

Made in the United States of America
Reprinted from Journal of Mammalogy
Vol. 39, No. 3, August, 1958
pp. 408-412

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Eight years of field work in southern and central British Columbia, often in areas inhabited by caribou (*Rangifer arcticus*), have suggested that the land form of mountainous caribou range is fairly constant as to type. In five areas containing caribou where the writer has done field work, summer range is at and above timberline on high foothill elevations adjacent to ranges of rugged mountains. These elevations may be described best as rolling mountains, typically with extensive flats and gentle slopes near their tops, and sufficiently high to support extensive alpine meadows above treeline. In four cases these caribou-inhabited elevations are part of the transition from British Columbia's Central Plateau to adjacent precipitous mountains. The exception is on and near the divide of the Rocky Mountains, in an area where the mountains are much less rugged than either to the north or south.

There has recently become available a unique atlas (*British Columbia Atlas of Resources*, Vancouver, 1956) which contains a land form map of the province, and another showing the areas inhabited by caribou in winter. These have provided an opportunity to test, on a large and general scale, conclusions reached from limited field experience.

The assistance of M. C. M. Matheson in compiling Fig. 1 is gratefully acknowledged. The British Columbia Natural Resources Conference kindly granted permission to use data from the *Atlas of Resources*.

Field work. – Field work has been undertaken in five areas described below. These areas are indicated in Fig. 1.

- A. **Wells Gray Park:** As noted previously (Edwards, *Journal of Wildlife Management*, 18: 521-526, 1954), "*The ranges inhabited by these caribou comprise the less precipitous foothill country bordering the mountains. The extensive meadows on the rounded foothill elevations seem better suited to this species than do precipitous slopes and permanent ice of the core of the Cariboo Mountains.*" These rounded mountains have extensive flats and gentle slopes supporting meadows and park-like forests of spruce and balsam fir above and at timberline, which is about 7,000 feet. Adjacent lowlands, where suitable, are used in winter.

This choice of foothill topography is not absolute. Caribou may be found in the more precipitous areas to the north, but their numbers are relatively small. These animals appear to be wanderers, or small resident groups recruited from the larger population inhabiting the rounded summits and broad-bottomed valleys to the south.

- B. **Bowron Lakes Region:** Caribou here inhabit high, rounded elevations between the Interior Plateau and the northern massives of the rugged Cariboo Mountains. Here lowlands associated with the foothills are more extensive than those in Wells Gray Park. Caribou in winter are not confined to valleys, but descend to a rolling, forested plateau. The area inhabited by caribou is bounded on the north and west by plateau and on the east and south by precipitous mountains.

- C. **Northern Tweedsmuir Park:** Here the land form pattern of the Bowron Lake Region is repeated. Caribou inhabit extensive meadows and barrens above timberline on rounded foothill elevations. To the south and west stand the rugged peaks and glaciers of the Coast Mountains, while the Interior Plateau, low and forested, extends to the horizon in other directions. Forested valleys, broad and poorly drained, penetrate the rolling upland ranges and are used by caribou in winter.
- D. **Southern Tweedsmuir Park:** This area contains the southernmost caribou herds in western British Columbia. Precipitous mountains stand to the south and west, flat plateau to the east. Beyond the mountains to the south are large areas apparently suitable in land form which has had no caribou in recent time (see Fig. 1). The inhabited ranges are foothill elevations, less given to dome-like form than in the three ranges described above. Here, rather, is a more general uplift adjacent to the mountains proper. Meadows and rocky barrens are extensive above treeline.
- E. **Mount Robson Park:** Most of the Rocky Mountains are high and precipitous. Associated with the low Yellowhead Pass, however, is an area of more subdued topography following the Continental Divide for some 100 miles. This area supports the southernmost caribou herds in British Columbia to be found east of the Rocky Mountain Trench. These are the herds inhabiting Jasper National Park, Mount Robson Provincial Park, and adjacent areas to the north. Here extensive flats and gentle slopes above timberline provide large unit areas of arctic-alpine habitat. High mountains lie to the north and south, to the west is the low Trench, and to the east lie dry forests descending to the Great Plains.

Atlas data. – The land form map used is remarkably detailed for its scale. Diagrammatic symbols resembling land forms cover the sheet. Since land forms may exhibit gradual change from plateau, through foothills, to mountains, the location of a line delimiting areas of subdued mountainous terrain is often a matter of personal opinion. Figure 1 indicates these as delimited by the writer and more or less agreed upon by a colleague who is a geographer.

