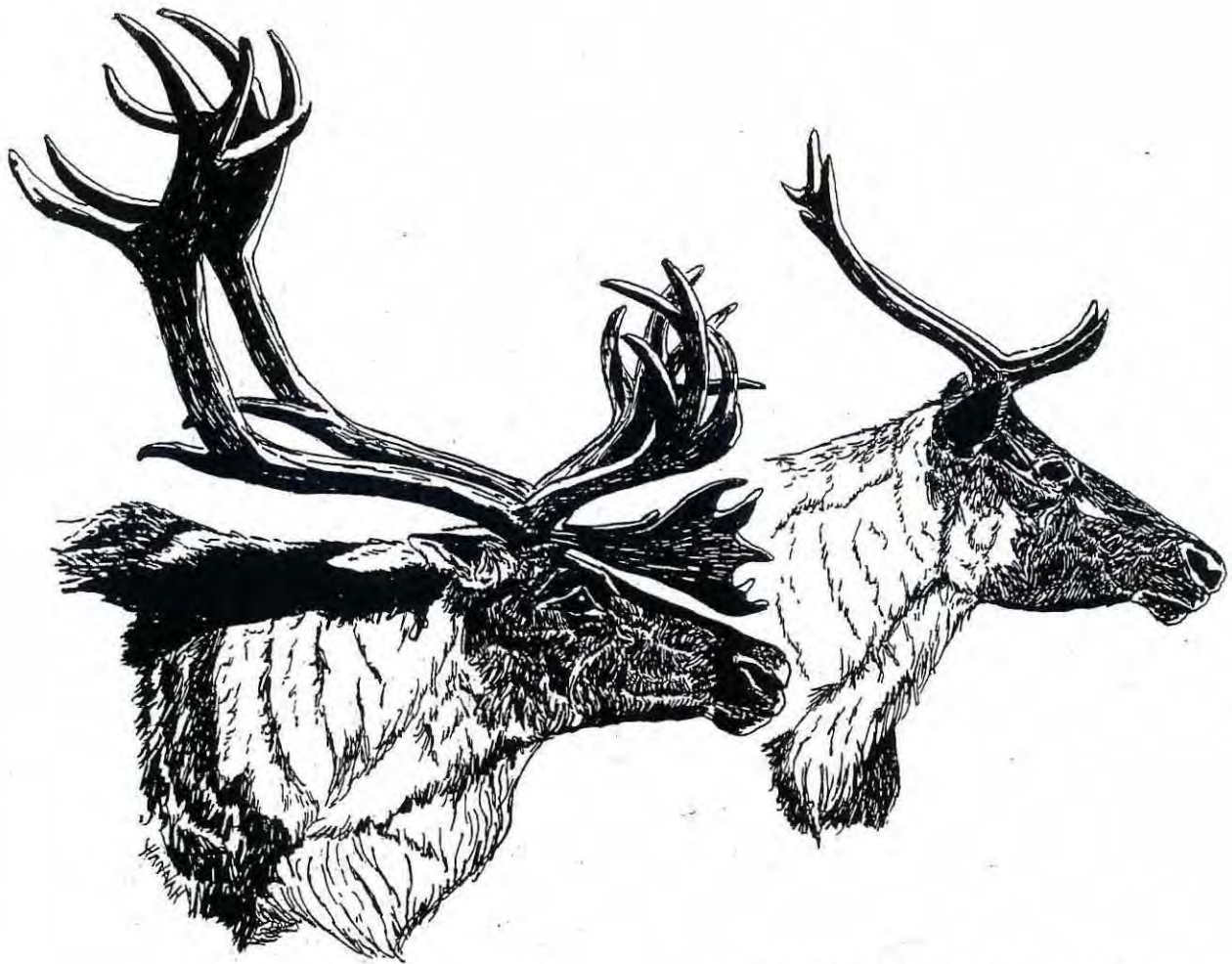


WERNECKE MOUNTAIN CARIBOU STUDIES

1980 - 1982



**A condensation of the
final report of
Richard Farnell and
Don Russell
October, 1984
by
Doug Urquhart
March, 1986.**

Yukon
Renewable Resources

Introduction

One of the biggest jobs for the Yukon's Fish and Wildlife Branch is managing caribou. Basically, we do this by keeping track of changes in the number of caribou in each herd to make sure that hunters aren't harvesting too many. This is always a difficult task, but particularly in the Ogilvie and Wernecke Mountains where several caribou herds occupy the same range during the winter. And to make matters worse, this situation involves both types of caribou found in the Yukon — barren-ground and woodland.

