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Beaver shooting experiment. Edmonton,
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1. Beavers-Hunting.

BEAVER SHOOTING EXPERIMENT

CANADIAN WILDLIFE SERVICE
WESTERN REGIONAL OFFICE

Introduction

It had been desired for some time to obtain by an experiment some form of answer to the heavily disputed question of beaver shooting vs. beaver trapping. During 1949-50 approval was received to conduct an experiment along these lines. In order to sufficiently inform the Game Officers who would conduct much of the project a statement was prepared of the purposes of the study and the method to be used. Since this statement is a concise description of the whole idea it is included below in its entirety.

"INSTRUCTION TO GAME OFFICERS REGARDING EXPERIMENTAL HARVESTING OF BEAVER"

"There has in the past, as you know, been considerable controversy among the trappers in the Mackenzie district as to the relative merits of trapping vs. shooting of beaver. The old method of shooting the animals in the open water was recently discontinued and at present trapping only is allowed. Since that time, however, the game regulations have been revised and under a system of registration of trapping areas it is proposed that the individual trapper be given as much freedom in the harvesting of his fur as is commensurate with good conservation practices. Because the idea of registration is new to most of the people involved therein it is necessary at present that some care be taken in how far this freedom of action should be extended.

In the case of beaver it is unwise to scrap the "no-shooting" regulations unless we have more definite knowledge than we have at present upon the results to the beaver population of harvest by the use of fire-arms. A proposal has been made, and approved, that during the spring of 1950 a certain amount of experimental shooting be allowed under the observation of a Game Officer. The trappers chosen for this will take their quota of beaver, not by trapping, but by shooting; not during the March-April open season, but when the opening of the water courses makes shooting possible. This should be some time during May in most areas concerned. The method, under cover of special permits, will be tried by two hunters from each of the following places: Arctic Red River, Good Hope, Norman, Simpson, and Fort Liard.

Game Officers at these points are asked to act as observers in the harvesting of beaver and to report on the success of the shooting and of the trapping operations of the licenced trappers chose. The names of the two trappers chosen for the shooting of beaver should be forwarded by each Game Officer to the Superintendent, Forests and Wildlife, Fort Smith as soon as possible so that the permits may be obtained from Ottawa. It is suggested, in the interest of uniformity, that those hunters chosen should be average hunters, probably Indian or half-breed. Also state for your region when beaver shooting can best be carried on.

During the present open season, i.e. March and April, it will also be necessary that information be gathered from two other average trappers who will take their quota of beaver as usual by trapping. Send the names of these two hunters to Fort Smith as well. The enclosed sheets set forth the information which you should gather. When you return these sheets to the Superintendent at Fort Smith at the conclusion of the experiment send along a report of any observations you think are not adequately covered on the forms and add, with reasons, your opinions as to the method of harvesting beaver best suited to your particular region. You should have accompanied and observed four trappers take 40 beaver by then.

If possible, have the local Hudson's Bay Company manager grade the 40 skins you have seen taken as to their quality and size. Get his opinion as to whether the shot furs have deteriorated as a result of being taken later in the year. Include this

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information in your report. Try to give all of the information asked for on the forms, endeavor to be accurate in your observations, and try, whatever preconceived ideas you may have on the subject, to adopt an unbiased view of the project."

In order to standardize and simplify the data returns were made on a type form similar to Figure 1. Most of the items on this tally sheet were straightforward and easy to ascertain. In the matter of sex of animal it was felt that the person who skinned the animal should be able to determine the sex accurately, especially since he was also asked to determine how many embryos were present. Full information as to reproductive state was not gathered, however, thereby throwing the data on sex of animals somewhat into doubt. It must be assumed, however, that the sex as given is more or less correct and the data are accepted as they are.

Figure I.

