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AERIAL AND GROUND SURVEY OF WILDLIFE

RIDING MOUNTAIN NATIONAL PARK

February 1951.

Chad
CWS-12,51

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AERIAL AND GROUND SURVEYS OF WILDLIFE

RIDING MOUNTAIN NATIONAL PARK - FEBRUARY 1951

Introduction

This report is based on surveys carried out in Riding Mountain National Park during the period December 16, 1950 to February 26, 1951.

Three aerial trips to the east side of the Park area were made on December 16, 1950; January 6 and 7, and January 20 and 21, 1951. The purpose of these trips was to obtain some idea of the status of the elk which inhabit that portion of the Park east of Number 10 highway, and to gather data relating to the damage to agricultural crops by elk during the winter period.

The period February 8 to 11, 1951, was spent on ground studies in the Park, using a bombardier and driver loaned by the Manitoba Game and Fisheries Branch. In addition, two other short periods were spent in the Park, January 3 to 5 and January 25 to 29, 1951. These trips were made for other purposes but information concerning elk was noted as and when available.

The aerial survey of wildlife in the Park, which was carried out for the first time in March 1950, was repeated during the week February 19 to 26, 1951. The Royal Canadian Air Force, Rivers, Manitoba, again placed an Auster aircraft and crew at the writer's disposal. The airport at Dauphin, Manitoba, was used as a base, and transects were flown over the Park area starting at the western end and progressing eastwards.

The main purpose of these surveys was to ascertain, as accurately as possible, the status of the 1950 - 51 elk population in Riding Mountain National Park. It is possible this year to compare the results of two aerial surveys conducted approximately eleven months apart.

Each species noted during the surveys will be dealt with under the species heading.

The data obtained during the February 19th to 26th aerial survey is shown in Table 1. Table 2 gives a summary of the Wardens' and Patrolmens' diaries for the months of November and December 1950, and January 1951 as compared with the corresponding months of the previous year. Information obtained during the three aerial trips to the east side of the Park was submitted to Head Office in my memoranda dated December 21, 1950, January 10 and 22, 1951, and will be mentioned in this report as and where required. Data gathered on all other trips to Riding Mountain National Park will also be mentioned in the appropriate place.

DATA OBTAINED ON THIRTY-ONE COMPLETED TRANSECTS
RIDING MOUNTAIN NATIONAL PARK - FEBRUARY 1951.

Transect No.	Lineal Miles	Square Miles Sampled	With Antlers	Without Antlers	Unidentified	TOTAL ELK	Elk per sq. mile	Deer	Moose	Coyote	Wolf
1.	18	3.6	-	2	1	3	0.8	-	-	-	-
2.	18	3.6	-	2	-	2	0.5	-	-	1	-
3.	18	3.6	2	2	2	6	1.6	-	-	-	-
4.	18	3.6	-	-	16	16	4.4	-	5	-	-
5.	18	3.6	4	-	35	39	10.8	-	-	-	-
6.	18	3.6	2	-	5	7	1.9	2	-	-	-
7.	18	3.6	-	1	29	30	8.3	1	-	-	-
8.	18	3.6	-	16	51	67	18.6	-	-	-	-
9.	22	4.4	-	-	18	18	4.0	6	-	-	-
10.	34	6.8	4	2	17	23	3.3	6	-	-	-
11.	34	6.8	6	2	22	30	4.4	-	3	1	-
12.	34	6.8	3	4	21	28	4.1	-	2	-	-
13.	38	7.6	6	-	23	29	3.8	7	1	-	-
14.	38	7.6	4	2	32	38	5.0	-	5	-	1 fox
15.	38	7.6	3	1	33	37	4.8	-	-	-	-
16.	44	8.8	1	23	57	81	9.2	-	2	1	-
17.	43	8.6	1	3	18	22	2.5	3	-	2	-
18.	40	8.0	1	-	35	36	4.5	-	3	-	-
19.	36	7.3	-	-	27	27	3.4	-	2	1	-
20.	38	7.6	-	-	18	18	2.3	-	1	2	-
21.	42	8.4	-	6	28	34	4.4	2	1	1	-
22.	42	8.4	1	-	15	16	1.8	-	4	3	-
23.	48	9.7	-	-	24	24	2.4	-	2	1	-
24.	50	10.0	-	5	28	33	3.3	5	3	-	-
25.	50	10.0	-	-	20	20	2.0	-	1	1	-
26.	46	9.3	-	-	60	60	6.4	-	3	-	-
27.	41	8.2	2	3	29	34	4.1	-	3	-	-
28.	42	8.4	2	-	25	27	3.2	5	5	2	-
29.	41	8.2	2	-	18	20	2.4	-	1	-	-
30.	45	9.0	4	7	26	37	4.1	1	-	-	-
31.	46	9.3	-	4	18	22	2.3	-	1	-	-
TOTALS:	1076	215.6	48	85	751	884	4.1	38	48	16	-