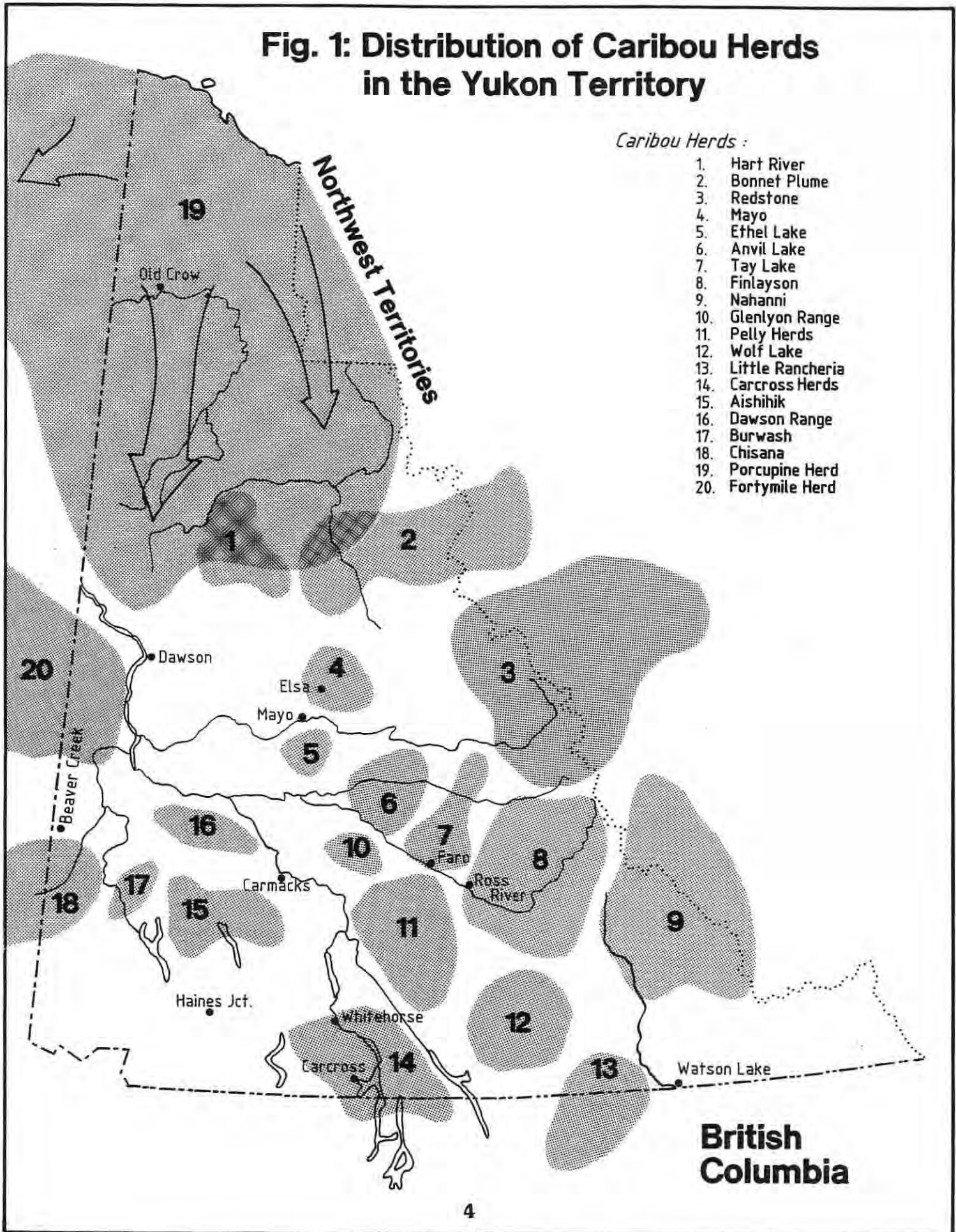
Caribou of the Porcupine herd are the barren-ground type living in northeastern Alaska and northern Yukon. After spending the summer near the arctic coast, they migrate southward in the fall and in most years some Porcupine caribou reach the Ogilvie and Wernecke Mountains. Woodland caribou are the other type and they are found in many small herds scattered across the rest of the Yukon from the Ogilvie and Wernecke Mountains to the B.C. border (Fig. 1).

