ANNUAL JOB PROGRESS REPORT

Title ---- Aerial Survey of Canadian Wildlife Service Study Area and Part of the Isolation Area, Elk Island National Park, March 1965

Designation M-1 -B4 1965

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INTRODUCTION AND METHODS

On March 3 and 5, 1965, D. A. Blood and J. R. McGillis, Canadian Wildlife Service, carried out an aerial survey of ungulates in the west and middle panels of the Isolation Area, including the Canadian Wildlife Service Study Area (see accompanying map). Because the area surveyed was small, involving frequent turning of the aircraft, and because an accurate complete count was desired, a helicoptor was chartered for the survey. The survey required 3.5 hours of flying at a rate of $110.00 per hour. A height of about 300 feet was maintained and air speed was about 40 - 50 m.p.h. The weather was warm (about 40°F. on both days) and sunny with little wind. About 18 inches of snow covered the ground. The flight on March 3 was carried out between 1:35 and 3:30 p.m., and involved about 50 minutes in transit to and from the park and 65 minutes on the flight lines. The March 5 flight was carried out between 11 a.m. and 12:35 p.m. Total area surveyed was about 14.5 sq. miles. Results of aerial surveys of the Canadian Wildlife Service Study Area in March 1963, November 1963 and January 1964 are discussed y Blood (1964).

OBJECTIVES

Major objectives were:

1. To determine elk (Cervus canadensis) and moose (Alces alces) population levels in the Canadian Wildlife Service Study Area.
2. To determine for certain that no bison (Bison bison bison) had gained access to the Canadian Wildlife Service Study Area, since wood bison (B. b. athabascae) are to be introduced there later this year.
3. To determine how many bison had not been successfully baited from the "Center Panel" into the "East Panel" for testing.

RESULTS

Animals observed have been tabulated below:

	Study Area (3 sq. mi)			Portion of Isolation Area Surveyed (11.5 sq. mi.)	
	Jan. 1964 count	Present Count	Present density*	Present Count	Present Density*
Bison	0	0	0	6	0.8
Moose	20	16	5.3	80	7.0
Elk	3	4	1.3	10	0.9
Deer**	15	16	5.3	46	4.0

* Animals per square mile

** Mule deer (Odocoileus hemionus) and white-tailed deer (O. virginianus) were not differentiated.

Population levels in Study Area

Moose numbers appear to have dropped somewhat in the past year. Reasons for this are not known. Perhaps moose damaged the fence during the rutting season in September 1964, as happened in 1963, and escaped. Perhaps maximum carrying capacity was reached in the Fall of 1963 (23 moose, i.e. 7.7 moose per square mile) and since that time social factors have limited increase, and this combined with natural mortality has resulted in a slight population drop. Even the present density of 5.3 moose per square mile is considerably higher than that found in most free ranging moose populations. For example Maliepaard (1963) reports moose densitites ranging from 0.2 to 2.4 moose per square mile for 16 different survey units in Saskatchewan, including both parkland and boreal types of habitat. Figures of Hatter et. al. (1956) indicating 3.33 moose per square mile are for winter ranges only, and such seasonal concentrations are thus not directly comparable with our data.

Of the four elk in the Study Area, one is an adult bull, two are adult cows, and one is a short yearling (sex undetermined). As was mentioned by Blood (1964), the two cow elk were in the area when it was fenced in the fall of 1962, and it is believed that the bull entered in September 1963, at a time when rutting bull moose knocked the wire fencing from the posts along a short section of the fence separating the Study Area from the remainder of the Isolation Area. (There is now a double fence around the study area, the inner fence having wire on the Study Area side of the posts, and the outer fence having wire on the Isolation Area side of the posts, thus it is not

likely that there will be any ingress or egress of moose or elk in the future). It is obvious that the bull elk bred one of the cows in the fall of 1963 and that a calf was born in the spring of 1964. Some interesting data could probably be obtained if we allow the elk population to increase and document annual population levels of both elk and moose so as to assess the competetive relationship between those two species. This could be complicated by the introduction of wood bison to the area however, and it may even be advisable to eliminate potential competitors such as elk from the area before bison are introduced. If so, now is the time to carry out such a program.

