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Aerial Beaver Survey - Fort Rae Transplant area, September 29 and 30, 1964.

CANADIAN WILDLIFE

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Introduction:

In August 1954, 90 beaver were transplanted from Prince Albert National Park to 21 lakes near Fort Rae. An area containing the 21 lakes was set aside as the Fort Rae Beaver Transplant area. This district formerly contained a substantial beaver population and it was hoped that the transplant would assist materially towards re-establishing a population of economic importance to the natives. It was suggested at the time of restocking that the taking of beaver be prohibited for 5 years. The Fort Rae Transplant area has now been in existence for 10 years.

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The Administrator of the Mackenzie was advised in May 1964 of a request by Chief Bruno of Fort Rae that trapping restrictions be removed in the Fort Rae Transplant area. The Administrator of the Mackenzie requested that the Canadian Wildlife Service carry out a beaver survey there and provide advice accordingly.

An aerial survey of the Fort Rae Beaver Transplant area was carried out on September 29 and 30, 1964.

The writer wishes to record his appreciation to Game Management Officer Ron Williams and Patrolman A. Mandeville for their participation. Even though Mr. Mandeville was airsick throughout the first flight due to rough flying weather and frequent sharp turning of the aircraft, he accompanied us again on the second day.

Wardair pilot Howard Cowles did an excellent job of piloting his aircraft over a tortuous route.

Methods:

The aerial survey was carried out from a De Havilland Beaver aircraft, based at Yellowknife. It has been my experience that smaller aircraft (e.g. Cessna 180) travel too fast to allow sufficient examination of the survey area. The Beaver

can be throttled back considerably and still maintain safe flying speed.

Altitudes were usually between 600 and 700 ft. although a few observations were made from over 1000 ft. With some experience, beaver sign such as lodges and feedbeds are easily observed at 1000 ft. Binoculars were used on a few occasions to determine whether a beaver lodge was old or in current use.

The survey consisted of two parts:

Part I - Reconnaissance of all 21 lakes stocked in 1954 by Radvanyi.

This phase acquainted the observers with the area and familiarized the crew with what to look for in detecting signs of beaver activity from the air. During the first phase, considerable circling was done over the James Lake area where the first beaver sign was seen. Two active colonies there were examined closely to acquaint the observers with feedbeds, floating peeled logs, beaver canals, roiled water, ponds fringed with dead standing trees and beaver lodges. A beaver dam was not seen until later in the day.

The line of flight has been indicated on Map II in black and the transplanted lakes have been indicated. The numbering system of these lakes is the same as that used by Radvanyi in 1954.

Part II - A survey, following drainages.

That survey was a more intensive one than the check of transplanted lakes mentioned under Part I and allowed us to obtain a better idea of the beaver population. Flight lines are indicated on Map II by the red line. A part of this survey, flown on September 29 was washed out because of a ceiling of less than 100 ft. in the area N. W. of Fort Rae. The survey was not completed later for the following reasons:

- 1 - The area to be covered intensively had been checked the previous day on the transplanted lakes check and no beaver sign had been noted.
- 2 - The area there was considered to be inferior beaver habitat compared to for example the area east of Russell Lake.

- 3 - The allotted costs of the charter (equivalent to hire of a Cessna 180 for 12 hours) had been reached.
- 4 - The weather disturbance moving into the Yellowknife - Fort Rae area consisted of a ceiling of less than 300 ft., winds, rain and snowflurries and showed no signs of letting up.

On the first survey, all transplant lakes were visited and after searching each lake, a note was made whether beaver activity had been observed or not. The writer, occupying the co-pilot's seat also made notes about the suitability of each lake in terms of beaver habitat.

Prior to the second, more intensive survey, all watches were synchronized. Occurrence of feedbeds, dams and lodges were ticked off on sheets of paper prepared beforehand and the time recorded at each observation. This procedure was followed as the nature of the survey (which followed lakes and winding streams), did not often allow for more detailed notes. The writer, occupying the front seat (which facilitated longer periods of observation than could be made from the seat occupied by Williams directly behind the co-pilot's seat) was often able to add short notes about landmarks and the type of beaver sign noted. The pilot was asked to place marks on the flight map at 5 minutes interval. With the type of recording used, beaver lodges, etc. could be plotted on a 4 mile to the inch map with a fair degree of accuracy.

Fuller and Novakowski checked all 29 lakes that originally had been intended for transplant, although only 21 of these lakes were stocked by Radvanyi in 1954. When beaver sign was noticed in the immediate vicinity of a transplant lake (but not necessarily in the lake proper) the term "occupied" was used.

Because most of the flying involved the following of meandering creeks, both observers were watching from the right side of the aircraft which proceeded on the left side of the streams. Fuller and Novakowski placed observers on either side of the aircraft. When flying over narrow lakes, our methods would result in

a lower count of beaver sign than theirs, when following creeks our methods would not likely miss any sign. Our results are therefore considered to be comparable to those of Fuller and Novakowski.