Summary of Wardens' and Patrolmens' Diaries -

November and December 1949 and 1950 and
January 1950 and 1951.

<u>November 1950</u>			<u>November 1949</u>		
	3931	-	elk	5200	SV-5
	16	-	moose	6	210
16 Diaries	214	-	deer	190	10
	47	-	coyote	30	50
	9	-	wolf	nil	10
					nil
<u>December 1950</u>			<u>December 1949</u>		
	2380	-	elk	5848	SV
	10	-	moose	8	568
16 Diaries	76	-	deer	94	3
	25	-	coyote	50	46
	6	-	wolf	12	6
					3
<u>January 1951</u>			<u>January 1950</u>		
	2456	-	elk	3720	SV
	7	-	moose	14	728
8 Diaries	14	-	deer	78	7
	13	-	coyote	40	34
	2	-	wolf	nil	5
					7

It will be noted that there is considerable variation between the numbers of all species reported in 1949 - 50 and 51 by Wardens and Patrolmen. I do not feel that there is any significance to the total figure of each species recorded by the Park staff for the following reasons:

1. The same animals may be observed several times during the month and added to produce a total number of elk, or other species observed.
2. Animals may be grouped on optimum range or may be scattered over the general area depending on winter conditions.
3. All parts of each district are not observed each month, nor is the same part necessarily visited each month.
4. The value of these observations decreases as conditions which make travel difficult or impossible increase in winter months.

ELK

The 1951 aerial survey of elk in Riding Mountain National Park was conducted in exactly the same manner as the 1950 survey, except that it was possible to observe from both sides of the aircraft on each transect, with one continuous flight. This was made possible by rearranging the rear seat in the R.C.A.F. Auster so that the pilot covered the left side and the observer the right side. This change enabled us to cut the time required on the complete coverage in half, and it also did away with any possibility of overlap when flying north and south on the same line.

The transects (1-31) covered in 1951 are exactly the same as those covered in 1950, as shown on the map of Riding Mountain Park attached to the March 1950 report.

A comparison of Table 1 in my March 1950 report with Table 1 in this report will show that total elk observed in the 1950 aerial survey was 886 as against 884 in 1951. The estimated February 1951 population of elk in Riding Mountain National Park is therefore the same as the March 1950 population. I was very surprised at this result since an increase in the herd is normally expected. There are, however, several factors which will explain this loss of population. The Manitoba Game and Fisheries opened a special season on elk outside the Park area. This was done to combat damage by elk to agricultural crops around Riding Mountain Park. An estimated total of 1,500 licences were sold for this purpose and the estimated kill was about five hundred animals of all sexes and ages. The precise figures on number of licences issued and reported kill will not be available for several months. In addition to this estimated legal kill there appeared to be a sizeable illegal kill, inside as well as outside the Park area. I believe that these two factors alone would account for the lack of the normal herd increase which I expected to find.

I do not believe that this special open season on elk outside the Park has hurt the Riding Mountain elk herd in any way. I feel this reduction is good for the herd and I would like to see the Manitoba Game and Fisheries Branch encouraged to make it an annual open season.

Figure 1 shows the distribution of elk, in elk per square mile, over the Park area as observed during the February aerial survey. This distribution is compared with similar data obtained in March 1950. The average number of elk per square mile for the total area covered is also shown - i.e. 4.1 elk per square mile in 1950 and 1951. It must be remembered that this graph does not show the areas in the Park where the greatest number of elk are to be located. It does, however, point out the areas of preferred elk winter range which are heavily utilized.