BEAVER TALLY SHEET - (Fill out one sheet for each beaver taken; appropriate items below may be circled)

Locality -

Beaver taken by: Shooting, Trapping

Beaver taken on: Lake, Stream, Under Ice, On Ice, Open Water

Calibre of Rifle _____ Number of Shots Fired _____

Where Beaver Hit: _____

Fate of Animal: Sink, Float; Lost, Recovered

Male or Female; Adult, Two Years Old, Kit

If Female: Pregnant or Not Pregnant. No. of Embryos (If Known) _____

Handling of Pelt: Good, Fair, Poor, Grade of Pelt _____

Other Remarks: _____

Hunter: _____ Observer: _____

Date: _____ Hour: _____

It was found that the item "Grade of Pelt" did not lead to very much information since the standard of grading differed with each locality. It would have been desirable to have size of pelt in inches together with grade of pelt as a means of drawing conclusions.

There is further some doubt as to whether it was possible for the hunters and observers to tell accurately the age of the animal at hand. It is known that there are intergrades in size between adults and two year old animals on the one hand, and two year old animals and kits on the other. It is necessary to assume that the errors are in all cases equally distributed between the age classes and to use the data with that qualification in mind.

The shooting phase of the experiment, coming as it did when conditions for travel were very uncertain and variable, was difficult to supervise. The Game Officers at Good Hope and Arctic Red River were members of the R.C.M. Police and it was out of the question for them to leave their head-quarters for any protracted period. They did, however, manage to keep the project under

surveillance by occasional visits to the trappers concerned and delegated the actual collection of data to someone whom they thought to be competent. Their assistance and cooperation is greatly appreciated.

Data and Discussion

Table I is a compilation of the raw data from the tally sheets and is arranged for each settlement on the basis of sex and age classes. The total number of animals involved was 166 of which 82 were shot and 84 trapped. The sex ratios were 60 males to 22 females (272:100), and 52 males to 32 females (164:100) respectively. There were, therefore, a significantly greater number of male animals taken by shooting than by trapping. Hunting with firearms is somewhat more selective for male beaver than is trapping.

There were 63 adults, 14 two year old animals, and 5 kit beaver taken by the use of fire-arms. The ratio for trapped animals was 52 adults, 22 two years old, and 10 kits. Taking the ratios of trapped beaver as our index it is possible to show that the shot animals differ significantly from this index. There are fewer kits and sub-adults taken and the displacement is in favour of the adults. We can therefore assume that by shooting beaver some selection of the size of animal taken is possible. That is not to infer that trapping is not selective, but that shooting is more selective than trapping.

Table I - Sex and age ratios for shot and trapped beaver at five settlements in the Northwest Territories during the spring of 1950.

Locality		SHOT			:	TRAPPED		
		Total			:	Total		
Arctic Red River	Adult	: 11	7	18	:	10	7	17
	2 years	: 0	0	0	:	2	1	3
	Kit	: 0	0	0	:	0	0	0
	Total	: 11	7	18	:	12	8	20
Good Hope	Adult	: 13	4	17	:	5	7	12
	2 years	: 2	1	3	:	2	1	3
	Kit	: 0	0	0	:	3	2	5
	Total	: 15	5	20	:	10	10	20
Norman	Adult	: 8	1	9	:	3	4	7
	2 years	: 1	0	1	:	3	4	7
	Kit	: 0	0	0	:	0	0	0
	Total	: 9	1	10	:	6	4	10
Simpson	Adult	: 6	3	9	:	1	2	3
	2 years	: 2	3	5	:	4	2	6
	Kit	: 0	0	0	:	3	2	5
	Total	: 8	6	14	:	8	6	14
Liard	Adult	: 8	2	10	:	9	4	13
	2 years	: 4	1	5	:	7	0	7
	Kit	: 5	0	5	:	0	0	0
	Total	: 17	3	20	:	16	4	20
All Settlements:	Adult	: 46	17	63	:	28	24	52
	2 years	: 9	5	14	:	18	4	22
	Kit	: 5	0	5	:	6	5	10
	<u>Grand Totals</u>	: <u>60</u>	<u>22</u>	<u>82</u>	:	<u>52</u>	<u>32</u>	<u>84</u>

These data bear out the contention of the native hunters that they can take more large animals of the male sex if they are allowed to shoot the animals after the ice begins to break up than they could be trapping them earlier in the season. It should be pointed out, however, that the degree of selection exercised is not marked and that other factors may enter in which may in effect negate the seeming advantages of this method harvest.

