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Flook, Donald R.

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Duplicate for file

~~Chief~~ CWSC 188
Dr. Holzman.
A very good & useful report!
B.

RLW-234

APPRAISAL OF ELK SITUATION,
WATERTON LAKES NATIONAL PARK, OCTOBER, 1955

by

Donald R. Flook

November 4, 1955

Dr Banfield: Mr. Flook should be commended for this report. It is excellent and I agree we should recommend to Parks acceptance of the recommendations. An active program certainly is desirable and to be preferred to one of only meeting emergencies as they arise.

W.O.M.

Chief

An excellent report. I concur in his recommendations. The hunting by Indians will need some control. Upon receipt of your comments, copies will be sent to Parks.

—D.B.

Acknowledgement

Much credit is due to Warden Gladstone who provided most of the information concerning numbers, distribution, and seasonal movements of the Park elk herds, and guided me in a reconnaissance of the principal winter ranges.

Introduction

This work was carried out as a result of instructions received in a memorandum from the Chief, Canadian Wildlife Service dated September 2, 1955. The writer was instructed to proceed to Waterton Lakes, there to investigate elk winter range conditions, and discuss with Superintendent Atkinson and Chief Warden Hand methods of controlling the elk population.

Itinerary

The writer left Edmonton by car October 5th arriving at Waterton Lakes late in the afternoon. Chief Warden Hand was met in the office and the elk situation was discussed. Mr. Hand described experiments conducted last winter in manipulating elk distribution by use of salt, and in developing practical methods of fencing hay stacks against elk depredations. I had neglected to advise the Superintendent of my planned visit, and as Mr. Hand was leaving on vacation the next morning these matters were discussed as thoroughly as possible at this time.

In the morning of October 6th Superintendent Atkinson was met and the elk situation discussed. Mr. Atkinson provided files which were studied to become acquainted with the history of the elk problem.

In the afternoon, with Warden Gladstone, a reconnaissance was made of some of the winter ranges of the Belly River or International elk herd.

October 7th, on the suggestion of Mr. Atkinson, the writer, with Warden Gladstone drove to St. Mary, Montana, and met with Mr. Elmer Fladmark, Chief Ranger of Glacier Park, and Mr. Don Barnum, Chief Ranger of Belly River District in Glacier Park. This meeting was very fruitful in information. Topics discussed were; the number and movements of the Belly River elk herd, methods used to control the Glacier Park elk herds, and the success of these measures.

October 8th, with Warden Gladstone, a reconnaissance was made of the principal winter ranges not visited on October 6th. In the morning, the Oil Basin, Horseshoe Basin, and Badlands area were inspected. In the afternoon, Stony Flats and Y.M.C.A. Flats were visited. A short trip was also made up the Pass Creek highway to Redrock Canyon.

October 9th, possible methods of controlling the elk population were discussed with Superintendent Atkinson. Following this, the writer drove to Field.

Discussion

The elk of Waterton Lakes Park belong to three herds having distinct separate summer ranges. The names of these are; the Belly River, Stony and Horseshoe herds. Warden Gladstone reports that although there is some overlap of winter ranges of the herds, and possibly some interchange of animals, they behave as three fairly independent units.

Belly River Herd

This herd summers on the upper Belly River Valley, both the north fork and main fork. Most of its summer range lies in Glacier National Park, Montana.

These elk winter mainly along the lower Belly River Valley, on hillside meadows and in rolling aspen-grassland country lying west of the Belly River in Waterton Lakes Park, the Blood Indian Timber Reserve, and to some extent the ranchland north of the Reserve and the Park.

Observations by Wardens Gladstone and Christiansen indicate the number of elk of this herd, wintering in Canada during the past two years, has not increased and probably has declined. Last winter's census by the Warden Service indicated slightly over three hundred elk of this herd wintering in Canada.

