.00
Total revenue, $	6660.00	8470.00	10,900.00	11,800.00	19,900.00	16,500.00	12,400.00
Av. return value per sq. mi. trapped	1.54	2.32	2.77	2.76	4.35	2.97	2.82

TABLE VII

THE ANNUAL HARVEST OF MARTEN IN CHAPLEAU DISTRICT

	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	Average
Total catch of marten	58	84	91	88	185	241	124
Total number of sq. mi. trapped	4332	3657	3946	4285	4580	5563	4394
Sq. mi. trapped per animal unit harvested	75	43	43	49	23	23	35
Av. value per pelt, $	33.00	30.00	39.00	42.00	50.00	40.00	41.00
Total revenue, $	1910.00	2520.00	3550.00	3700.00	9250.00	9640.00	5100.00
Av. return value per sq. mi. trapped, $	0.44	0.69	0.90	0.86	2.01	1.73	1.16

nearest the Chapleau Game Preserve. The northwestern portion contains more extensive stands of mature conifers, which presumably creates a more favorable habitat for this species, but in spite of these ecological differences there is strong evidence that some animals are emigrating from the preserve to surrounding territory. If emigration is not a major factor, and these animals are being produced in the area where taken, the actual area required to produce one harvestable marten would be reduced 50% for northern Chapleau district. Seemingly the game preserve possesses value as a reservoir for such furbearers.

On the whole the decrease in marten since 1919 has been alarming. In recent years the provincial output of marten has decreased over 75% from the 1919-20 level (1). If overtrapping has been one of the primary causes of reduction, it may be possible that the registered trapping ground system, which

has recently been inaugurated throughout Ontario, will forestall further decrease. If the trend of increase in the Chapleau remains a real one, certainly its trapping system could be cited as a favorable factor.

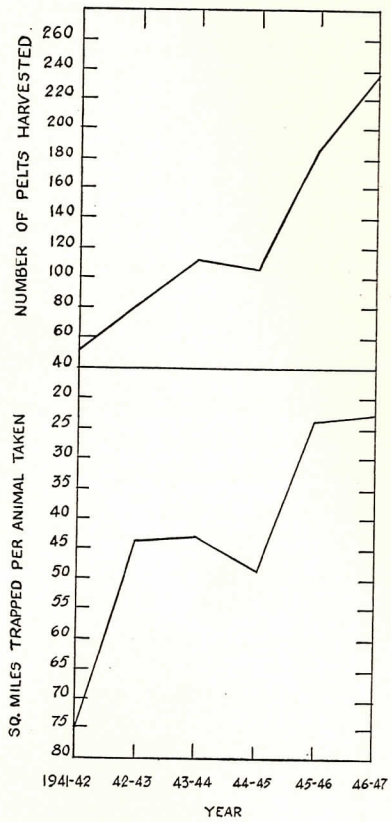

FIG. 4. *Top. Total marten production of Chapleau district. Bottom. Area (in square miles) trapped to produce one animal unit.*

Martes pennanti—Fisher

Like marten, the fisher showed an encouraging increase (Table VIII) from 1941-42 to 1946-47. Again the area required to produce one trapped animal should give a check on relative increase (Fig. 5). If, however, the district is divided, as suggested for the case of marten, 84% of all fisher caught in 1945-46 would be taken from the northwestern half (Fig. 2). As with the marten this suggests an overflowing effect from the game preserve.

The recent Ontario and Dominion production of fisher has been greatly reduced over past high years (1). Whether or not the trend of increase as shown by the Chapleau district will be reflected throughout the Province remains to be seen. Compared with figures for Ontario totals available for the same years, figures for the Chapleau district show that it is undoubtedly one of the better fisher producing areas of the Province.

TABLE VIII

THE ANNUAL HARVEST OF FISHER IN THE CHAPLEAU DISTRICT

	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	Average
Total catch of fisher	20	17	22	45	56	92	42
Total number of sq. mi. trapped	4332	3657	3946	4285	4580	5563	4394
Sq. mi. trapped per animal unit harvested	216.0	215.0	179.0	95.0	82.0	60.0	104.0
Av. value per pelt, $	53.00	45.00	68.00	70.00	63.00	53.00	59.00
Total revenue, $	1060.00	765.00	1500.00	3150.00	3530.00	4880.00	2480.00
Av. return value per sq. mi. trapped, $	0.24	0.21	0.38	0.74	0.77	0.88	0.56

