

The Rangeland's Northern Frontier¹

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Since the time of Columbus there has been a movement of western man from Europe toward the northwest. Following the early discoveries in America, people sought anxiously, but in vain, for a northwest passage to the Orient. This search opened up a lucrative fur trade in America which remained the chief commercial enterprise in the northwest for nearly 200 years. Agricultural settlement and modern industry have gradually replaced the fur trade. In most cases, ranching with its use of open rangeland, was the first type of agricultural use of land

with farming following in its wake. In a few cases settlement was not established on an agricultural basis, but moved westward in the search of gold with farming and ranching coming along to supply meat and farm produce to the miners. Such was the case in parts of California, Montana, and the interior of British Columbia.

An expansion of the use of rangeland for livestock production is still going on today in Canada but has become northward instead of westward. This northern extremity of the ranch country may be termed its Northern Frontier.

Northern Frontier

Most of British Columbia is occupied by the Appalachian Highlands. In between the

mountain ranges lie warm valleys which are often semi-arid in the rain shadows of high ranges to their westward.

East of the Rockies lies the northern extension of the Northern Great Plains, the Boreal Forest and the Arctic Tundra. The northern plains fall into two vegetative regions; the open prairies in the south and the parkland (alternate poplar bluffs and moist prairies) toward the north.

By the year 1900 ranching was established on most of the open plains country and in the southern valleys of British Columbia. During the next three decades, grain farming east of the Rockies and fruit farming in British Columbia began to take over the rangeland and to push northward even beyond the limits of ranching. The demand for food in the first world war and the development of short-season wheats sent farmers into the valley of the mighty Peace River, 500 miles north of the 49th parallel. Surprisingly enough it be-

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came a good grain country with the world wheat crown being held there for many years.

But now the rangeland frontier is again on the move. With increase in population and the demand changing from wheat to meat, enterprising stockmen have looked for new frontiers. Some of these movements have been just as adventuresome as the opening up of the West a century ago.

Grass Beyond the Mountains

The drier valleys in the Rockies and westward offered good opportunities for ranching and the largest ranch in the British Commonwealth, the Gang Ranch, was established in the southern interior of British Columbia. But man soon began to look to the little-known valleys farther north. Anyone who has read Richard Hobson's book "Grass Beyond the Mountains" has enjoyed an epic of the northern movement of the rangeland. The author and his partner, by themselves, moved a herd of cattle through timberland and muskeg and over the top of a mountain range to pioneer ranching in a big new district. With this and similar undertakings the frontier of the rangeland moved 200 miles farther north and Vanderhoof and Prince George replaced Kamloops as the centres of the northern ranch frontier.

The Mighty Peace

East of the Rockies in Alberta and British Columbia the northern wheatlands and the rough country adjacent are undergoing a transition into ranch country. The old march of events from open range to wheatfields is being reversed and cattle are replacing wheat. The stockmen in southern Alberta who have breeding stock to sell are looking northward for their market.

Cattle and Muskrats

East of The Pas in Manitoba,

on the northwest shores of Lake Winnipeg, lie extensive delta lands built up from alluvium carried from the Rockies by the Saskatchewan River. On These delta lands a great muskrat fur industry grew up. With the great slump in fur prices the industry faced ruinous conditions. One enterprising fur trader decided to do something about it. Tom Lamb obtained 2,000 acres of rich delta land and lease rights to adjacent areas and moved a herd of cattle 75 miles down the Saskatchewan by barge to a new ranch home. The deep alluvial soils grow heavy crops of native grass and sedges and even heavier crops of introduced species such as brome, timothy, alfalfa and clover. The grazing season extends from mid-April to mid-November and feed in the form of hay and grain is supplied for the winter. If this enterprise is successful, another

frontier will be established and The Pas saloons will ring to the song of the cowhand as well as those of the trapper, the gold miner and uranium prospector.

At present, the northern extremity of ranching operations might be marked by a line from Vanderhoof through the Peace River country and southeastward to The Pas, Manitoba, and thence south to the United States border (Figure 1).

How Far North?

There is a tremendous territory between the present range country and the Arctic (1000 miles from Peace River to Aklavik at the mouth of the Mackenzie). It is interesting to speculate how far north the frontier of the rangeland may be pushed. Will there come a time when the northlands of western Canada will produce its own meat supply? Might we see cattle ranches