It was considered desirable to determine whether the apparent lack of increase in the Belly River herd was due to high mortality or low reproduction, or whether part of the herd had wintered in the U.S.A. in recent years. These aspects were, therefore, discussed with Messrs. Fladmark and Barnum of the Glacier Park Ranger Service.

No data on calf crops or survival are available. However, there have been severe spring storms the past two years which may have caused calf mortality.

The possibility of elk from the Belly River herd, leaving the Belly River drainage, and joining the St. Mary or Many Glaciers herds was considered. Such movements would be physically possible, but have probably not occurred, as no unaccountable increases in the herds wintering in the St. Mary or Many Glaciers Valleys of Glacier Park have been noted.

In winters of light snowfall, areas of grassland in the upper Belly River Valley in Glacier Park are available to elk. In a ground census conducted in February and March, 1955, Glacier Park personnel observed 105 elk in the Belly River Valley south of the international boundary, and this was not considered a complete count. Probably the lack of increase in the number of elk wintering on the Belly River ranges in Canada during the past two years can be attributed to the open winters. These conditions permitted a large proportion of the herd to winter in Glacier Park. In a severe winter the ranges of the Upper Belly River Valley will not be available and a sharp increase in the number of elk wintering in the ranges of Waterton Lakes Park, the Blood Indian Timber Reserve, and adjacent ranching country can be anticipated.

Winter Range Condition, Belly River Herd

Two segments of winter range were inspected in the Belly River area; the Bebee Flats, and Lookout Butte.

The Bebee Flats is a low, level area, in the Blood Indian Timber Reserve, and bordering the west side of the main fork of the Belly River. It runs about two miles north and south and about one mile east and west, and is split by the north fork of the Belly River. The soil of this area is apparently alluvial deposit of the Belly River.

The Flats currently support a very heavy grass cover composed almost entirely of timothy (Phleum pratense), with traces of brome (Bromus sp.) and wheat grasses (Agropyron spp.) and other grasses.

Timothy is an Eurasian species introduced to North America as a domestic forage. It is grown principally as hay for horses. Seed was introduced to the Park, probably accidentally in hay. Being a strong competitor, timothy readily invaded the

Bebee Flats probably following depletion of the native grasses through overgrazing by livestock. Timothy, if cut green is good hay for horses and if handled in this way would probably be satisfactory elk forage. However, if left to mature it is very poor forage, being comparable in nutritive quality to wheat straw. Regardless of how heavy or how light, the grazing by elk, the Flats will probably remain in timothy as it is a hardy species and strong competitor.

Lookout Butte is a grassed knoll about 200 feet higher than the surrounding area, located about three miles west of Belly River. The range here is currently in fairly good condition. When inspected it carried good production of wheat grasses, brome, and other grass species. There are, however, small amounts of kinnikinick (Arctostaphylos uva ursi), and shrubby cinquefoil (Potentilla fruticosa). ~~This indicates past overgrazing.~~

Must be qualified - Cinquefoil is a natural component of the grassland.

Note - F. Scabrella was missed by Flook

Bebee Flats, October 6, 1955
Almost Pure Stand of Timothy.

Stony Herd

This herd summers mainly on the slopes of Sofa Mountain and Vimy Ridge in the Park. Its key winter range is the meadows of Stony Flats. However these elk also spread out onto the grassy flats in the vicinity of the Y.M.C.A. camp, and they sometimes move onto the badlands north east of the Waterton Lakes.

The greatest number of elk seen by Warden Gladstone in counts of this herd made last winter was 250. He believed there were more elk in the herd, probably about 300.

On October 9th while inspecting the Stony Flats 76 elk were encountered. There was a gale blowing from the south, and light rain falling, and it was possible to approach quite near the elk from downwind.

The bulls were bugling frequently. A six-point bull appeared to be herd boss. One cow became agitated at our approach and tried to flee to cover but the bull drove it back in among the other elk in the clearing. This same bull attempted to mount another cow. At each attempt the cow moved around in a small circle thus preventing the bull from mounting. This bull was observed sparring briefly with a seven point bull.