During all surveys 584 adult elk were sexed. These animals were observed in small tight groups, or in fairly large scattered herds. The breakdown of this figure was 137 males to 447 females, a sex ratio of 1: 3.2. I am not satisfied that this ratio is a reliable indication of the proportion of males to females in the herd, due to the tendency of each sex to herd together. In Riding Mountain Park it is quite usual to see nothing but cow elk for a considerable period, and then to come upon a congregation of bulls. Several very small calves were seen during January and February, which might be an indication that the proportion of bulls to cows is out of kilter. There is not enough data available regarding this matter.

It was particularly noticeable this year that all elk observed were in excellent physical condition. This can be attributed to the lack of very deep snow and extreme cold on the winter range. The animals were able to obtain all the required food with little effort during the winter of 1950 and 1951.

It was also noted during the February ground survey by bombardier that most of the adult cows observed appeared to be pregnant. Because the gestation period had proceeded only for a maximum of four months, I did not feel that the size of a cow alone was positive evidence of pregnancy, and I did not therefore keep close records in that regard. I do feel justified in saying that it seems quite reasonable to expect a good calf crop this spring.

One adult bull elk was observed with a badly broken right back leg. The animal did not allow any more than

sufficient time to establish the fact that its leg was broken before it struck off through heavy coniferous forest. It was not possible to ascertain the cause of the broken leg, but it was felt that it could have been the result of a brush with a poacher's rifle.

During the February 8 - 11, 1951, bombardier trip some 400 miles were travelled in the Park. The following areas were visited with particular attention devoted to the availability of food and utilization.

1. Lake Audy Road.
2. Whitewater Lake Road.
3. Gunn Lake Road.
4. Birdtail Valley.
5. Old Gunn Lake road to Grandview Warden cabin.
6. Molton meadow - Long Lake area.
7. Grasshopper Valley.
8. Strathclair Road.
9. Kennice Meadows
10. Moon - Edwards Lake area.
11. Elk Lake area.
12. Old McCreary trail - Cowan Lake area.
13. Whirlpool Lake area.
14. Ochre River basin area.
15. Rolling River area.

Many large areas were observed in which there had, in past year, been heavy utilization of browse species. Some stands had been killed completely, but in general, most species are showing a satisfactory comeback. These

areas where old overbrowsing was evident were not inhabited by any sizeable number of elk, nor did they show signs of recent use. Areas in this category included parts of the Audy, Whitewater and Gunn Lake Roads, Bird-tail Valley, Molton Meadow, Old McCreary trail and Grass-hopper Valley.

Most of the large meadow areas showed recent utilization but it did not appear excessively heavy. Animals were obviously obtaining sufficient food by pawing through the comparatively light snow cover.

I gained the general impression during all of my trips that the winter range is at present holding its own against the existing elk herd. If given better odds, by some herd reduction, I feel that there should be little or no future trouble through lack of winter range.

Figure 2 shows a typical example of a browse species killed by over use during the extreme conditions in 1946 and 1947. This photograph was taken along the Old McCreary trail which is one of the areas showing heavy past use. The species involved most frequently in this general area is the willow, an example of which is shown. Figure 3 shows a close-up view of old wounds to poplar caused by chawing in the 1946 - 47 starvation period. This type of scar is common in many areas where heavy overbrowsing has occurred in the past. The example shown in the photograph is located in the same area mentioned with regard to figure 2. It should be noted in this same photograph that there are browse killed willow present, but that the hazel has been lightly used. Figure 4 is a photograph of the general area in which figures 2 and 3 were photographed. Figures 5 and 6 show examples of areas which were being heavily used by elk. These areas were along the Whitewater Lake road. The animals had obtained food by pawing and there was little evidence in the area of browsing.

I am still surprised to learn that there is a considerable amount of hay cut in areas which are the finest elk range in the Park. The tonnage removed appears to have dropped considerably in the last few years, but

it is still a serious problem. I believe that in three of the better districts in the western part of the Park some 1,500 tons of hay were cut during 1950. This amount would support a fair number of elk throughout the critical period, and it would relieve a great deal of the pressure on browse species.