Deer numbers appear to have changed little during the past year. The degree of ingress and egress of deer into and out of the Study Area is not known. The Study Area appears to be free of bison.

Population in portion of Isolation Area surveyed

Although the major objective in flying this area was to count bison, advantage was taken of the opportunity to count moose, elk and deer also. The moose density in this area is even higher than in the Study Area, and higher than during the January 1964 survey (4.9 moose per sq. mile) of the entire Isolation Area. Present deer density (4.0 per sq. mile) is lower than that determined for the entire Isolation Area in January 1964 (7.4 per sq. mile), but deer are notoriously difficult to count. Ten elk were counted in the Isolation Area plus four in the Study Area for a total of 13, the same number as were counted in the entire Isolation Area in January 1964.

On March 3, four bison were counted and on March 5, five were seen. These were animals not successfully baited into the East Panel for disease tests. Those bison seen were all single occurrences.

Group size

Forty moose "groups" were recorded and varied in size from one to six. Mean group size was about 2.4, slightly greater than values of 2.0 and 1.6 obtained (for the entire Isolation Area) in November 1963 and January 1964 respectively. Twenty six deer "groups" were seen and also varied in size from one to six. Mean group size for deer was also about 2.4, similar to values of 1.5 and 2.6 obtained in November 1963 and January 1964 respectively. In order to augment previous data on seasonal changes in sociality of Elk Island ungulates, the following tabulation of the frequency of occurrence of groups of each size class is presented.

Number in Group	Number of Observations	
	Deer	Moose
1	5	9
2	10	16
3	9	9
4	1	3
5	0	0
6	1	2

All moose observed had shed their antlers. Several antlered elk were observed, and two of these appeared to be mature animals with at least 6-point antlers. Since the older animals usually shed their antlers earliest, it can be assumed that elk here had not yet begun to shed their antlers.