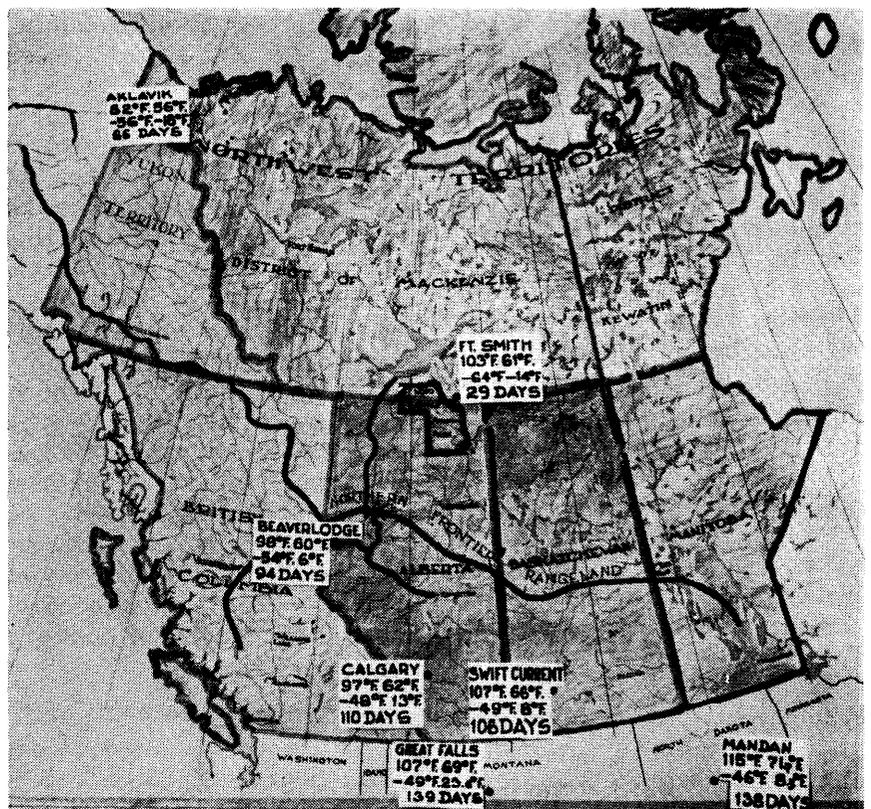


FIGURE 1. Map of western Canada showing rangeland's northern frontier, maximum and mean temperatures for summer and winter and growing season for selected stations.

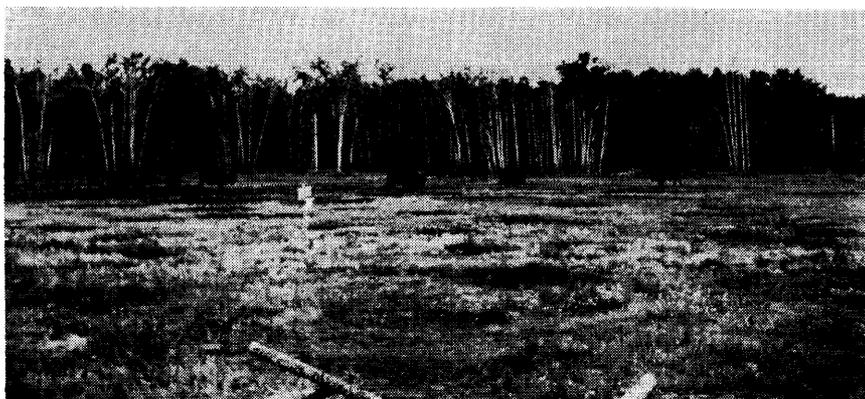


FIGURE 2. Wood buffalo in Northwest Territories.

on the lower Peace and large-scale commercial reindeer ranches on the Mackenzie? It is not the intention here to do more than raise the point and to present two situations which encourage speculation.

Wood Buffalo Park

In the northern part of Alberta and extending into the Northwest Territories, about 700 miles north of the 49th parallel lies an area of about 17,000 square miles set aside as a refuge for the wood buffalo or northern bison (*Bison bison athabascæ*). This is a slightly larger and darker colored relative of the plains bison with rather a different behavior. After nearing extinction the species was protected by a Federal Act of 1893 which prohibited all shooting of the wood buffalo. Wood Buffalo Park was set up as a refuge in 1922. The herd is estimated to have increased from about 500 to about 1,500 between 1893 and 1922. Shortly thereafter (1925-28) a herd of plains bison (*Bison bison bison*) was shipped from Wainwright Park in east central Alberta to the Wood Buffalo Park.

The plains buffalo herd at Wainwright had become polluted with disease and parasites, especially tuberculosis and liver flukes. The diseased and parasite-ridden animals were introduced into the park and inter-

mixed with the aborigines. Although the parasites seemed to disappear the herd still carries a high infection of tuberculosis. The two races have interbred until at present there is only a small herd of the original Wood Buffalo in the extreme reaches of the park.

Nevertheless, the hybrid race seems to thrive there. The herd in the park is estimated at 12,000 and they have spread into two adjacent areas. At the same time 200 to 500 head have been slaughtered each year.