During winter, part of the Porcupine herd often inhabits the Ogilvie and Wernecke Mountains which are also occupied by woodland caribou. The Fish and Wildlife Branch was aware of this, but before 1980 we did not know what happens when these two types of caribou meet. Do they actually intermingle or remain in separate groups? Do woodland or Porcupine caribou sometimes switch over to another herd and migrate with it in the spring? Or maybe these two types of caribou just share the area during winter but separate completely in the spring, with all the Porcupine caribou moving north to their calving ground while all the woodland caribou remain in the Ogilvie and Wernecke Mountains?

These questions had to be answered because it would make a big difference to our population estimates if we found out that Porcupine caribou and woodland caribou were switching back and forth from one herd to another. It was also necessary to find out more about woodland caribou in the area: how many there were, if they belonged to distinct herds; and if they did, what areas each herd occupied.

In 1980 we began a two-year study that was designed to answer as many of these questions as possible. The results would be used to improve caribou management in that area and could also be valuable to the management of all the other caribou herds in the Yukon.

Fig. 1: Distribution of Caribou Herds in the Yukon Territory



Methods

Radio-collaring

The only way to find out whether Porcupine caribou and woodland caribou did mix in the Ogilvie Mountains was to radio-collar some of each and see where they went throughout the year. After experimenting with capture methods, we chose the New Zealand net-gun technique (Fig. 2) which is superior to others because it does not involve drugs. Instead a special nylon net is fired at the caribou which can then be held down by several people and collared (Fig. 3). During the two-year project we collared five bulls and 27 cows. We purposely collared more cows than bulls in order to find out where and when calving took place.