In the first place, there is the damage to fur by shooting, though the possibility of this is probably no greater than the possibility of cutting the pelt of a trapped animal in chiselling it out of the ice. Secondly, there is the danger that the animal may sink and be lost after it is shot. Our data show that animals will float again after a variable time and may be recovered if they do not lodge under the ice. The loss from this factor is counterbalanced in trapping by the number of animals which wring off a foot and escape from the trap.

Perhaps the most valid objection to harvest by the use of fire-arms is that the method opens up greater opportunity for poaching on registered trapping areas. Poaching during the trapping season has more risk of detection since traps are more apt to be found and trails are easier to follow. But if animals can be shot in open water it becomes very difficult to observe the act of poaching and to follow and apprehend the miscreant. The system of sealing of beaver furs as at present practiced discourages the illegal sale of fur but will have little deterrent action on poaching on trapping areas.

It is further pointed out that it is possible to eliminate beaver from a given area much more readily by shooting than it is by trapping and this should be borne in mind. Well regulated shooting of beaver is a desirable and efficient method of harvest. Poorly regulated and indiscriminate shooting is dangerous both to the beaver population and to the whole idea of registered trapping areas.

I think it is adequately established that the harvest of males in excess of females has no real harmful effects on the rate of reproduction in beavers. Since the harvest is made after the onset of the breeding season and since most of the females by trapping and shooting time will be already bred and carrying young there is good argument that they should be left in the lodge to have their young. Since the males have for the year served their purpose in the reproductive activity and since their pelts are usually larger they can be harvested to advantage.

Most of the pelts turned in were reported to have been well handled and the majority graded "No. 1" regardless of how late in the spring they were taken. There is evidently no marked deterioration in the quality of the fur of beaver up to the 24th of May when the last animals were taken. Though the pelts were adequately handled there is still room for improvement and continued instructions on proper methods are needed, not only for beaver, but for all fur.

Table II shows the period during which the beaver were harvested at each settlement. In spite of the differences in latitude between the several posts there is a remarkable consistency in the dates when shooting was instituted. With the exception of one animal taken at Arctic Red River on April 29 all experimental shooting was done between May 10 and May 24. The special season closed on May 25 and all trappers were able to fill their quotas by that date. The hunters at Arctic Red River felt that if shooting only were allowed the above date was too early for the season to terminate, June 1 might have been better. The season at Franklin is later than it is at Norman by about 10 days and the Game Officer there recommended a later date for that area.

Table II - Dates of Commencement and conclusion of trapping and shooting beaver at five settlements in the Northwest Territories During the spring of 1950.

Locality	Shooting Begin:	End:	Trapping Begin:	End:
Arctic Red River	April 29	May 24	March 6	April 28
Good Hope	May 15	May 22	April 5	April 26
Norman	May 11	May 20	March 18	April 9
Simpson	May 16	May 24	April 16	April 29
Liard	May 10	May 24	March 15	April 20

The Game Officers who acted as observers for this experiment made their recommendations as to whether or not harvest of beaver employing fire-arms should be allowed. Their suggestions are incorporated in the recommendations which follow. Realizing the circumstances under which the investigation had to be carried on credit is reflected on these Officers for obtaining such adequate data as they did.