In these same three districts, I believe that some 700 cattle and horses were grazed during some period of the summer of 1950. I do not feel that this competition is serious since summer elk range is not so limited in extent as winter range. I do feel, however, that this practice should be carefully watched.

*Some people
regard this
as a serious
problem.*

It should be decided as soon as possible whether the greatest need is for this hay cutting or for elk. The two interests should not be competing for food during critical periods. So far as the general Park area is concerned I am convinced that there would be significant improvement in existing range if the elk herd were reduced to compensate for the hay removal, or if the hay cutting were stopped to provide food for elk.

The three aerial trips to the eastern part of Riding Mountain Park, to ascertain the threat to agricultural interest around the Park area, were discussed in memoranda submitted to Head Office after each flight. It was hoped that a final flight could be made over the same area during the latter part of March, but weather and ground conditions were not favourable.

There was no large exodus of elk from the Park area during the winter of 1950 - 51. At no time during the critical season did there appear to be more than 300 animals in the agricultural area, as compared with 1500 to 2,000 in 1949 - 50. Damage to hay stacks was light, due no doubt to the open season on elk declared by the Manitoba Game and Fisheries Branch and the fact that there was little cause for a large movement. As mentioned before, snow cover was light and there were no extended periods of extreme cold.

SUMMARY:

The Riding Mountain elk herd does not appear to have increased during the past year. This is accounted for by the open season declared by the Manitoba Game and Fisheries Branch and the illegal kill by poachers. Elk were found to be scattered more than they were in 1950, due to light snow conditions. All elk observed appeared in good physical condition. A good calf crop is anticipated.

The elk range shows fair recovery from the destructive grazing and browsing of several years ago. Hay cutting is carried out and the amount is considered detrimental to the elk herd. Cattle and horses are grazed in summer but this practice is not considered too serious.

Agricultural damage by elk was very light this year, due to light snow, no extended cold periods and the open season on elk.

RECOMMENDATIONS:

1. That the elk herd in Riding Mountain Park be reduced annually by 1000 adult animals of both sexes, to ensure recovery of food species and to reduce the possibility of agricultural damage. This may be accomplished by means of slaughter of small groups throughout the year in such places as the Lake Audy enclosure and by cooperation with the Manitoba Game and Fisheries Branch in the continuance of annual open seasons outside the Park area. It may be possible to drive or lure animals out of the Park for the latter purpose. I believe that this reduction is necessary in order to maintain a virile, self-supporting herd of elk in Riding Mountain Park.

2. That the practice of cutting hay be considered as carefully as possible in the following light: that if hay cutting by private individuals is essential to the economy of those individuals, the elk herd should be reduced by an additional amount to that mentioned under Recommendation 1; this reduction to take place in those areas where the hay is cut, to relieve pressure on the food species in those areas and prevent possible future destruction of the range.

If hay cutting by private individuals can be abolished, or reduced in quantity, hay could be cut and stacked by the Park for use by elk during the winter period.

WOLVES

During all trips to Riding Mountain National Park three sight records of wolves were noted as follows:

1. January 20, 1951 - Four wolves seen from the air on a small lake in the southeastern part of the Park. The approximate location of this lake was one mile south of Helen Lake in Township 18, Range 16, West of the Principal Meridian.
2. January 28, 1951 - One large grey wolf seen on Number 10 Highway, about one mile west of the golf course.
3. February 8, 1951 - Four wolves seen on the ice of Whitewater Lake during the bombardier trip.

In addition, tracks of wolves were observed as follows:

1. Tracks of four wolves on Lake Audy road west of Lake Audy. These may have been made by the four wolves seen on Whitewater Lake later on the same date - February 8, 1951.
2. Track of one wolf west of Whitewater Lake. This may have been made by one of the four wolves flushed from Whitewater Lake on the same date - February 8, 1951.
3. February 11, 1951 - Tracks of nine wolves were seen on the snow covering Whirlpool Lake. These animals had crossed the lake as a group about one day before our observation.
4. A member of the Park staff reported seeing four wolves cross the Norgate Road during the week February 4 - 10, 1951. This group could be part of the larger group whose tracks we observed on Whirlpool Lake.