LITERATURE CITED

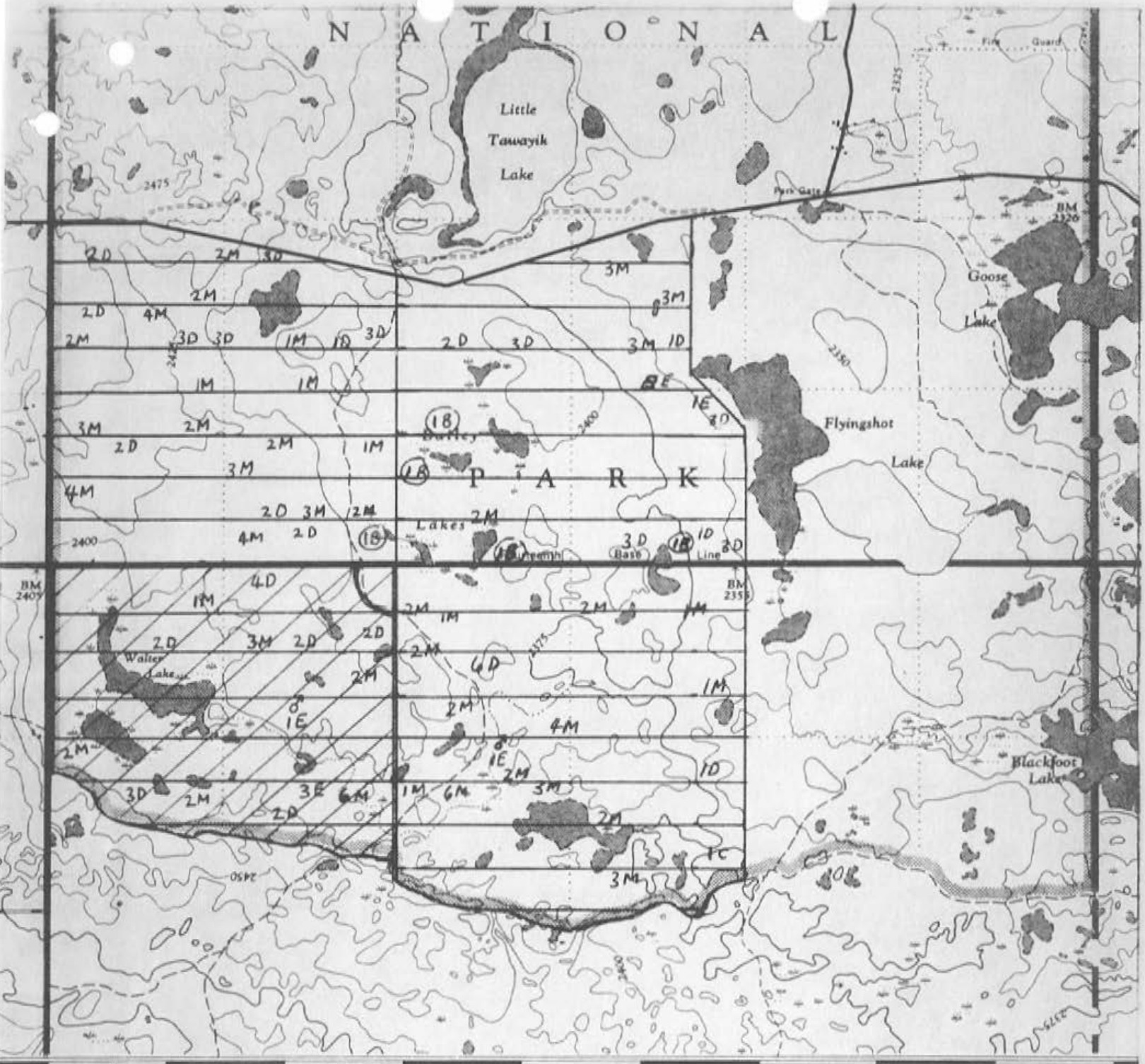
Blood, D. A. 1964 Aerial census of ungulates, Elk Island National Park November 1963 and January 1964. Typewritten report, 18 pp. C.W.S. Report Library.

Hatter, James and others (1956). Inventory and valuation of wildlife resources in British Columbia. 9th B.C. Nat. Res. Conf. Trans., 42 pp.

Maliepaard, H. 1963. Aerial survey of big game in Saskatchewan 1954-1963 Mimeographed report, Sask. Dept. Nat. Res., Wildl. Br., 24 pp.

