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AERIAL GAME SURVEY

RIDING MOUNTAIN NATIONAL PARK

January, 1969

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Canadian Wildlife Service
Edmonton, Alberta

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INTRODUCTION

Since 1950 aerial surveys of Riding Mountain National Park have been conducted at intervals of from 1 to 3 years. The last survey was carried out in February of 1966. These surveys have served to facilitate the study of fluctuations in the ungulate population of the Park.

METHODS

Procedures followed in 1969 were the same as those in 1966 and 1963. A Cessna 172 was hired from Maple Leaf Aviation in Brandon, Manitoba at a rate of \$29.00 an hour. The aircraft was piloted by Mr. Terry Lamb. This pilot has had considerable experience flying this type of survey.

The author was observer in the right rear seat and Mr. G. Bergeson, a Warden at Riding Mountain was the observer in the left rear seat. The pilot did not do any counting. Wardens, D. Andrews, E. Stuart, D. Dupleton and C. Kilmaster acted in turn as navigators. Tape markers were placed on the windows and wing struts at an angle of 59° from the vertical. At a height of 400 feet above the ground this framed a strip 1/3 mile wide on each side of the aircraft. Transects which were flown in a north-south direction were spaced at intervals of one mile. The airspeed flown was 75 m.p.h. Daily survey conditions are given in Table 1.

Total flying time which includes ferry time was approximately

32 hours. The cost of the survey was \$947.28. To determine the distribution of ungulates, animals counted were plotted on a 1 inch to 3 mile maps of the park.

Table 1.

<u>Date</u>	<u>Time on transects</u>	<u>Transects flown</u>	<u>Temp.</u>	<u>Sky</u>	<u>Snow cover</u>
Jan. 9	1:30-4:30	1-9a	-12°F	Clear	12-15"
Jan. 10	10:10-12:10	10-12a	-37°F	Clear	"
Jan. 10	2:00-4:30	14-15a	-30°F	Clear	"
Jan. 11	9:30-11:45	16-20a	-30°F	Clear	"
Jan. 11	1:15-3:55	21-24a	-25°F	Clear	"
Jan. 16	9:55-11:15	25-27a	+15°F	Overcast	"
Jan. 16	1:05-4:30	28-30a	+18°F	Overcast	"
Jan. 17	9:40-11:10	31-34	-10°F	Clear	"

RESULTS

Numbers of elk, moose and deer observed per transect are given in Appendix 1. Comparisons with previous surveys are made in Tables 2 and 3. Distribution of observed ungulates is shown on Maps 1 and 2.

Elk:

The estimate from this survey of the number of elk is 113% higher than the estimate after the survey of 1966. This an increment of approximately 29% for each of the three intervening years.

Moose:

The present estimate of 2268 is only slightly less than a 100 percent increase over the estimate in 1966. This is an annual increment of approximately 27 percent. As was noted in 1966 there seems to be a continuing shift in the moose population from the east side. It was noted that a large percentage of the moose were still bearing antlers. At the same time in Elk Island Park the majority of adult males had shed their antlers.

Deer:

The increment in the deer population was negligible only 0.25%. As in other years the deer were distributed around the edge of the park. The only deer identified to species were white-tailed deer.

Predators:

Five wolves were seen, three north of White Water Lake, one west of Lake Audy and one along the north boundary near the Dauphin Warden Station.

Table 2. Population estimate comparisons, February 1963, February 1966, and January 1969

<u>Species</u>	<u>Population estimates</u>			<u>Densities per sq. mile</u>		
	<u>1963</u>	<u>1966</u>	<u>1969</u>	<u>1963</u>	<u>1966</u>	<u>1969</u>
Elk	2004	2364	5044	1.7	2.1	4.5
Moose	933	1140	2268	0.8	1.0	2.0
Deer	146	340	348	0.1	0.3	0.3

Table 3. Comparative aerial survey statistics
Riding Mountain National Park 1950-1969

Date	Hours flying	No. of transects	Aircraft height	Angle of sight	Total strip width	Percent coverage	Elk population estimate
Mar./50	25	31	100'	84°	.40 mi.	18.5	4660
Feb./51	12½	31	100'	84°	.40	18.5	4636
Mar./52	15	32	75-100'	84°	.40	19.2	4652
Mar./53	15	32	100'	84°	.40	19.2	2460
Mar./55	8	16	200'	73°	.25	6.2	1132
Mar./56	8	16	?	?	.25	6.2	5293
Mar./57	8	16	?	?	.25	6.2	2504
Feb./58	15+	23	400	59°	.25	12.4	2653
Nov./59	15+	35	400	59°	.25	12.4	4840
Feb./63	25	67	400	59°	.25	24.0	2004
Feb./66	27	67	400	59°	.25	25.0	2364
Jan./69	32	67	400	59°	.25	25.0	5044

SUMMARY

An aerial survey of Riding Mountain National Park was carried out in January of 1969. This survey sampled 25% of the park. It is believed that very few of the animals on the transects were missed and that the population estimates are as accurate as this method of sampling permits.