Even though the planned survey was not entirely completed, enough data were gathered to give a good idea of the distribution and relative density of beaver.

Results:

A comparison has been made between my results of the check of transplant lakes (Part I of the survey) with those obtained by Fuller (1955) and Novakowski (1957). This information is summarized in Table I.

Table I shows that out of the 21 lakes stocked in 1954, 9 lakes were now found to be occupied and 12 were not occupied. In addition lake #18, not stocked by advanyi in 1954, was not termed occupied as two colonies were active in a creek just south east of the lake.

Most of the beaver sign noted was in the triangular area bordered by Great Slave Lake, Russell Lake, the Echo River and the east boundary of the Beaver Transplant area. Twenty colonies were observed in the area (19 colonies along measured flight line) or approximately 0.17 colony per minute of flight (see Fuller and Flock 1951 for estimating number of colonies from visible beaver sign). This area will be referred to in the report as the "East Block". The remainder of the Beaver Transplant area will be referred to as the "West Block". Out of 12 East Block lakes stocked in 1954 the present survey found 7 occupied. Out of 8 West Block lakes stocked in 1954, only 2 showed signs of beaver activity. Of five other lakes examined which had not been stocked in 1954 (#19, #21, #25, #26, #18) only the vicinity of lake #18 now showed beaver activity, perhaps evidence of beaver movements out of the transplant lakes to more suitable habitat.

Discussion:

When the results of the 1964 surveys are examined and compared with the surveys made by Fuller (1955) and Novakowski (1957), certain points at once become evident. Some clarification should first be made however about Fuller's and Novakowski's surveys in the Fort Rae Beaver Transplant area. It appears that both workers examined all 29 lakes - indicated by Radvanyi as potential transplant sites - although only 21 lakes actually were stocked. Fuller (see Table I) did not see signs of beaver in any of the 8 lakes not stocked (#'s 1, #15, #18, #19, #20, #21, #22, #26) but he makes no references to the probability that in 1955 no beaver were likely to be encountered in these lakes.

Novakowski in 1957 also visited the eight lakes not stocked in 1954. He found an apparently unused lodge in lake #1, a fresh lodge (but no feedbed) in lake #15 but no activity in the remaining six unstocked lakes. Again no reference is made to the improbability of finding beaver in the unstocked lakes nor does Novakowski dwell on the apparent migration into lakes #1 and #15 of beaver from other areas. Both lakes appear to be good habitat for beaver. There is a possibility that Fuller and Novakowski may have misread the original reports by Radvanyi (1954) and Stewart (1954). Stewart's map accompanying his report complimentary to that of Radvanyi shows all 29 lakes to be transplant lakes !!

Nevertheless, valid comparisons can be made between the present survey and those of Fuller and Novakowski.

A - West Block

The "West Block" does not appear to have undergone a great deal of change in terms of beaver activity since 1955. Of lakes #17, #28, and #29 found occupied by Fuller, only #17 and #29 were found harbouring beaver in the present survey. The loss of beaver from lake #28 is compensated for by the movement of beaver into

the area of lake #18, a lake not stocked in 1954. There is then no gain over 9 years in lakes populated by beaver. The present survey found no beaver in lakes #16 and #25 which Novakowski reported occupied and lakes #15 and #24 which he reported possibly occupied. That is offset by lakes #17, #18 and #29 in the West Block being used by beaver in 1964.

These results appear to indicate that little or no change has occurred in the beaver population in the West Block after 10 years of protection. This in part may be due to the - in my estimation - poor beaver habitat in parts of the West Block. The habitat conditions in the West Block appear to me to be poor for beaver. Those conditions are probably the main reason for the failure of beaver to increase in that area. Novakowski described lake #28 as poor habitat due to a recent burn. Conditions there may therefore have improved in the last 7 years. Lake #16, #19, #21, #22, #23, #24, #25, #26 and #27 were all considered to be marginal to poor habitat in the 1964 survey. Only James Lake and the creek flowing into it, lake #28, possibly areas along the Marian River and lake #15 on the boundary between West and East Blocks appear to constitute favourable beaver habitat.

A second factor, perhaps partly responsible for the lack of increase in beaver numbers in the West Block is illegal killing of beaver for fur or food by native trappers and hunters. I know nothing about that possibility but several members or former members of the Game Management staff in the area concerned have indicated that illegal killing appears to take place.

B - East Block

Of lakes #2, #3, #6, #7, #12 and #14 found occupied and lakes #4, #5 and #13 marked doubtful by Fuller (1955) the present survey found lakes #6, #7, #13 and #14 occupied. In addition, lakes #8, #9 and #10 in the East Block were now found to harbour beaver. It appears therefore that a healthy nucleus has become established in the Stagg lake area. Beaver habitat is good and if protection continues, a further density increase within the East Block can

be expected as well as dispersal of beaver from the block. As the area south east of the block appears favourable for beaver, animals dispersing there from the east block can be expected to start colonies if they are not all trapped.