The aims of the Government have now gone beyond preserving the herd from extinction for their aesthetic attraction and the long-range plan considers the herd as a resource with economic value. Slaughter in recent years has provided meat for relief purposes to Indians in the vicinity. A surplus of bison and a shortage of fresh meat exist side by side in the Northwest Territories and supplying the commercial market is being considered.²

If the plains bison can be transplanted to the prairies of the lower Peace and Slave Rivers, is there a place for domestic livestock?

Reindeer on the Arctic

The Canadian Government purchased some 2,370 reindeer in Alaska and moved them to Aklavik with hopes of raising the standard of living of the Eskimos

on the Mackenzie delta. The animals have done well but the Eskimos have not taken to the pastoral life of herdsmen. Jobs on the DEW line in recent years have been more attractive than tending a small herd of reindeer which offers only scant returns.

Reindeer range is the same as that of the caribou. They prefer the various lichens during winter but also eat sedges and grasses along the lake shores. Summer forage includes the leaves of willows, birch and various herbs.

The problem of improving the Eskimo status with reindeer is a socio-economic one. Although losses from straying due to poor management have been high, the last annual round-up in July 1957 gave a count of 2,600 in the government herd and 3,150 in three Eskimo herds. Unless more Eskimos will accept the life of a reindeer herder the industry will probably not grow beyond its present size.

Some Climatic Factors

To understand the north country one must consider certain climatic factors. Vegetational growth is much greater than one would expect. One of the contributory factors to this rapid growth is the very long days during the growing season. Even though there is perma-frost in the entire Mackenzie River valley good vegetable gardens are produced at the settlements.

The data in Table 1 shows a marked increase in length of days in summer from south to north. The longest day at Beaverlodge in the Peace River country is more than 10 per cent longer than at Mandan, North Dakota. At the Arctic circle the

²Sport hunting of buffalo was allowed in the area adjacent to the northeast boundary of Wood Buffalo Park from September 15 to November 30, 1959. Thirty licenses were issued for the first season.

Table 1. Some meteorological data for selected stations

Meteorological Station	Temperature in Degrees Fah.				Mean Frost-free-Period	Hours from Sunrise to Sunset June 21
	July Max.	July Mean	Jan. Min.	Jan. Mean		
Northern Great Plains						
Mandan, N. D.	115	71.7	-46	8.5	*138 days	15 hrs. 55 min.
Great Falls, Montana	107	69.0	-49	23.6	*139 days	16 hrs. 2 min.
Swift Current, Sask.	107	66.0	-49	8.	106 days	16 hrs. 22 min.
Calgary, Alberta.	97	62	-49	13.	97 days	16 hrs. 33 min.
Beaverlodge, Alberta.	98	60	-54	6.	94 days	17 hrs. 30 min.
Mackenzie River Basin - Boreal Forest						
Fort Smith, N. W. T.	103	61	-71	-14	57 days	19 hrs.
Arctic Tundra						
Aklavik, N. W. T.	82	52	-56	-18	66 days	24 hrs.

* Mean Period without killing frost.

sun never sets in mid-summer. The mean and maximum temperatures for July are much higher than might be expected. Plant growth fairly jumps and summer forage is abundant outside the dense forests.

Even the winters are less severe than the latitude would indicate. Beaverlodge has a January mean of only 2.5° F. below Mandan and the minimum temperature is only 8° F. lower. Blizzard conditions are less severe in Northern Alberta than in the Dakotas. Nevertheless, winters are long and periods of sub-zero temperatures may be extensive. Therefore, winter is the limiting factor. Although domestic livestock can survive the cold, even in the Arctic regions, the supply of feed and necessary shelter are the major problems. Even if the suggestion that the wood buffalo or the Caribou be substituted for cattle proves practical, the problem of feed supplies for a long winter period

would make meat production costly.

The Future

The northern movement of the livestock industry in the last half century is real but there must be a point beyond which climate makes it impossible to extend. North of the chinook belt in Alberta, even though the summer conditions at a place like Beaverlodge are conducive

to growing forage, wintering cattle on the range is very hazardous or impossible, and feeding over a long winter is costly. Good prices in the last decades have made it economical to raise beef farther north than before. As a result, ranching has moved into the Caribou country of British Columbia and Alberta. The development of the livestock industry farther north will depend upon the demand for meat and the prices which prevail. If prices are high enough, meat could be produced economically on the Arctic, but undoubtedly, a point will be reached beyond which it is cheaper to ship the meat supply from farther south than to produce it locally. This point may not have been reached. The recent oil and mineral development, with attending settlement in the north are, no doubt, having their influence and there are those who dream of thriving ranches in legendary valleys of the far north.



FIGURE 3. Reindeer on Summer Range in Mackenzie delta.

ABSTRACTS FOR SALE

Abstracts of Papers presented at the Thirteenth Annual Convention in Portland, Oregon, February 2-5, 1960 are for sale at the Executive Secretary's office for \$1.00 per copy, postpaid.