Appendix 1.

<u>Transect Number</u>	<u>Square Miles</u>	<u>Elk</u>	<u>Elk per Sq. Mi.</u>	<u>Moose</u>	<u>Moose per Sq. Mi.</u>	<u>Deer</u>	<u>Deer per Sq. Mi.</u>
1	2.25	5	2.2	1	.4	1	.4
1a	2.25	5	2.2	4	1.8		
2	2.25	1	.4	3	1.3		
2a	2.25	2	.9	5	2.3		
3	2.25	6	2.7	3	1.3		
3a	2.25	10	4.4	4	1.8		
4	2.25	6	2.7	8	3.6		
4a	2.25	19	8.4	9	4.0	5	2.2
5	2.25	6	2.7	2	.9		
5a	2.25	10	4.4	3	1.3		
6	2.25	32	14.2	7	3.1		
6a	2.25	8	3.5	7	3.1		
7	2.25	7	3.1	5	2.3	2	.9
7a	2.25	7	3.1	3	1.3		
8	2.25	20	8.8	12	5.2		
8a	2.25	9	4.0	2	.9		
9	2.50	17	6.8	5	2.0	3	1.2
9a	3.50	8	2.28	7	2.0	2	.6
10	4.25	12	2.8	3	.7		
10a	4.25	23	5.4	10	2.4	2	.5
11	4.25	24	5.6	4	.9		

Cont...

<u>Transect Number</u>	<u>Square Miles</u>	<u>Elk</u>	<u>Elk per Sq. Mi.</u>	<u>Moose</u>	<u>Moose per Sq. Mi.</u>	<u>Deer</u>	<u>Deer per Square Mi.</u>
11a	4.25	28	6.6	3	.7		
12	4.12	39	9.5	7	1.7	3	.7
12a	4.37	28	6.4	8	1.8	3	.7
13	4.75	12	2.5	13	2.7	5	1.0
13a	4.75	37	7.8	13	2.7	2	.4
14	4.75	56	11.8	3	.6	3	.6
14a	4.75	53	11.2	10	2.1		
15	4.75	24	5.0	16	3.4	4	.8
15a	4.75	20	4.2	4	.8		
16	5.12	12	2.3	4	.8		
16a	5.06	38	7.5	13	2.6	8	1.6
17	5.19	11	2.1	7	1.34	8	1.5
17a	4.81	8	1.7	32	6.7		
18	4.69	38	8.1	8	1.7	3	.6
18a	4.75	95	20.0	6	1.3		
19	4.50	76	16.8	10	2.2	2	.4
19a	4.56	22	4.8	5	1.1		
20	4.75	42	8.8	4	.8	9	1.9
20a	5.00	43	8.6	5	1.0	6	1.2
21	5.25	44	8.4	5	.95		
21a	5.19	30	5.7	7	1.3		
22	5.25	6	1.1	17	3.2		
22a	5.50	10	1.8	16	2.9	2	.4
23	6.00	15	2.5	12	2.0	1	.16
23a	6.06	6	1.0	11	1.8		
24	6.12	15	2.5	6	1.0		
24a	6.25	16	2.6	17	2.7	3	.5

<u>Transect Number</u>	<u>Square Miles</u>	<u>Elk</u>	<u>Elk per Sq. Mi.</u>	<u>Moose</u>	<u>Moose per Sq. Mi.</u>	<u>Deer</u>	<u>Deer per Sq. Mi.</u>
25	5.81	11	1.9	11	1.9		
25a	5.50	15	2.7	14	2.5		
26	5.50	7	1.3	18	3.3		
26a	5.44	25	4.6	20	3.7		
27	4.94	5	1.0	5	1.0		
27a	5.00	13	2.6	8	1.6	1	.2
28	5.12	3	.6	5	.95	3	.6
28a	5.12	16	3.1	12	2.3	2	.4
29	5.06	8	1.6	19	3.7		
29a	5.0	5	1	21	4.2		
30	5.25	8	1.5	6	1.1		
30a	5.25	3	.6	4	.75		
31	5.69	20	3.5	10	1.7		
31a	5.62	23	4.1	9	1.6		
32	5.24	11	2.1	17	3.2	2	.4
32a	5.12	12	2.3	7	1.4		
33	5.0	18	3.6	9	1.8		
33a	2.66	7	2.6	3	1.1	2	.75
34	.70						

RIDING MOUNTAIN NATIONAL PARK
Distribution of 567 moose and 87 deer
observed from Jan. 9 to 17, 1969
each dot represents one moose,
each cross represents one deer



RIDING MOUNTAIN NATIONAL PARK

Distribution of 1261 elk observed from
Jan. 9 to 17, 1969. Each dot represents
one elk