No wolves were seen during the February aerial survey.

During the 1950-51 winter period at least six wolves were shot in the following areas:

1. Grandview area.
2. Gilbert Plains area.
3. Kelwood area.
4. Angusville area.
5. Whitewater Lake area.

Two of these wolves were shot from the group of four seen on or near Whitewater Lake on February 8, 1951, by the Park staff. One of the animals was a large black dog, the other a grey-white bitch. Both were in excellent condition, internally and externally. Both animals measured between six and seven feet from tip of nose to tip of tail. The dog's weight was estimated at nearly one hundred pounds, and the bitch at about eighty pounds. The stomach of each animal was filled with a mass of elk hair, bits of hide, meat and bone.

I therefore have seen nine wolves and the tracks of fourteen others. Allowing for duplication and removing the two that were shot, I would guess that I have seen the signs of about fifteen wolves.

I believe that the 1951 wolf population of Riding Mountain Park has changed very little from the 1950 population. My estimate of the number of wolves in the Park is about twenty-five animals. There is no evidence that these wolves are detrimental, in their present numbers, to other animals within the Park.

RECOMMENDATIONS:

1. That the warden staff be authorized to shoot not more than five (5) wolves during 1951-52 winter season. This measure should be sufficient to deter a rapid increase of the wolves in the Park.
2. That information regarding place, date, sex, size, condition, etc., be recorded on each animal shot and that this data be forwarded as soon as obtained to the appropriate officer of this Service.

COYOTES

These animals are reasonably abundant throughout the Park area. Scarcely a day goes by without observing one or more coyotes, and their tracks can be seen at all times.

Three coyotes were shot during the bombardier trip on February 8 to 11, 1951. They were fat and in excellent condition. Stomach examination yielded quantities of elk hair, meat and bone.

During all ground trips, I saw a total of fourteen coyotes. As shown in Table 1, a total of sixteen coyotes were observed during the February aerial survey. In March 1950, a total of twelve coyotes were counted from the air. Since so few of these animals are usually observed from the air, I do not believe that the difference in number is significant.

There does not appear to be any definite indication that coyotes have either increased or decreased in Riding Mountain Park during the past year. There is definitely no indication that they are detrimental at present to other animals in the Park.

I believe that the 1950 estimate of "several hundred" coyotes in Riding Mountain Park is still fairly accurate.

RECOMMENDATIONS:

1. That the warden staff be authorized to shoot not more than fifty (50) coyotes during the 1951-52 winter season. This measure should be sufficient to deter a rapid increase of the coyotes in the Park.

2. That information regarding place, date, sex, size, condition, etc., be recorded on each animal shot and that this data be forwarded as soon as obtained to the appropriate officer of this Service.

OTHER SPECIES

Deer

Thirty-eight deer were observed during the February 1951 aerial survey, compared to twenty-two in 1950. I feel that this is a significant increase in the census count, and I feel sure that the deer population has increased nicely during the past year.

All animals seen appeared in excellent physical condition.

Moose

Forty-eight moose were observed during the February 1951 aerial survey, compared to forty-six in 1950. Since this species tends to inhabit areas covered with dense coniferous growth, I do not feel that moose can be censused with any degree of accuracy, with our present aerial survey methods. I do not think, however, that there has been any significant increase or decrease in the moose population of Riding Mountain Park.

All animals seen appeared in excellent physical condition.

ELK PER SQUARE MILE.