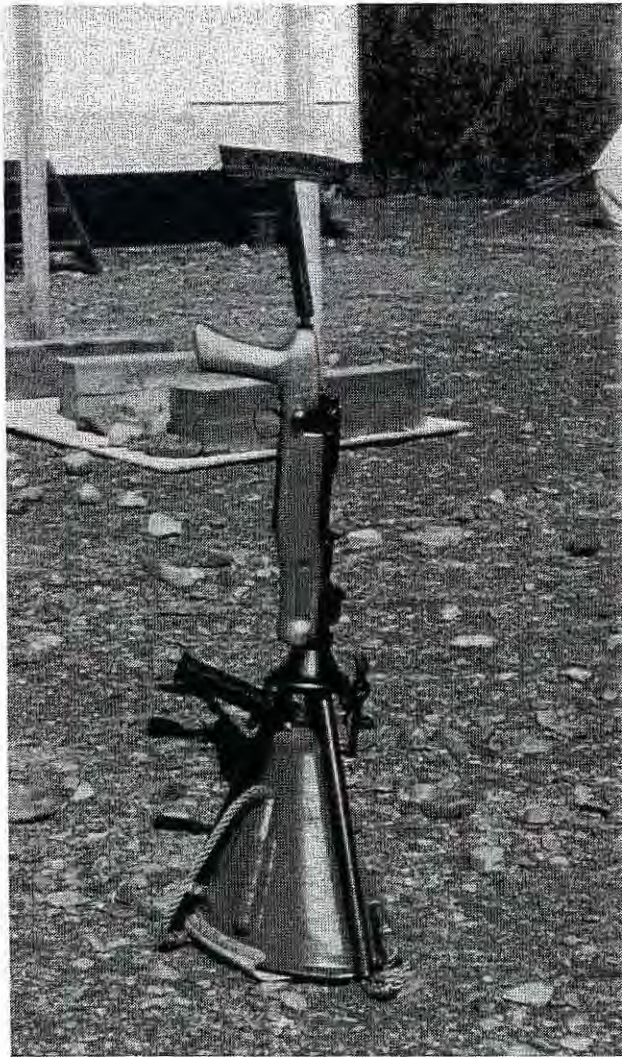


Fig. 2

Tracking and surveying

Relocating radio-collared caribou is done with aircraft. We fly back and forth across the area in a small airplane carrying a directional antenna (Fig. 4) that picks up a signal from the caribou's collar. When we hear a signal on our headsets we follow it until we can see the caribou or at least pinpoint its approximate location. We attempted to relocate the caribou at four specific times of the year; late winter, calving, after calving, and during the fall migration. Over the period of two years we made a total of 204 sightings on the 32 collared caribou. We also recorded the location and direction of caribou tracks during these flights to get a better idea of movements



Fig. 3

Methods cont'd.

and distribution during the year.

In addition to radio-tracking flights, we surveyed the Ogilvie and Wernecke Mountains in March 1980, 1981 and 1982 to plot the late winter distribution of all caribou in the area. We also made one aerial survey in July 1980 to photograph the large groups of caribou that form after calving. By counting the animals in such photos (Fig. 5) we hoped to get a minimum population estimate for woodland caribou.

To get an idea of the relative percentage of bulls, cows and yearlings in the populations we do "composition counts." This involves setting out pairs of trained observers to watch parts of the spring migration (Fig. 6). Hour after hour the observers, with spotting scopes, record the age and sex class of each caribou moving past them. The ob-

servers are shifted to many different locations to make sure that our sample is large and accurate. From such counts we can determine the status of the herd; that is, whether or not it is being heavily hunted and whether it is increasing or decreasing.

Hunting reports

To find out about caribou hunting in the Ogilvie and Wernecke Mountains, we went through the yearly reports from Yukon outfitters. These showed the number of caribou shot by non-resident trophy hunters. To find out how many caribou were killed by licensed Yukon hunters, we used questionnaires sent to them between 1978 and 1981. Since these reports did not apply to native people, we also relied on our conservation officers and others who knew about hunting in the area.