Edmonton, Alberta

March 29, 1965



//// = C.W.S. Study Area

M = Mouse
E = Elk
D = Deer
B = Bison

ELK ISLAND PARK

ALBERTA

WEST OF FOURTH MERIDIAN

SCALE 1:50,000

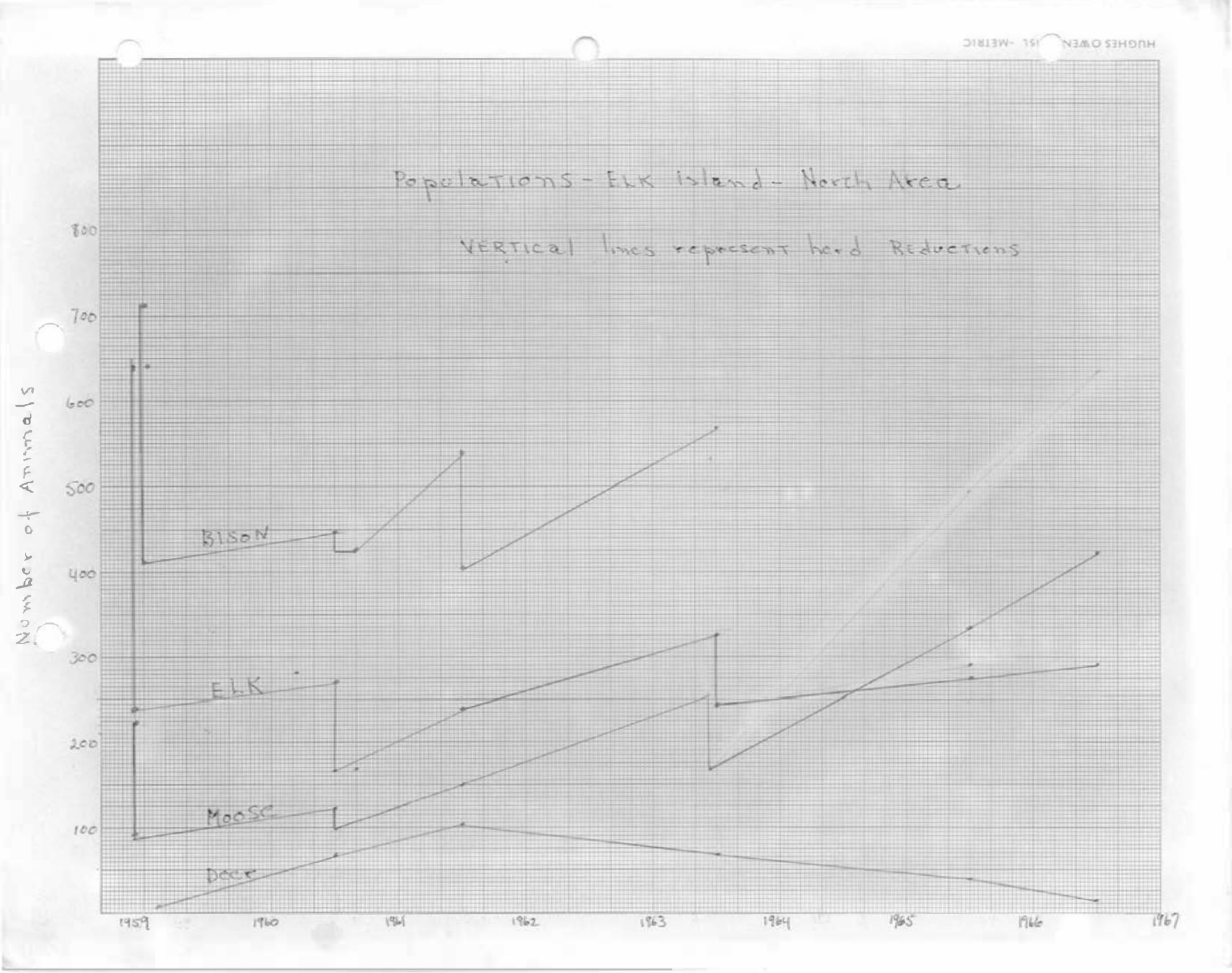
1.25 inches to 1 mile approximately

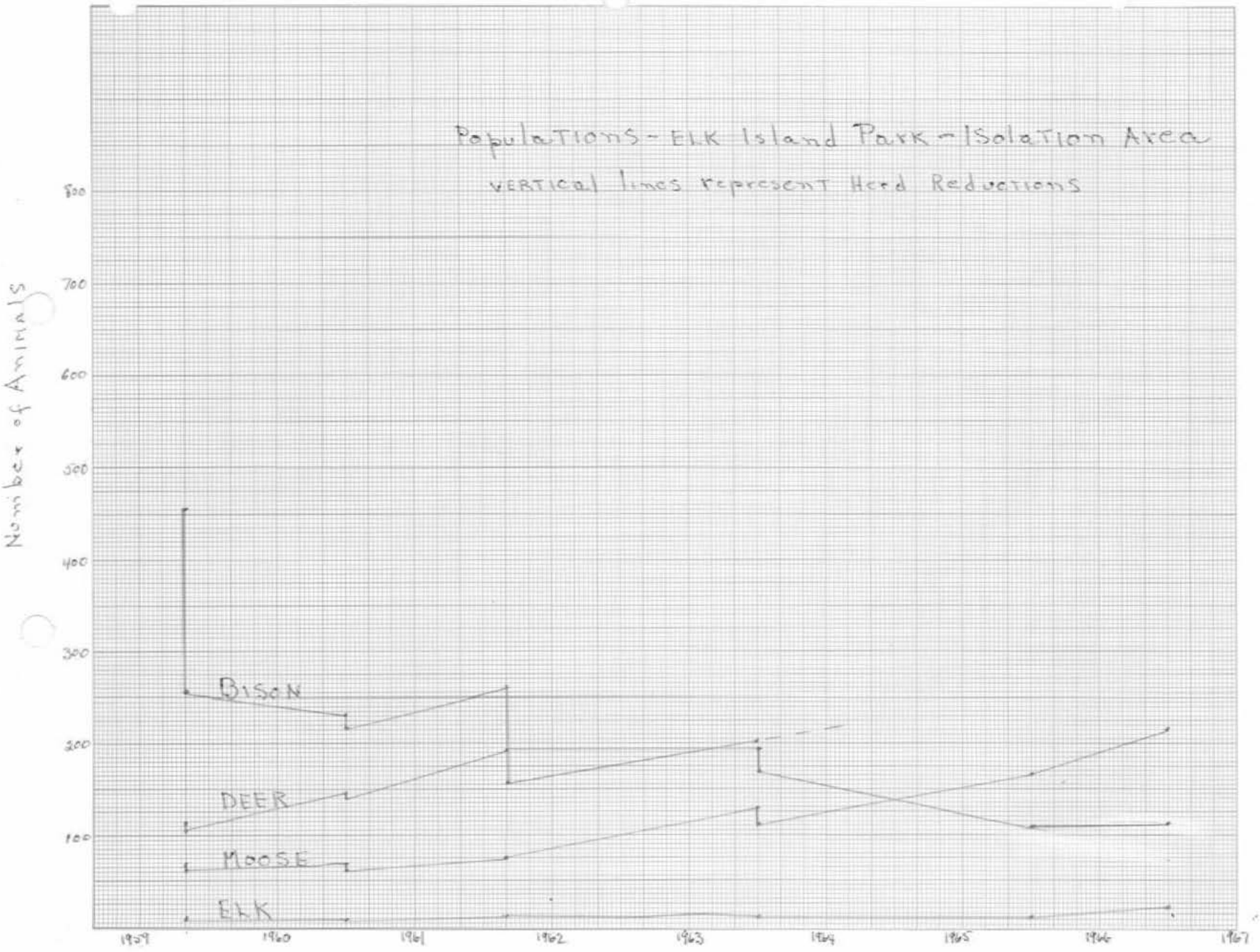
3 Miles

4000 Metres

4000 Yards

Mine or Open cu
Building, Barn
Church
Built up area
Telephone line
Power transmiss
Streams:
intermittent or d
indefinite


Populations - Elk Island - North Area
VERTICAL lines represent herd Reductions
Number of Animals
800
700
600
500
400
300
200
100
BISON
ELK
MOOSE
DEER
1959
1960
1961
1962
1963
1964
1965
1966
1967


Populations - Elk Island Park - Isolation Area
Vertical lines represent Herd Reductions
Number of Animals
800
700
600
500
400
300
200
100
Bison
Deer
Moose
Elk
1959
1960
1961
1962
1963
1964
1965
1966
1967

