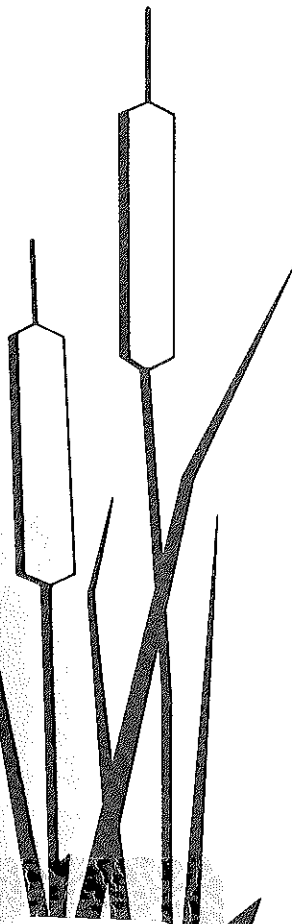


RESULTS OF FALL GROUND COUNTS OF
MUSKRAT HOUSES IN THE PEACE-
ATHABASCA DELTA, 1975

A.R. Smith

~~NATURAL RESOURCE
CONSERVATION
PRAIRIE AND NORTHERN REGION~~

May 1976



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CANADIAN WILDLIFE SERVICE



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Canadian Wildlife Service Service canadien de la faune

Dr. S.B. Smith
Research Secretariat
4th Floor
Melton Building
10310 - Jasper Avenue
Edmonton, Alberta


Dear Dr. Smith:

Re: Letter of transmittal

This report, entitled "Results of Fall Ground Counts of Muskrat Houses in the Peace-Athabasca Delta" documents the 1975 autumn surveys carried out by the Canadian Wildlife Service under the Peace-Athabasca Delta Monitoring Program.

The 1976 spring census results will be reported with the 1976 fall counts, a pattern to be repeated during the duration of the program.

Yours sincerely,


W.J.D. Stephen
Regional Director

Encl.

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1110 - 10025 Jasper Avenue
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May 17, 1976

NATURAL RESOURCE
CONSERVATION
PRAIRIE AND NORTHERN REGION

RESULTS OF FALL GROUND COUNTS OF
MUSKRAT HOUSES IN THE PEACE-
ATHABASCA DELTA, 1975

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These studies were carried out as part of the Peace-Athabasca Delta Monitoring Program. This program was designed to describe the environmental changes taking place in the Delta due to water level regulation caused by the Bennett Dam operation, and the presence of the Rochers Weir.

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1. INTRODUCTION

In the early winter of 1975-76, the third annual ground count of muskrat houses was conducted in the Peace-Athabasca Delta. The purpose of these surveys is not to obtain an absolute population estimate, but to monitor any trends in the muskrat population as indicated by house counts. These and future surveys will also indicate how muskrat populations respond to factors such as the altered water regime in the Delta, climatic conditions, and trapping intensity.

2. METHODS

The field crew consisted of five trappers from Fort Chipewyan. Each trapper covered a designated sample of lakes in the vicinity of his own trapline, and was familiar with the location of houses and the quickest routes to take between survey areas. A total of 57 lakes were surveyed (Figure 1). Survey areas were selected to represent the entire range of possible muskrat habitats e.g. old channels or sloughs, meander scrolls, large open lakes, flooded meadows or "prairies" and precambrian lakes. To accomplish this 21 additional lakes were added to the 36 surveyed in 1974. While it would have been desirable to have extended coverage to the outlying areas of the Delta, it was felt that the time lost in travelling to far reaches such as the Sweetgrass Meadows and Welstead Lake areas could be better utilized in more intensively surveying those areas within a reasonable travelling distance (i.e. 20 miles) of Fort Chipewyan. All possible habitat types are represented within this range; therefore, any population trends indicated here will be applicable to the Delta as a whole. It should be noted also that year to year coverage is not consistent on certain lakes because of problems with overflow and thin ice.

