What's happened to the Fortymile caribou herd?



mals during the early 1940s (Fig. 2). The herd then increased to approximately 50,000 caribou by the early 1950s, but then began another decline in numbers. By 1969 the population was believed to number not over 20,000. A photo census of the herd in 1973 provided a minimum estimate of 5,300 animals during October and probably there are a few less caribou today (1975).

The present range of the Fortymile herd is small compared to its range of former years (Fig. 1). No longer does the herd make its annual trek to the White Mountains

calving grounds, but instead the caribou calve south of the Steese Highway along the headwaters of the Chena and Charley rivers and Birch Creek. Roving in the Tanana Hills between the Steese and Taylor highways, the caribou summer in the high country. In the past, fall migrations have taken these caribou east across the Taylor Highway into Canada. However, during 1973 and 1974 most of the caribou wintered in Alaska near their summer range east of the Taylor Highway.



AS FAR BACK as 13,000 years ago, when man probably first set foot in Alaska, caribou herds have been fluctuating in numbers. Little has changed and caribou herds during recent times have or are undergoing dramatic changes in population sizes. The Fortymile herd is no exception. Old-timers have seen the herd become one of Alaska's largest and decline to a mere remnant of its former size.

Distribution and Abundance

During the early 1900s the Fortymile caribou herd was probably increasing in size, reaching its peak in the 1920s. Some say the herd reached one-half million animals or more, but whatever the size, it must have been an awesome sight. The caribou occupied a much larger range than today, utilizing country north of the Yukon River, migrating near Nenana, Fairbanks

and Circle, and wintering as far east as Dawson and Whitehorse and south in the Alaska Range and Nelchina Basin (Fig. 1), Southward movements of the Fortymile herd at its peak may have contributed substantial numbers to the Delta, Nelchina, Mentasta and Chisana herds.

The decline of this great herd began in the 1930s and may have reached a low of only 10,000 aniBy William C. Gasaway Game Biologist Fairbanks

Why Did the Herd Decline?

The reasons for the major decline during the 1930s are not fully

William C. Gasaway has been with the department since 1972. He holds a B.S. degree in wildlife management from Michigan State University and an M.S. degree in zoology from Washington State University.

known However, the initial stimulus for the population decline may have been diminishing range quality resulting from the tremendous grazing pressure applied by the large numbers of caribou and possibly the destruction of range by frequent wild fires.

Large numbers of caribou are known to have left the Fortymile herd in 1957 and 1964, joining the Porcupine herd wintering nearby in the Yukon Territory. Quite possibly other major emigrations have occurred unrecorded, contributing to further decline of the Fortymile herd, but bolstering numbers in other caribou herds. As mentioned earlier, the results of such movements may have been responsible for establishing small herds on the north side of the Alaska Range and may have increased the Nelchina herd during the 1920s.

Could hunting have caused the decline? It is unlikely that hunting could have initiated the decline beginning in the 1930s. However, the subsistence hunting by miners and natives may have become a serious factor once the decline began and accelerated the natural decline. More recently, recreational hunters along the Steese and Taylor Highways have killed large numbers of caribou which significantly reduced the size of the herd. During 1970, 1971 and 1972 an estimated 1.390. 2,360 and 1,330 caribou were taken per year from this herd in Alaska. With knowledge gained in studies during 1973 and 1974 it became apparent that the herd could not sustain that high level of harvest, and since 1973 the legal (con't, on next page)



harvest has been reduced to less than 100 animals per year.

In 1973 the Department of Fish and Game decided to impose a very restrictive season and bag limit with the hope of allowing the population to increase. The rate of decline was slowed by this action but not stopped. Hence, even with almost complete cessation of hunting the herd has not increased.

Why Isn't the Herd Increasing?

For a herd to increase, young must be produced and survive to a reproductive age at a greater rate than adults are dying. Herein lies the problem. Caribou of the Fortymile herd produced sufficient numbers of calves during the past three years, but most of them died before they reached 16 months of age. Calf counts made shortly after calving in early June of 1973 and 1974 indicated about 55 calves per 100 adult cows were produced and survived to 1.5 weeks of age. Successive composition counts during the summer recorded the decline in the proportion of calves. Bv fall only an average of 18 calves per 100 adult cows had sur-67 per cent of hence vived, the calves that were alive in early June had died by fall. The low proportion of yearlings indicates that only about 50 per cent of the calves alive in the fall will survive to the following fall (16 months of age). Therefore, of every 100 calves alive at the age of 1.5 weeks, only 15 survive to become yearlings.

In a stable population the number of calves surviving to become yearlings is approximately equal to the adult mortality. The total annual production of yearlings in the Fortymile herd is approximately 275 with a population of about 5,500 caribou. Mortality of adults in the Fortymile herd is likely to be greater than yearling recruitment thus the herd may be slowly declining. For the Fortymile herd to increase in size either the recruitment level will have to increase or adult mortality decrease. Since the restrictive season and bag limit went into effect in 1973, adult mortality has decreased to about the lowest level we can expect without action to reduce natural mortality factors. Therefore, if the herd is to increase, calf survival must improve.

Why Don't Calves Survive?

Factors affecting calf survival in the Fortymile herd are not well understood, but are likely to be associated with one or more of the following: weather, nutrition, disease and predation. As a result of recent preliminary studies, game biologists speculated that weather and nutrition are not major factors responsible for recently observed low calf survival. They believe predation is presently the single most important cause of calf mortality and is precluding the growth of the herd. Both grizzly bears and wolves are abundant in the range of the Fortymile herd and are considered the major predators utilizing caribou. Presently the importance of disease as a mortality factor on calves of the Fortymile herd is unknown.

The Future

The immediate outlook is not bright for the Fortymile herd. However, keep your fingers crossed, for if the Porcupine herd some day repays its debt the Fortymile herd could be many thousands of caribou richer. In fact during the winters of 1973-74 and 1974-75, 10,000 to 20,000 caribou from the Porcupine herd wintered near the Alaska-Yukon border and had they decided to go east rather than north in the spring the Fortymile herd could have grown substantially.

But without an infusion from another herd or a reduction in calf mortality, the herd will not increase in the near future and will most likely decline slowly. Until there is a significant increase in the numbers of caribou, seasons and bag limits will remain very restrictive.



ADFG photo



NOVEMBER - DECEMBER 1975 ALASKA DEPARTMENT OF FISH AND GAME