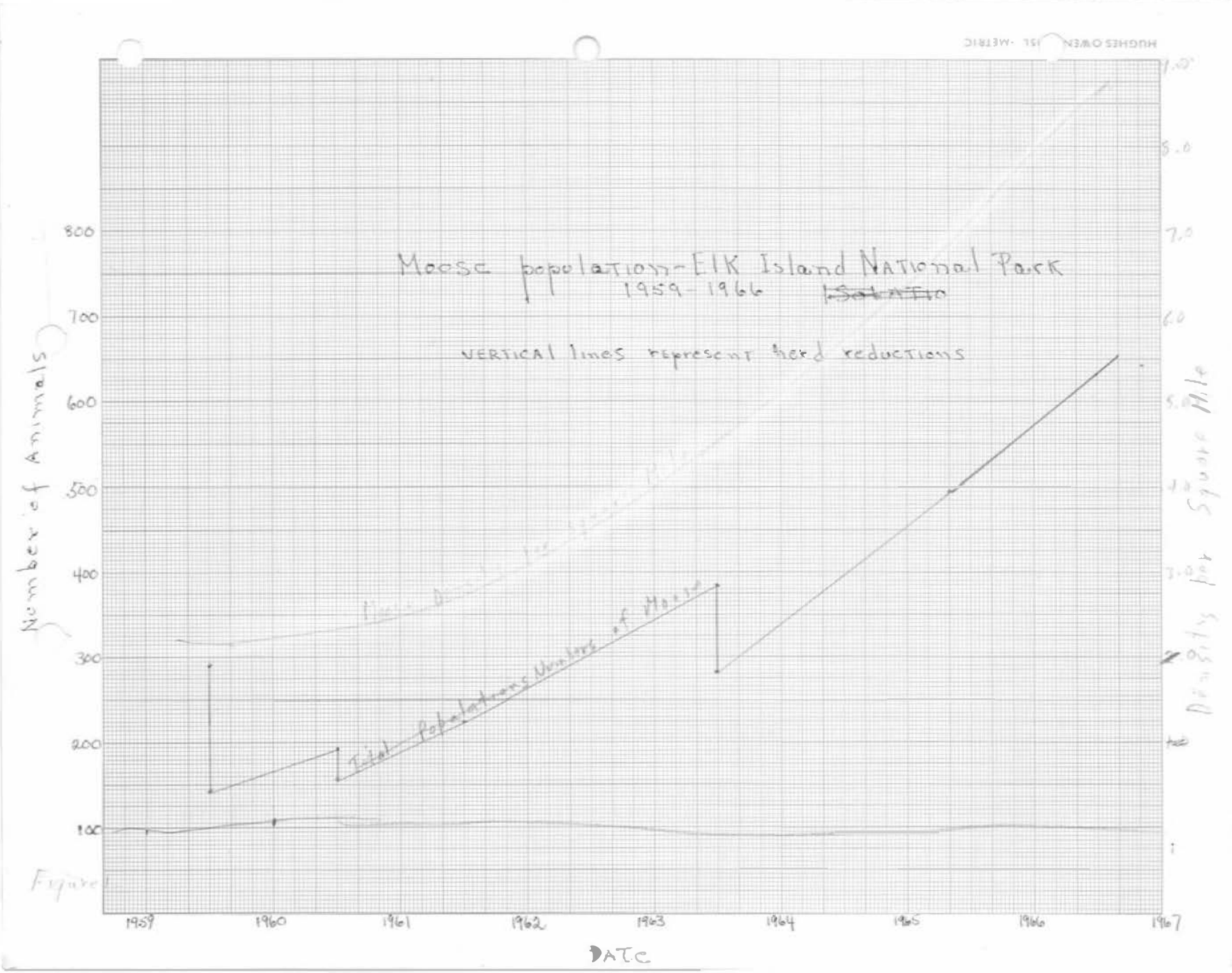

Moose population - ELK Island National Park
1959 - 1966
VERTICAL lines represent herd reductions
Total Population Number of Moose
Number of Animals
DATE
800
700
600
500
400
300
200
100
1959
1960
1961
1962
1963
1964
1965
1966
1967

Figure 1