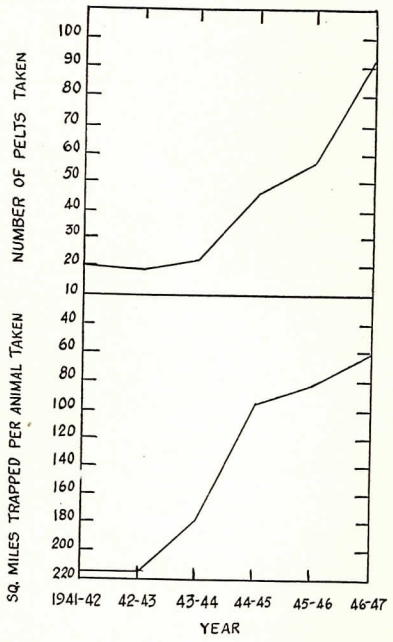

FIG. 5. *Top. Total fisher produced in Chapleau district. Bottom. Area (in square miles) trapped to produce one animal unit.*

Gulo luscus—Wolverine

According to the older settlers the last record of wolverines in Chapleau district was between 1885 and 1900. Wolverine were probably never very abundant in Ontario. The remaining few animals are restricted to the wilder portions of the far northwestern part of the Province. It would appear that the wolverine is doomed to extinction in Ontario. Since 1928-29 the annual total take has been less than 10 animals in all Ontario (1).

Lutra canadensis—Otter

The total number of otter taken from the Chapleau district increased steadily from 1941-42 to 1946-47 (Table IX). However, the size of unit area trapped to produce each pelt indicates some fluctuations in populations

TABLE IX

THE ANNUAL HARVEST OF OTTER IN CHAPLEAU DISTRICT

	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	Average
Total catch of otter	63	66	68	70	125	131	87
Total number of sq. mi. trapped	4332	3657	3946	4285	4580	5563	4394
Sq. mi. trapped per animal unit harvested	69	55	58	61	37	42	50
Av. value per pelt, $	20.00	17.00	25.00	28.00	30.00	35.00	26.00
Total revenue, $	1260.00	1120.00	1700.00	1960.00	3750.00	4580.00	2400.00
Av. return value per sq. mi trapped, $	0.29	0.31	0.43	0.46	0.82	0.82	0.55

(Fig. 6). The distribution of catch for 1945-46 (Fig. 2) indicates a fairly even population throughout the district. The provincial catch of otter has remained fairly constant since 1919-20 (1), which apparently indicates that the otter is holding up well under existing trapping pressures.

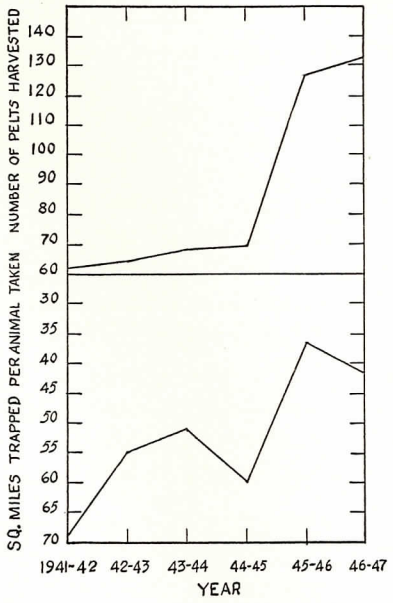

FIG. 6. *Top. Total otter produced in Chapleau district. Bottom. Area (in square miles) trapped to produce one animal unit.*

Mephitis mephitis—Striped Skunk

The recorded number of pelts taken from the Chapleau district gives no indication of the relative size of populations nor trends of abundance. The low price, coupled with the disagreeable task of handling, brings a very small fraction of available skunk pelts to the market. The average annual catch from 1941-42 to 1946-47 was only 19 skunks.

Lynx canadensis—Canada Lynx

The catch of lynx in the Chapleau district has been a small and variable one in recent years (Table X). MacLulich (11) plotted the lynx returns for Canada from 1751 to 1932. He found violent fluctuations in numbers trapped

TABLE X

THE ANNUAL HARVEST OF LYNX IN THE CHAPLEAU DISTRICT

	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	Average
Total catch of lynx	8	6	14	15	8	32	14
Total number of sq. mi. trapped	4332	3657	3946	4285	4580	5563	4394
Sq. mi. trapped per animal unit harvested	541	609	282	286	572	174	317
Av. value per pelt, $	37.00	40.00	50.00	47.00	50.00	42.00	44.00
Total revenue, $	296.00	240.00	700.00	705.00	400.00	1340.00	614.00
Av. return value per sq. mi. trapped, $	0.07	0.07	0.18	0.16	0.09	0.24	0.14

and demonstrated a cycle with peaks of abundance occurring on the average of every 9.7 years. He also (12) demonstrated a close correlation of the abundance of lynx with that of the varying hare (*Lepus americanus*). The number of lynx taken in the Chapleau district is so small (Fig. 2 and Table X) and the unit area necessary to produce one animal unit so variable that it is doubtful that the graphic indications for only six years can indicate any significant trend in productivity; however, a general increase seems evident, an increase that could be forecast by examination of provincial trends (1). The figures (Fig. 7) do indicate the erratic nature of lynx populations within a small area.