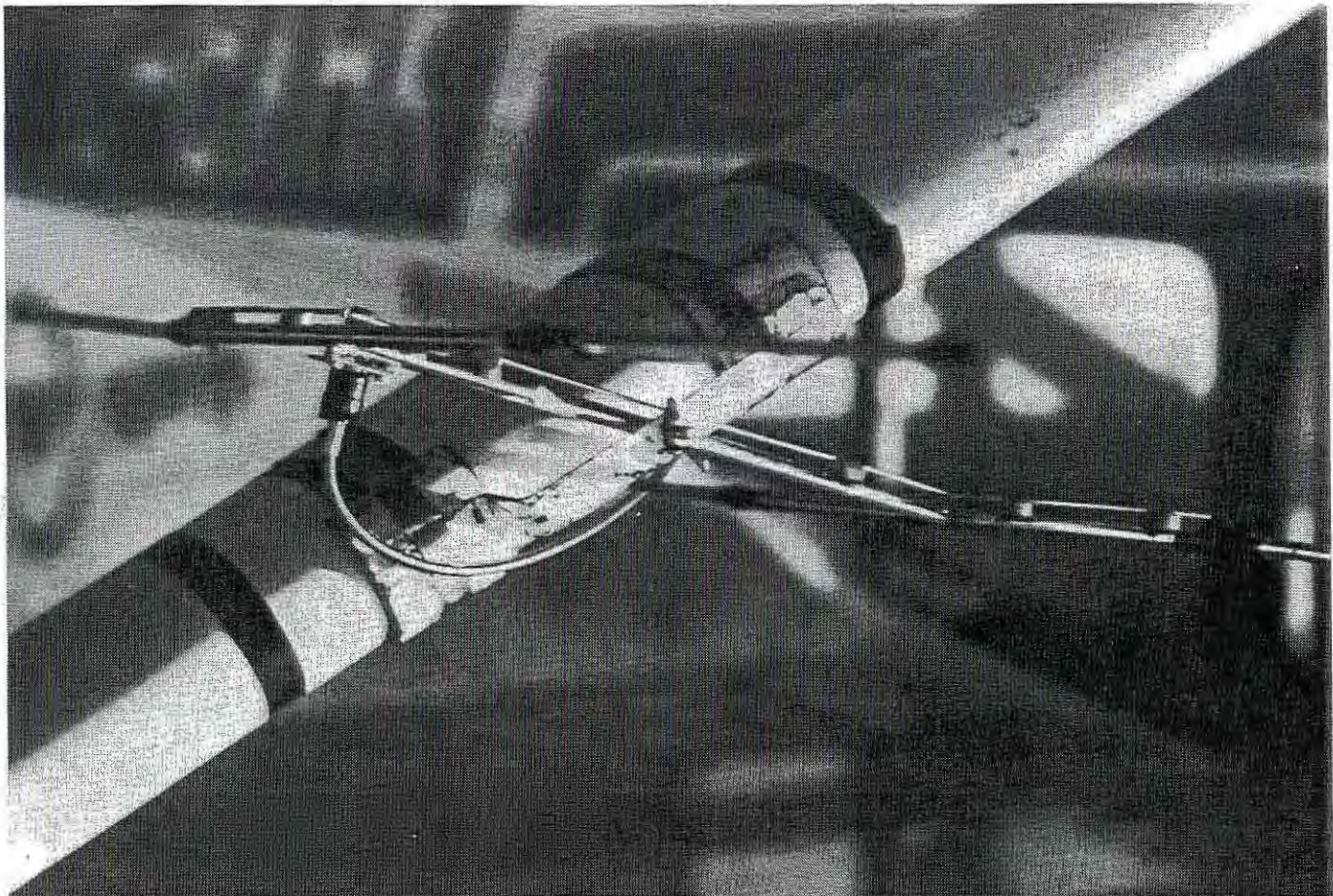


Fig. 4

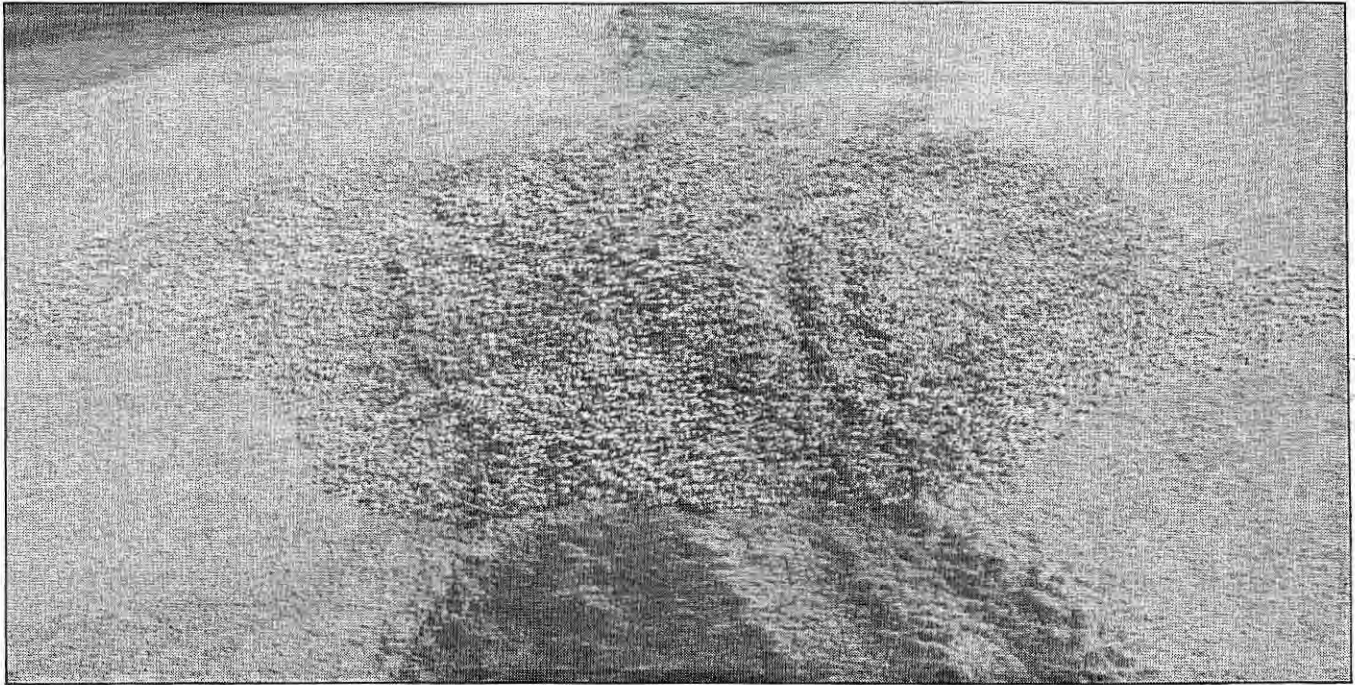




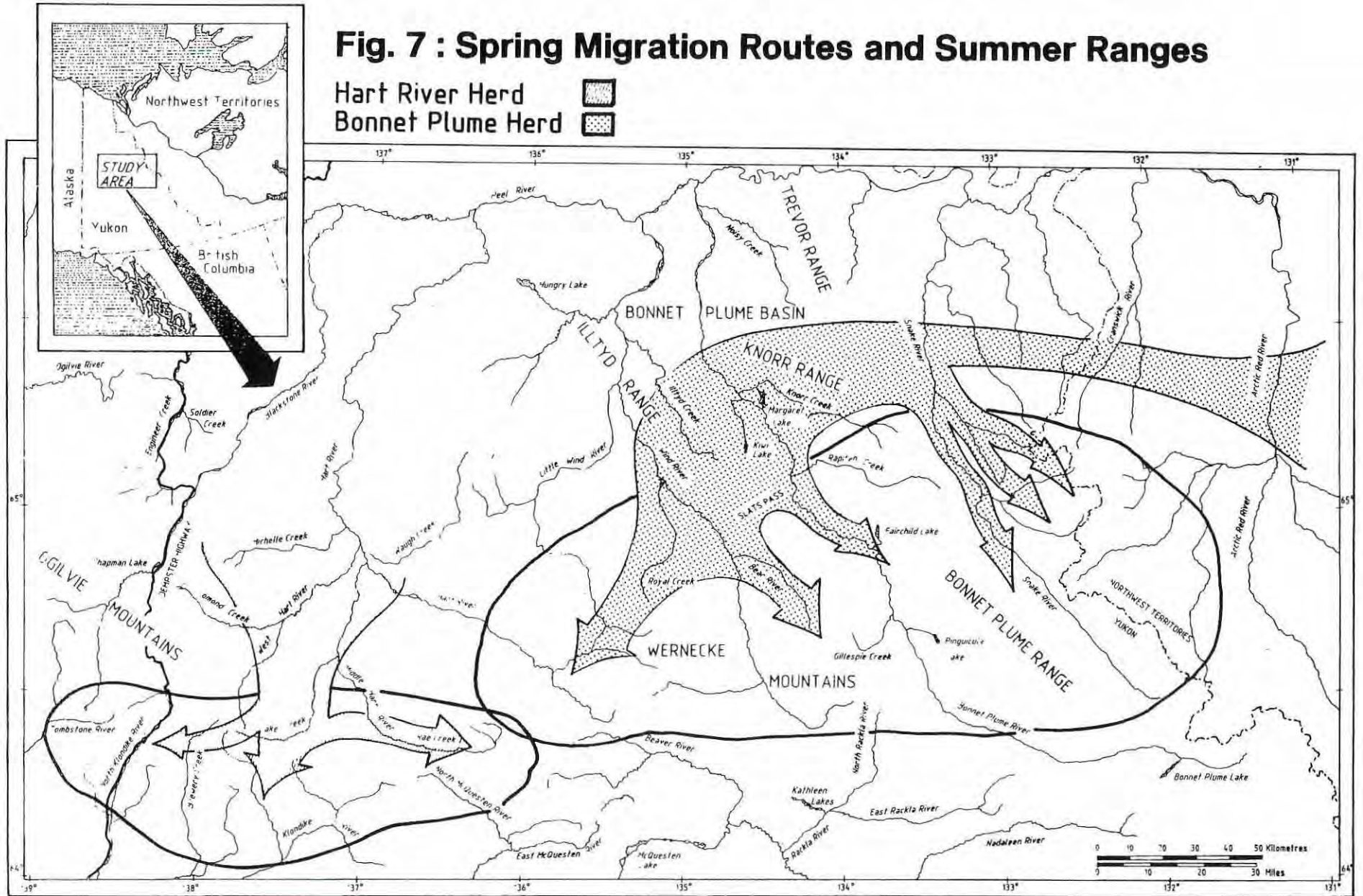
Fig. 5



Fig. 6

Fig. 7 : Spring Migration Routes and Summer Ranges

Hart River Herd 
 Bonnet Plume Herd 



The Results

Woodland caribou

From our aerial surveys and radio-tracking results we found that there are two separate herds of woodland caribou in the Ogilvie and Wernecke Mountains (Fig. 7 & 8). We also found out what happens when they meet Porcupine caribou during the winter. Keeping in mind that most of our information only covers a two year period, we can describe each herd as follows:

a) Hart River herd (woodland caribou)

The Hart River herd of woodland caribou spends the winter in the Hart River Basin and migrates south in the spring to the Upper Klondike River. During the spring migration Hart River caribou travel in small bands of usually less than 30 animals. The Hart River herd does not have a common calving ground like the Porcupine herd does. Instead each pregnant cow has her own particular spot that she returns to each year. In order to avoid wolves and other predators, Hart River cows do not calve in the Klondike River valley but climb into the steep and rugged mountains high above the river. There, the calves are born between May 19 and May 26, with most of them arriving around May 23.

We still do not know where the Hart River herd goes right after calving but by mid July they are scattered mainly between the Upper Klondike River and the Upper Hart River. In the fall they migrate northward, down from the mountains to the spruce forests in the Hart River Basin.