Caribou winter ranges shown in Fig. 1 are based upon another map in the same atlas. Areas indicated must be taken as only approximate, for there is still much to be learned about caribou and their distribution in this province.

Figure 1 shows that most winter ranges are in or near areas of subdued mountainous land form, most of which are foothill areas. Exceptions are some ranges located in two parts of the province, the northeast and the southeast.

Of 44 winter range areas shown in Fig. 1, only six are more than 20 miles removed from foothill areas.

Discussion. – It is evident from Fig. 1 that caribou do not inhabit all areas with foothill land form. Such land form is but one requirement of caribou habitat in British Columbia. Presumably, those areas apparently suitable as to land form but without resident caribou lack other requisites of caribou environment. For instance, some foothill areas in the southwestern part of the province are inhabited by bighorn sheep (*Ovis canadensis*) rather than by caribou, and in one area elk (*Cervus canadensis*) have flourished following introduction there. In this region grasslands tend to penetrate into the higher elevations. These ranges are apparently ecologically unsuitable for a boreal animal such as caribou.

The eastern foothills of the Rocky Mountains in and near the drainages of the Peace River (Lat. 56 deg. N) are also uninhabited by caribou. Here again, perhaps, the climate and vegetation are unsuitable. Adjacent plains to the east have a strong prairie grassland influence expressed in aspen parklands and agricultural soils. Bison (*Bison bison*) used to be found there (Wade, *MacKenzie of Canada*, Blackwood, London 1927) and remnant herds of elk still occur.

The Rocky Mountains south from about Lat. 52 deg. N do not contain caribou. These mountains are high and precipitous, and do not anywhere offer extensive alpine meadows above timberline.

The isolated range of caribou on the Queen Charlotte Islands is of particular interest. Caribou are confined there to a small area with suitable land form. Temperatures are moderate and precipitation is high. It is possible that these animals are now extinct, as there is no recent information concerning their status.

The absence of caribou from Vancouver Island is probably related to glacial history. Many animals common on the mainland of British Columbia have not been found on Vancouver Island in historic time.

The three winter ranges in the northeast part of the province and remote from foothill relief are of special interest. These are the only three in the province at elevations below 2,000 feet, and they are in the only large tract of land in the province with this low elevation. Elsewhere areas below 2,000 feet are confined to narrow strips along the coast, or to the valley bottoms of the largest rivers. Perhaps caribou using these low ranges are of the woodland type. For years there have been unsubstantial reports of woodland caribou (*Rangifer caribou*) on these forested plains of northeastern British Columbia. This area is continuous with, and similar to, the coniferous Boreal Forest extending across Canada. Woodland caribou inhabit favoured parts of this forest from Alberta to Newfoundland. Perhaps British Columbia contains the westernmost populations.

The occurrence of caribou in British Columbia south to the International Boundary (Lat. 49 deg. N) appears to be a result, in part at least, of the high elevations attained by the southern mountains. The *Atlas of Resources* Map No. 1, showing elevations throughout the province, indicates that few mountains in the northern half of the province exceed 10,000 feet above sea level. Over large areas elevations between 4,000 and 6,000 feet are predominant. In contrast, the Rockies and associate mountainous areas south of Lat. 54 deg. N frequently exceed 10,000 feet, while large areas are in the interval between 6,000 and 10,000 feet. This fortunate condition of high mountains in the south is probably an important factor extending southward habitat suitable for caribou.

Summary. – Field work in British Columbia has suggested that mountainous areas inhabited by caribou (*Rangifer arcticus*) have a characteristic land form. Inhabited areas have rolling mountains with summits above treeline, or are elevated tablelands. These are often transitional areas, both in land form and in location, between plateaus and ranges of precipitous mountains. A test of this theory by comparing two maps of the province, one showing land forms, the other the areas used by caribou in winter, has substantiated the relationship. It is concluded that the so-called mountain caribou of British Columbia does not inhabit precipitous mountain masses, but rather finds suitable environment where rolling mountains and tablelands permit the existence of extensive arctic-alpine meadow with associated open subalpine forests.

Parks Branch, Dept. Of Recreation and Conservation, Victoria, B. C. Received February 18, 1957.