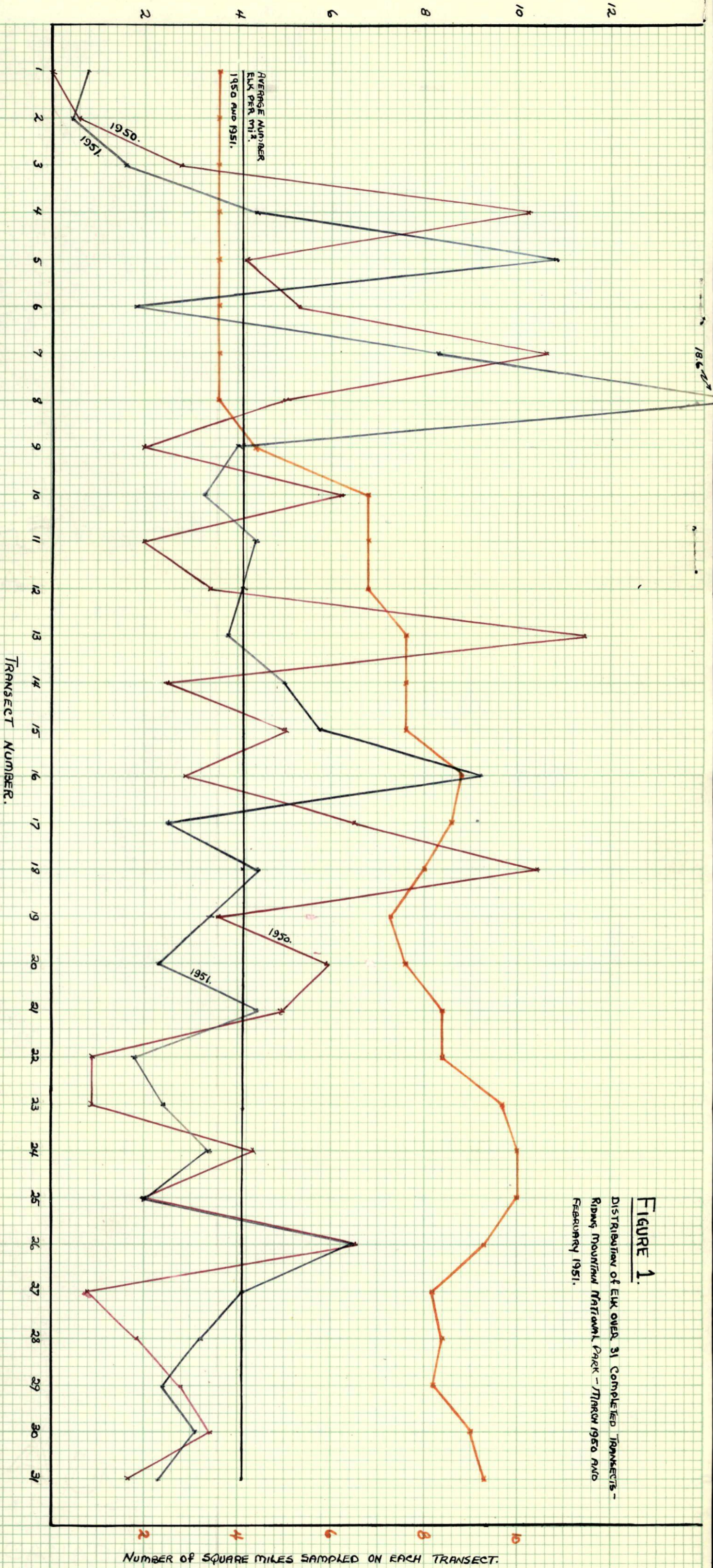


FIGURE 1.
 DISTRIBUTION OF ELK OVER 31 COMPLETED TRANSECTS -
 RIDGEMOUNT NATIONAL PARK - JANUARY 1950 AND
 FEBRUARY 1951.

NUMBER OF SQUARE MILES SAMPLED ON EACH TRANSECT.



FIGURE 2.

February 11, 1951 - Example of willow killed by overbrowsing during extreme winter conditions in 1946-47. Old McCreary Trail area.



FIGURE 3.

February 11, 1951 - Example of damage to poplar caused by chawing during extreme winter conditions in 1946-47. Old McCreary Trail area.



FIGURE 4.

February 11, 1951 - Photograph of general area along Old McCreary Trail in which preceding photographs were taken.



FIGURE 5.

February 8, 1951 - Area along Whitewater
Lake road which had recently been utilized
by elk pawing for food.



FIGURE 6.

February 8, 1951 - Another typical area along
Whitewater Lake road which had been recently
utilized by elk pawing for food.



FIGURE 7.

February 11, 1951 - Carcass of cow elk found off Number 10 Highway about 10 miles north of Clear Lake. Cause of death unknown. Carcass being utilized by coyotes and ravens.

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