Lakes #2, #3, #4, and #5 have undergone a change for the worse even though beaver habitat is fair to good here. Since those lakes are readily accessible from the Mackenzie highway, perhaps illegal killing has eliminated beaver from those four lakes.

On the whole, the results of the survey were quite revealing. They show that the West Block has not responded to the protection afforded it. One isolated nucleus in the vicinity of lake #17 was detected. Two colonies - apparently thriving - were found outside the east boundary of the Fort Rae Beaver Transplant area. The only other section in the West Block where beaver sign was found is the James Lake area. The beaver colonies there have probably been in existence since the transplant in 1954. The creek leading into it from the west constitutes good habitat.

A substantial population of beaver has become established in the East Block during the period of protection since the transplant in 1954. The difference in the success of the transplant in the East Block as compared to the West Block can be attributed to habitat conditions which are much more favorable in the former. Considerable good habitat for beaver remains unoccupied in the East Block.

Summary:

1. An aerial survey of the Fort Rae Beaver Transplant area was carried out on September 29 and 30, 1964.
2. The survey consisted of: I - Reconnaissance of all 21 lakes into which beaver had been stocked in 1954 and II - More intensive

examination of the part of the Transplant Area east and south of Russell Lake, referred to here as the East Block.

3. Results show that in spite of a closed season since 1954 the beaver population in the part of the transplant area west and north of Russell Lake referred to here as the West Block has not increased. Probably the main reason for their failure to increase is the generally poor conditions of the area as beaver habitat.
4. Beaver have become established in the East Block and occupied many new sites within the block. However, relative to other good beaver areas in the Mackenzie District the population density in the East Block is still low and much potential habitat remains unoccupied.

Recommendations:

1. Because little more improvement in beaver numbers is anticipated in that part of the Transplant Area north and west of Russell Lake even under a closed season, it is recommended that such area be opened to beaver trapping under the N.W.T. Game Regulations.
2. It is recommended that protection of beaver continue until 1970 in the portion of the Fort Rae Beaver Transplant area south and east of Russell Lake, that area having the following boundaries (Map I):
"Commencing at a point on the northerly bank of Great Slave Lake at longitude 115°; then northwesterly along the northerly bank of Great Slave Lake to the narrows between Varian Lake and Russell Lake; thence northeasterly following the east shore of Russell Lake to the Wecho River; thence following the left bank of Wecho River and the south shore of Mosher Lake to latitude 63° 10'; thence due east to longitude 115°; thence southerly on a straight line to the point of commencement."

3. It is recommended that in 1970 an aerial survey similar to the 1964 survey be carried out in the East Block conducted by a Game Management Officer with consultation from a Canadian Wildlife Service Management Biologist.

J. R. Hook
for

E. Kuyt
Wildlife Biologist
October 6, 1964

TABLE I - Comparison of results of surveys of Fort Rae Beaver Transplant area
1955(Fuller), 1957(Novakowski), 1964(Kuyt)

Transplant Lake	1955	1957	1964	Remarks
1*	not occupied	possible	not occupied	No beaver transplanted here in 1954.
2	occupied	not occupied	not occupied	Small lodge occupied in 1960 has disappeared.
3	occupied	occupied	not occupied	Old lodge seen here in 1960.
4	doubtful	not occupied	not occupied	fair habitat.
5	doubtful	possible	not occupied	fair habitat.
6	occupied	possible	occupied	No sign on Stag Lake itself (#6), but 2 feedbeds, 1 lodge within 2 miles of S. W. tip of #6.
7	occupied	not occupied	occupied	Between #7-and #9 high water (creek dammed?). Also fresh lodge and feedbed.
8	not occupied	not occupied	occupied	1 mile W. of #8, cuttings and 2 lodges (one old, one fresh), water backed into trees everywhere - good habitat.
9	not occupied	not occupied	occupied	lodge, feedbed, 1 mile W. of #10 along creek, good habitat.
10	not occupied	not occupied	occupied	feedbed 1 mile N. E. of #10 good habitat.
11	not occupied	possible	not occupied	
12	occupied	not occupied	not occupied	
13	doubtful	possible	occupied	large lake, sign seen next day, just off N. and (lodge and feedbed) good habitat.
14	occupied	not occupied	occupied	feedbed in creek just 1 mile N. E. of #14.
15*	not occupied	possible	not occupied	No beaver stocked here in 1954 - good habitat.
16	not occupied	occupied	not occupied	Rocky shore, good stands of birch, marginal habitat.
17	occupied	not occupied	occupied	$\frac{1}{2}$ mile off N. W. tip of lake, active colony (feedbed). Old cuttings on lake #17.
18*	not occupied	not occupied	occupied	No beaver stocked here in 1954. 2 miles S. E. of #18, 2 active colonies. Saw 3 dams, 1 lodge, 2 feedbeds in small creek. Creek just outside transplant area.