Sixty-one elk of this herd were segregated as follows:

9 adult bulls
2 yearling bulls
31 cows (yearling and older)
19 calves

If this is assumed a cross section of the population, the calf segment can be estimated at 31% of the entire population. The annual increase can be estimated as 45% of the pre-calving population. $\left(\frac{\text{no. of calves seen}}{\text{no. of elk seen year-old \& older}} \times 100\right)$. It is thus indicated that, for the Stony herd at least, the past spring and summer has been very successful for reproduction.

Winter Range Condition, Stony Herd:

Two segments of winter range of this herd were inspected; the Stony Flats, and Y.M.C.A. Flats.

Grass production on the Stony Flats was good. The plant composition on this range was fair, there being small amounts

of pussytoes (Antennaria sp.) a poor forage plant which invades progressively where grasses are heavily grazed and trampled. A large proportion of the grass production had already been utilized this autumn on the south half of the flats.

The Y.M.C.A. Flats carried a good production of good forage grasses and showed no sign of overuse.

Horseshoe Herd

The principal summer ranges of this herd are - the valleys of Cameron Creek, Carthew Creek, and Bertha Brook and the upper forks of Pass Creek; the Oil Basin and Horseshoe Basin; the Yarrow Creek, and Castle River valleys in the Crowsnest Forest Preserve; the Akamina Brook valley in B.C., and Boundary Creek valley along the international valley. Briefly, the summer range of this herd encompasses all the suitable Park ranges west of the Waterton Lakes plus adjacent ranges outside the Park.

In winter this herd ranges the grassy slopes of the Oil Basin, Indian Basin, certain windblown areas in the Horseshoe Basin, Pass Creek Valley, and the Badlands. These elk frequently range out of the park in winter, on the ranchland north of the Oil Basin and in the lower Yarrow Creek valley in the Crowsnest Forest Preserve.

The highest count of this herd obtained by Warden Gladstone last winter was 363 elk observed in the Oil Basin area. He estimates the total number in the herd at about 400 elk.

Four cow elk and one calf were encountered in the timbered slopes of the Horseshoe area by the writer and Warden Gladstone on October 8th. One bull was heard bugling on this occasion.

Winter Range Condition, Horseshoe Herd

Segments of winter range, of this herd, inspected, were the Oil Basin, Horseshoe Basin, and Badlands. The grass range of the slopes of the Oil Basin was in good condition.

The condition of the Horseshoe Basin range was found to be generally good. Certain small areas of exposed grass slopes in this basin showed slight signs of heavy use and trampling. The signs were exposed soil, slight terracing, and high proportion of kinnikinick in the plant cover. These areas are however very limited. Warden Gladstone reports that these areas are blown free of snow in the winter. They are close

to escape cover, and on the route of elk travelling up and down between the higher slopes and the Badlands. They are therefore, more heavily utilized than the open ranges at lower elevations.

The badlands is a rolling stony plain with rather shallow gravelly soil. At the time it was examined this area carried a grass cover which is probably optimum, in plant composition and production, for this area.

Current Management

It is the opinion of Wardens Christiansen and Gladstone that the removal of summer livestock grazing from the park has greatly increased the carrying capacity of the park ranges for wintering elk. The general concensus is that, since the removal of livestock, there has been much less tendency for the wintering elk to invade private lands and attack hay stacks.

According to Warden Gladstone, certain areas of open grassland, especially in the Badlands have not been utilized at all by the wintering elk. Last winter, salt blocks were set out, and moved gradually, in an attempt to draw the elk from the Horseshoe area, eastward onto the Badlands. The elk actually did follow the salt into the Badlands, and utilized ranges which they had formerly not reached. Warden Gladstone reports that there are still large areas of grassland not utilized, however. Last winter, this herd did not spread north onto the ranchland to any great extent. Probably both the salting and increased forage available in the park have helped reduce the egress of elk from the park.