The majority of the trappers involved at the five settlements listed are either native Indian or Metis and most of them trap on large group areas with others of their own band. They do not like to trap beaver, they find it arduous and cold. They have not learned how to trap beaver correctly though there is no doubt that they could learn to do so eventually. On the basis of this experiment it has been demonstrated that they can harvest beaver more efficiently by the use of fire-arms than by trapping. On registered trapping areas as they exist in the Northwest Territories the beaver cropping is so controlled that there will be sufficient breeding stock remaining after each harvest to keep the population from deteriorating in numbers. The first requisite is that some animals be taken from each colony, this number presently set at one animal per occupied lodge. If this can be done more efficiently by shooting than by trapping then, except for the reservation regarding poaching stated earlier, I see little objection to using either method. The choice would rest with the individual trapper.

Recommendations

1. Within the accuracy of our data it has been demonstrated that harvesting of beaver by the use of fire-arms is more efficient in taking the large male animals than is trapping. On this basis it is suggested that there are few grounds for withholding this method from use by those trappers on registered trapping areas.
2. Our data show that a .22 calibre rifle was adequate for the harvest of beaver and that a heavier cartridge was more apt to damage the pelt and thereby lower its trade value. It is recommended that if shooting be allowed that no calibre larger than .25 be permitted use.
3. It is desirable that the use of fire-arms for the harvesting of beaver be restricted to registered trap lines.
4. If it is considered advisable to employ fire-arms in the harvest of beaver it will be necessary to lengthen the season during which beaver may be legally taken. A closing date of May 25 seems reasonable for most areas bearing in mind that the trapper is under no compulsion to take all of his fur by this method. In the interest of fire danger in spring it is important that all trappers quit the bush country as early as possible in the spring. In the southern section the season might close a week earlier, i.e. May 18.

5. Trapping, even as done at present, is selective to almost as great a degree as shooting of beaver. If it is deemed unsafe to reinstate shooting as a method harvest, then more instruction in methods of trapping could be given to native holders of General Hunting Licences. I see no reason, aside from lack of enthusiasm for the physical labour involved, why many hunters could not become as proficient at trapping beaver as they are at shooting them. Whether all trappers could attain this proficiency is another matter. I doubt if they could.

6. Though I realize the greater efficiency of shooting beaver, as demonstrated by the data herein presented and the opinions of the Game Officers involved, I also realize the danger of the method and the abuses to which it could lead. I cannot, therefore, fully recommend it. If it could be adequately enforced by the Game Officers and intelligently employed by the trappers the method would prove valuable. I doubt if either enforcement or intelligence levels are in all cases at present adequate.

Submitted by:

W. E. Stevens.

BEAVER / TRAPPING AND SHOOTING

FORT NORMAN N.W.T.

It will be noted that I have only got 20 beaver, 10 shot and 10 trapped. To get 20 shot beaver we would have had to had two different parties and stayed away from Headquarters for six weeks to do three days' work because of sitting at the junction of the Bear and Mackenzie Rivers.

It will be noted that all my beaver were shot with a .22 rifle. To use a bigger rifle seems foolish as it would damage the fur to a greater extent. If you fool around with a beaver a little it is all close range shooting and a .22 is more accurate in the average hands than a high calibre rifle.

All the beaver were shot in the head. Most of our beaver were shot in running water and only one beaver could have been lost. This was under extremely bad conditions -- too close to overhanging ice, very poor light and I am very sure it was a clean miss and that we got this beaver two hours later, although it is possible that this beaver was lost. Shooting a beaver with a .22 rifle does not damage the fur in the least. It kills a beaver outright and, therefore, I would recommend the use of a firearm not larger than a 25-20.