Lynx rufus—Bobcat

Although we have no specimens from the Chapleau district, we have obtained reports of four bobcats taken since 1919. Mr. Sam Chappise reported killing one in the district in 1919; Mr. Wilfred McAuley of Chapleau,

one in Lackner Township shortly afterward; Mr. Ignace Mamyguess of Chapleau, one in 9H Township in 1936; and Mr. Alec Bain, one in Rollo Township in 1942. Bobcats are quite rare as far north as Chapleau. However,

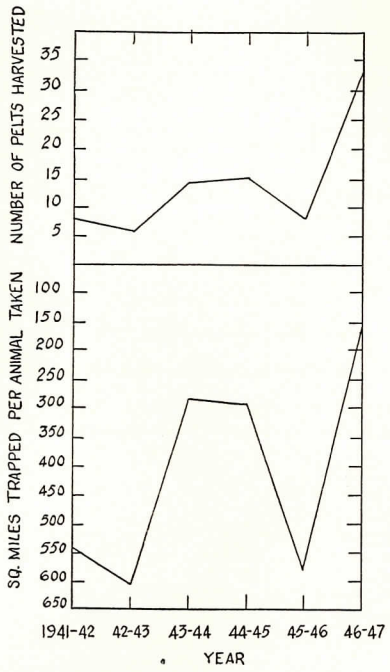

FIG. 7. *Top. Total lynx production of Chapleau district. Bottom. Area (in square miles) trapped to produce one animal unit.*

one pelt was received at the Hudson's Bay Post at Pagwa River in 1946 and presented to the Royal Ontario Museum of Zoology by Mr. W. Glennie, Manager of the post. This animal was a female, taken Nov. 2, 20 miles east of Pagwa River Post, some 40 miles north of the township of Rogers. This area lies 200 miles north of Chapleau. Mr. Glennie reports that to his knowledge no Indian or white trapper had ever heard of a bobcat in that area before.

Discussion

Two common species, the snowshoe rabbit or varying hare (*Lepus americanus*) and red squirrel (*Tamiasciurus hudsonicus*) do not constitute important fur resources in the area discussed, although an unknown number are taken by trappers each year. Hess (9), however, included the number of these species taken on an 89½ mile trap line over a 13 year period 1931-44 in the Oba-Hearst area, which lies some 100 miles north of Chapleau. Since the Province of Ontario requires no royalty on these species it is difficult to appraise the present or potential values of these two mammals.

A comparative summary of production of the principle furbearers of the Chapleau district is given in Table XI. It will be seen that beaver, muskrat, and mink constitute the more important species of the area in both numbers taken and in total value.

TABLE XI

COMPARATIVE SUMMARY OF PRODUCTION OF THE PRINCIPAL FURBEARERS OF CHAPLEAU DISTRICT

Species	Sq. mi. trapped per animal harvested			Catch per trapper (one twp.)			Return value, $, per sq. mi. trapped			Av. total revenue,	Av. total catch
	Av. low	Av. high	Six yr. av.	Av. low	Av. high	Six yr. av.	Av. low	Av. high	Six yr. av.	Six yr. av.	Six yr. av.
Beaver	3.5	4.7	4.2	7.2	9.6	8.2	5.67	13.22	8.30	36,500.00	1052
Muskrat	0.7	1.3	0.9	25.3	46.8	37.2	1.48	4.38	2.65	11,600.00	4771
Red fox	11.6	21.9	13.7	1.6	2.9	2.5	0.23	0.74	0.46	2000.00	319
Cross fox	101.0	232.0	144.0	0.15	0.33	0.24	0.06	0.15	0.11	490.00	31
Silver fox	—	5563.0	1550.0	—	0.05	0.02	—	0.03	0.01	57.00	3
Ermine	7.2	18.5	9.5	1.9	4.7	3.6	0.03	0.18	0.10	458.00	464
Mink	4.7	7.8	6.8	4.4	7.1	5.0	1.54	4.35	2.82	12,400.00	647
Marten	23.0	75.0	35.0	0.5	1.5	1.0	0.44	2.01	1.16	5100.00	124
Fisher	60.0	216.0	104.0	0.16	0.56	0.3	0.21	0.88	0.56	2480.00	42
Otter	37.0	69.0	50.0	0.5	0.9	0.7	0.29	0.82	0.55	2400.00	87
Lynx	174.0	609.0	317.0	0.05	0.16	0.1	0.07	0.24	0.14	614.00	14

Consideration of areas of comparative size required to produce each harvested animal unit should be useful in connection with future conservation and management of our furbearers and might well be the basis for further research.

Since trapping returns form a substantial part of the total income of many residents in northern Ontario, it is important to maintain the fur resources in continued production. The decrease in the number of certain of the fur-bearing mammals threatens one of Canada's most important heritages. Now is the time to follow up the important conservation policies already adopted by further measures based on both intensive and extensive research so that the fur production of Ontario and Canada may be maintained on the highest possible level.

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