Warden Gladstone employed salt blocks, also to draw elk of the Stony Herd onto the Y.M.C.A. Flats, and so relieve grazing pressure on the Stony Flats. 1954-55

Last winter the Waterton Lakes Park Warden Service put up two hay stacks in the Badlands. They were fenced by two methods. One stack was fenced with page wire and the other was protected by poles leaning against the stack at close intervals. One purpose of this was as an experiment to learn how effective each method was, to protect the hay from elk. The other purpose was as a demonstration to local ranchers, of possible means of protecting their stacks. The page wire fence was successful, but the covering of poles as it was tried last winter was not effective. Warden Gladstone suggested

that the presence of the hay may have helped to hold the Horseshoe Herd on the Badlands and reduced their invasion of private lands.

The Glacier Park officials report that they have been quite successful in drawing elk with salt to their park boundaries, and out of the park where they can be hunted by sportsmen on the south and west sides of the Park, and by the Indians of the Blackfeet Reservation east of the Park. They also harry elk with occasional shooting to drive them down the Many Glaciers and St. Mary valleys onto the Blackfeet Reservation in the winter. In the National Forest south of Glacier Park, the Montana State Game Department has cooperated by having a split open season on elk. This consists of an early Fall hunt, then a closed period during which the elk spread out of the park, followed by a second hunt later in the winter. By these means the Glacier Park elk herds have been fairly well controlled within the carrying capacity of the Park ranges. This involves a minimum of slaughter by government personnel. The officials feel that it is most satisfactory in every way. They are fortunate however in not having any hay lands bordering the Park.

Future Management

The population of the elk which wintered in the Park last winter was well within the capacity of the Park ranges as a whole. If uniform distribution of elk over the Park grasslands could be attained, the ranges would carry half as many elk again, and perhaps twice last year's wintering population. Although distribution of grazing can be improved by salting, uniform distribution can never be expected. Critical slopes would be badly damaged by overuse, before open grassland areas were fully utilized.

With a higher elk population the problem of elk depredation on private lands in severe winters would be more serious.

With a higher elk population, forage competition with sheep and deer would limit the carrying capacity of the park for these animals. Visitors to the park see both sheep and deer more frequently than elk. It is desirable to maintain populations of them.

To control the Park winter elk population at any given level, it will be necessary to carry on periodical reduction slaughters to remove the annual increase not harvested by Indians in the timber reserve or sportsmen north of the park.

Within the limits of the carrying capacity of the range, it can be expected that the larger the breeding herd, the larger will be the annual increase, to be removed. This would require a larger scale slaughter operation and administrative and public relations problems would arise. The aim in managing the park elk is to preserve them for their aesthetic value rather than to produce meat.

On the basis of these considerations, the writer believes the elk population wintering in the park should be controlled at approximately the level which occurred last winter, estimated at one thousand head. The annual increase requiring removal can be expected to be roughly three hundred elk on the average, and this can be apportioned about equally among the three herds, with the Stony Herd slightly less than the other two.

Control at 1954-55 winter level

Part of the winter range of the Belly River herd lies in the Blood Indian Timber Reserve. This presents a possible method of controlling the herd without having it done by government personnel and without any change in present legislation. The Indians currently kill a few elk in the Reserve, but by the time the elk are concentrated in the area, it can't be reached by vehicles due to deep snow. The road and trails leading into the Reserve might be plowed out when the elk are concentrated in the area. By working through the local Indian agent, an organized hunt might be arranged. The Indians should agree to send only a few good hunters to remove the quota of elk recommended by the Park.

We are presented with three alternatives in managing the Bebee Flats, now taken over by timothy.

The area could be left undisturbed as it is now. Warden Gladstone reports that the Belly River elk graze on the Flats in the early winter but generally forsake them in the latter part of the winter probably due to deep snow. He has noted after the elk have left the area that although they have eaten some timothy and trampled a lot of it, considerable is left standing.