Trapping was done by an experienced beaver trapper and it was also very successful. It might as well be known that the Indians do not trap beaver. They are either too lazy to trap as it includes a lot of work or they do not know how. I have not a doubt that if the trappers tried and learned they could trap beaver successfully without twisting off, losing traps, etc. -- all the old excuses. But through my experience with shooting it is much easier and in my case it was just as efficient as the most experienced trapper and by shooting, as in trapping I surmise, you can shoot 75% males if you go by the rules that almost all trappers know. I would recommend under the new system of registration that the trapper may take a beaver either by shooting or trapping but the use of a bigger rifle in shooting, I believe, should be banned as a .22 is sufficient. However, that is not necessary as the trapper will not destroy a pelt with a shell that cost more and also depletes the price of his fur.

All the pelts that I shot up to the 20th of May were prime and I have good reason to believe are prime until the first of June.

This was an average, normal year. I recommend that the season on beaver and muskrat be closed on the 24th of May for the Fort Norman district. Fort Franklin district is at least 10 days later and, if possible, in the future the trappers in that vicinity should have an extension on their season. The season on beaver should be the same as for rats in this particular district -- either that or the quota per hunter reduced if it is seen that the beaver is being depleted. This is a very good beaver district.

Yours truly,

B. Boyes,
Warden.

BEAVER SHOOTING EXPERIMENT

FORT SIMPSON N.W.T.

Enclosed please find 28 beaver tally sheets, 14 of these are of the shot beaver and 14 are the trapped. We could have shot twenty beaver if we would have taken females and kits. We were on the area of James Lafferty, Area Number 316 and he would allow no shooting of females. We also had four days of rain, so I called off the shoot on the 24th of May, as I thought the season was getting late. But the season was still all right as all of the beaver graded number 1. We lost no beaver during the shoot or none were lost during the trapping. We were able to pick out the large beaver and leave the females during the shoot which is impossible while trapping under the ice. About the only place a person will find the female about to have young is either near the lodge or dam, The female does nearly all of the work on the dam, so if a person stays away from the lodge or dam he would be unlikely to get a female with young. The feed bed is near the lodge and this is where the trappers trap the beaver under the ice, so there is a good chance to catch a female.

I had these beaver graded and valued by the three traders at Simpson. The price I listed is the average price offered for each beaver.

All three traders agreed that there was less damage on the shot beaver than the trapped ones. The only damage on the shot beaver was bullet holes in the head which doesn't devalue the pelt as long as the holes are ahead of the ears. Quite a few of the trapped beaver have ice chisel cuts on them, this is due to cutting the beaver out of the ice after being trapped.

V. L. Shattuck.

EXPERIMENTAL HARVESTING OF
BEAVER

FORT LIARD NWT

"At your request have graded the shot beaver and the trapped beaver which you have shown us.

We find that the shot pelts are slightly inferior in quality and value as compared with the trapped ones. Two of these pelts we classified as being damaged due to being shot. Another was slightly damaged for the same reason. Four of these shot pelts were quite blue indicating that they might have been late caught. These pelts were all well handled.

The trapped pelts were all well handled and prime, apparently caught in season.

The sized of the shot beaver and the trapped ones compare favourably. That is, the number of small pelts is limited in both cases.

Trust this information is satisfactory to you.

Yours faithfully,
For the Hudson's Bay Company,

R. S. Cunningham."

Note: With reference to the damaged shot pelts mentioned above, these were shot in the body with a 30-30 calibre rifle using soft-nosed bullets.

The blue pelts mentioned were those caught between May 19th and the 23rd in a Beaver pond.

C. J. Shattuck.

EXPERIMENTAL HARVESTING OF BEAVER

FORT LIARD NWT

Enclosed please find forty completed forms covering twenty shot beaver and twenty trapped beaver, also report on these beaver by R. S. Cunningham, Fort Hudson's Bay Co.

The above twenty shot beaver were taken from lakes, beaver ponds and rivers and shot with different calibre rifles, 22, 25-20 and 30-30. All these beaver floated, however, several kicked under but came to the surface after death. Three of these beaver were shot in the body with a calibre 30-30 rifle and were damaged up to 25% but if shot in the head there is no damage to the pelt.