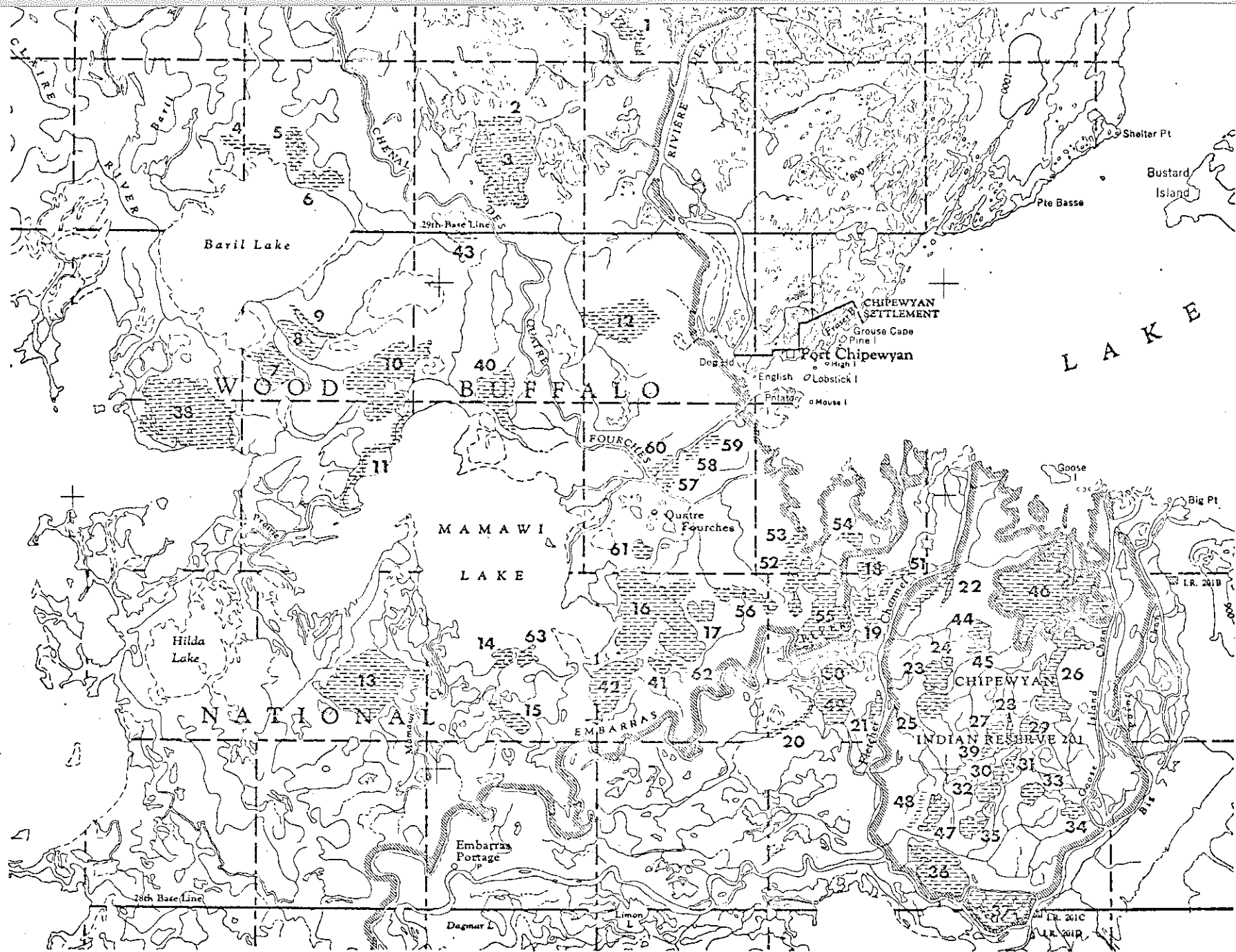


Figure 1. Location of areas covered by fall muskrat counts, 1973-1975 inclusive.

3. RESULTS

Only those lakes surveyed in all three years were used in comparing total house counts by year and jurisdiction (Table 1). On this basis the overall population trend in the delta has been a modest increase (15%) over the previous year (1974). On a jurisdictional basis all of this increase occurred in the Chipewyan Reserve 201, where an increase of 48% more than offset slight population decreases (6% and 2% respectively) in Wood Buffalo National Park and the Alberta area. Aside from the differences in geographical distribution of houses relative to habitat type or hydrologic basin, no other muskrat population trends are apparent from the results (Table 2).

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Table 1. Total Number of Muskrat Houses Recorded by Jurisdiction in the Peace-Athasbasca Delta; Ground Counts 1973-1975 Inclusive.*

	S	1973	% change	1974	% change	1975
W.B.N.P.	14	1352	+4	1401	-6	1315
Alberta	3	266	+61	369	-2	361
Chip. Res.	14	1510	-25	1133	+48	1679
Total	31	3128	-7	2903	+16	3355

*Only those lakes censused all three years are included in this table.

Table 2. Number of Muskrat Houses Recorded on Selected Lakes in the Peace-Athabasca Delta Ground Counts 1973-75 inclusive.

* LAKE NUMBER	Year			LAKE NUMBER	Year		
	1973	1974	1975		1973	1974	1975
<u>WOOD BUFFALO NATIONAL PARK</u>				<u>ALBERTA PORTION</u>			
1	56	-	-	18	5	81	60 ✓
2	71	-	-	19	0	123	116 ✓
3	157	161	312	20	5	-	63
4	24	41	6	21	1	165	185 ✓
5	52	237	167	49	-	-	85
6	83	51	83	50	-	-	37
7	66	96	64	51	-	-	241
8	154	113	8				
9	43	91	86				
10	76	165	234				
11	46	22	-				
12	20	-	-	22	40	115	92
13	185	52	54	23	36	84	263 ✓
14	35	31	29	24	41	38	79
15	34	47	32	25	57	26	57
16	26	159	74	26	264	175	284 ✓
17	43	48	75	27	76	54	15
38	174	109	91	28	60	69	71
40	-	53	297	29	82	65	120 ✓
41	-	18	29	30	74	48	65
42	-	24	10	31	62	51	42
43	-	60	23	32	109	94	152
52	-	-	110	33	44	-	-
53	-	-	64	34	68	-	-
54	-	-	216	35	116	53	35
55	-	-	134	36	278	57	190
56	-	-	53	37	215	204	214
57	-	-	138	39	-	26	17
58	-	-	90	44	-	-	23
59	-	-	20	45	-	-	138
60	-	-	105	46	-	-	34
61	-	-	46	47	-	-	221
62	-	-	12	48	-	-	157
63	-	-	5				
<u>CHIPEWYAN RESERVE</u>							

* See Figure 1.

4. SUMMARY AND CONCLUSIONS

A ground count of 3355 muskrat houses was conducted in the Peace-Athabasca Delta in the fall of 1975. This represents a modest increase in the number of muskrat houses counted in 1974. All of this increase occurred in the Chipewyan Indian Reserve while slight decreases occurred in the National Park and Alberta portions of the Delta. Three years of continuous coverage suggest that populations in the National Park and Alberta are stabilizing while those in the Reserve are recovering from a low in 1974. This stabilization probably reflects the long-term normalization of water levels in the Peace-Athabasca Delta. The low muskrat house count in the Reserve in 1974 is likely a reflection of flood conditions over this area.

2 yrs to long term !!