The Flats could be plowed and seeded to a grass or grasses which would produce good winter grazing. A grass which is hardy, a strong competitor, produces good winter grazing, and of which seed is available commercially is creeping red fescue (Festuca rubra). This range improvement might not be

justified as elk grazing would probably be restricted by the deep snow, in most years, to early winter.

The third alternative is to annually mow the timothy while it is green, and stack it in the Flats for the elk to feed on through the winter. Artificial winter feeding of game has usually proven unsatisfactory in other areas. However in the unique situation existing here, cutting and stacking hay might produce desirable results. Even in periods of deep snow it would probably hold the elk in the area through most of the winter. If so, it would reduce depredations on private land, and alleviate grazing pressure on other park range. By holding elk in the Blood Indian Timber Reserve it might facilitate an organized harvest of the surplus elk by the Indians.

As the Stony herd winters within the Park to the greatest extent, the only way to control it is through periodic slaughters by the Warden Service. Slaughter Stony Herd

The Horseshoe herd spreads to some extent during the Alberta hunting season onto the Crows Nest Forest Preserve and private lands north of the park. No doubt some of the herd are taken by hunters during the open season, November 1st to December 31st. How many is not known. If the Horseshoe herd can be controlled at about four hundred head by hunting by Alberta sportsmen outside the Park, it would seem most satisfactory to all concerned. If not, periodic slaughters should be carried out in the Park by the Warden Service. The annual census by the Warden Service will reveal whether the herd is being controlled by hunting outside the Park.

The Alberta Game Department should be approached regarding holding a split season or continued open season through the winter in the area immediately adjacent to the Park, similar to the plan followed in Montana. This would give sportsmen an opportunity to harvest some of the elk when they are more apt to move outside the Park in response to deep snow and north winds. A late winter season on elk for sportsmen north of the park was suggested by ranchers on some of the questionnaires concerning the elk problem, returned to Superintendent Atkinson.

Recommendations

1. It is recommended that the elk population wintering in the Park be controlled at approximately the level occurring last winter, estimated at one thousand head.

2. The Stony Flats area is more heavily used by elk than the other Park winter ranges. An elk reduction slaughter is recommended, to be conducted by the Warden Service in the Park this winter. A quota of one hundred elk is recommended. This should be taken mostly from the Stony herd.

3. It is recommended that all aspects be explored of the possibility of holding an annual organized elk hunt by the Blood Indians in the Timber Reserve as a means of controlling the Belly River herd. If it is possible to organize it properly, it would be desirable to hold such a hunt this winter with a maximum quota of one hundred elk. This is in addition to the one hundred elk recommended to be removed by the Warden Service.

4. It is recommended that the Alberta Game Department be approached regarding holding an annual split season or continued open season through the winter on elk in the area immediately adjacent to Waterton Lakes Park similar to the plan followed in Montana on lands adjacent to Glacier Park.

5. Salting elk last year to attract them into the Badlands and Y.M.C.A. Flats produced good results. It is recommended that it be continued.

6. It is recommended that the hay stack fencing demonstration experiment be continued.

7. In order to study and demonstrate changes in plant cover brought about by grazing, it is recommended that three exclosures be erected next summer on representative winter range of each of the three elk herds. These should be thirty feet square, eight feet high, of page wire hung on metal fence posts. } Exclosures

Quantitative studies of condition and trend of Park Ranges should be made by the Wildlife Service next summer. At that time the sites for the exclosures could be selected and the existing conditions of plant cover recorded.

Respectfully submitted,

Donald R. Flook

Donald R. Flook,
Mammalogist.

Edmonton, Alberta,
November 4, 1955.

Date Due

CWS
55-32 Flook, Donald R.
Appraisal of elk
situation, Waterton
Lakes National Park

DATE	ISSUED TO

CWS
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Appraisal of elk
situation, Waterton
Lakes National Park