In trapping the above twenty beaver nearly this many were lost, through "wringing off" and pulling out of the trap. These beaver may not die from the direct cause of this injury but they would be handicapped in feeding and in escaping from their enemies.

The sizes of these shot and trapped beaver compared favourably with the trapped ones of a slightly better quality as they were caught earlier in the season.

In this district I believe shooting of beaver should be allowed and the season should be extended to May 15th.

In shooting a trapper is more able to pick his beaver as he need not shoot kits, in trapping this is hard to control. I don't think there is any more damage to the pelt in shooting than in trapping. There is no damage to a pelt if shot in the head but a trapped beaver is sometimes damaged in cutting him out of the ice.

If a trapper is allowed ten days hunting after open water he is better able to conserve his beaver, as he can then take "travellers" that he would otherwise lose. This year breakup was about May 1 and from May 10 to May 20 I saw about 12 beaver on the Liard River and the natives reported seeing about 25. These are not beaver that live on the river, but have come from some trapping area.

A hunter taking his beaver from streams and rivers would not likely catch as many female with young or kits as he would from a lake or beaver pond. In mountain streams and rivers where the water is cold beaver, as a rule, stay prime later in the season than they do on inland lakes where the water is warmer.

Warden C. J. Shattuck.

EXPERIMENTAL HARVESTING OF BEAVER

ARCTIC RED RIVER NWT

Andre John claims it is best to shoot beaver.

Reasons:

1. When beaver come out of lodges, it is always the male that comes out first (feeding time). One can then be sure he is not shooting a female. When trapping females are caught many times.

2. Recommends .22 rifle for shooting. 30-30 too big. Unless you hit beaver in head, the skin will be spoiled.

3. Should shoot them in May. Will not then shoot pregnant beaver as they stay in lodges at that time of year. The medium beaver and large males, on other hand, roam rivers and creeks.

Aklavik, N.W.T.
March 5, 1950.

Cat. John Morrison
Arctic Red River, N.W.T.

Re: Experimental Beaver Shooting

I am enclosing herewith forms and instructions for a beaver harvesting experiment which is to be carried on this spring. As soon as you get this letter pick out the men you think would be satisfactory for the shooting phase of the project and send their names by wireless to the Superintendent of Forests and Wildlife at Fort Smith. It should be pointed out that persons who trap their quota are not eligible for shooting beaver. And the beaver taken by those hunters selected to do the shooting are not in addition to their regular quota. Ten beaver only are allowed for each permit as under Section 66 of the Game Act. The same forms may be used for tallying both shot and trapped beaver. It is expected that you will accompany the hunters who are doing the trapping and shooting.

If you have any questions as to procedure in this project kindly send them to me by wireless so that no time may be lost. Regards.

W. E. Stevens.

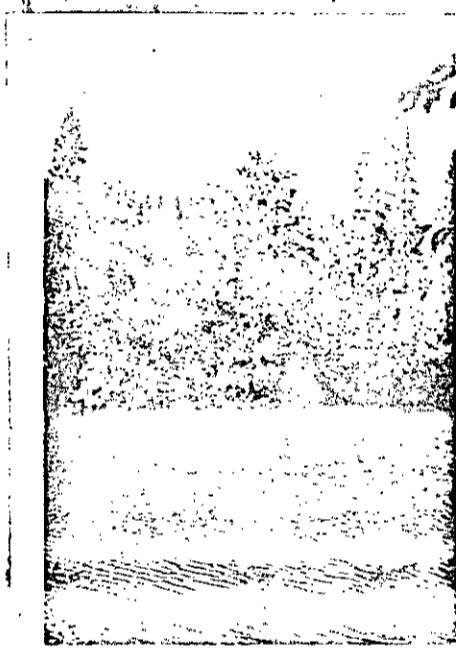


Fig. 7 Beaver lodge built into the bank of a small creek near Embarras portage, Athabaska River.

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