Unfortunately, the herd was too scattered for the photo-counting method to work. We only counted 490 animals in the photographs taken in July 1980. However, a separate count of 977 was made in the summer of 1978. Assuming that some caribou were missed on that survey, we estimated that the total population in 1978 was about 1,200.

The percentages of bulls, cows and calves in the Hart River herd are also unknown because the only time we could do the composition counts was when a lot of Porcupine caribou were still mixed in with the Hart River herd. This would have made our results completely inaccurate.

From the hunting records we found that in total, Yukon residents kill about 12 Hart River caribou a year and non-residents kill about five a year while native people probably take fewer.

b) Bonnet Plume herd (woodland caribou)

The Bonnet Plume herd of woodland caribou spends the winter between the Arctic Red River in the east and the Wind River in the west. During the spring migration, which is generally to the southwest, these caribou often group into bands of 300 or more individuals, mostly adult females. Like the Hart River caribou, pregnant cows choose rugged and remote areas for calving, which occurs between May 19 and May 26 with most calves being born around May 23. Also, like the Hart River herd, it seems that each Bonnet Plume cow returns to her own calving place.

After calving, the Bonnet Plume herd continues to move in a southwesterly direction which brings it very close to the edge of the Hart River herd and probably there is some sharing of summer ranges between them. However, from our radio-tracking, we know that in the fall the Bonnet Plume caribou and Hart River caribou split up into separate migrations. These fall migrations take the Bonnet Plume herd northeastward and the Hart River herd northward to different winter ranges.

The photo-count experiment did not work for the Bonnet Plume herd either. In July, 1980 we only photographed 247 caribou which is just a small fraction of the herd. From the many observations we have made during three winters of surveying, we feel that it consists of about 5,000 animals.

Our composition counts show that a lot of calves born in 1980 and 1981 survived their first winter, leading us to believe that the herd could be growing in numbers. Also, the relatively high ratio of bulls to cows (almost 1:2) means that there is little hunting of this herd. In fact, we know this is true for the Bonnet Plume herd from our hunter reports which show that in total, Yukon residents average only one caribou a year and non-resident trophy hunters in the Yukon average 17 Bonnet Plume caribou a year. Although there are no records for the N.W.T., we believe that there is not much sport hunting of this herd over there. Similarly, we feel that native people take few if any Bonnet Plume caribou.



Results cont'd.

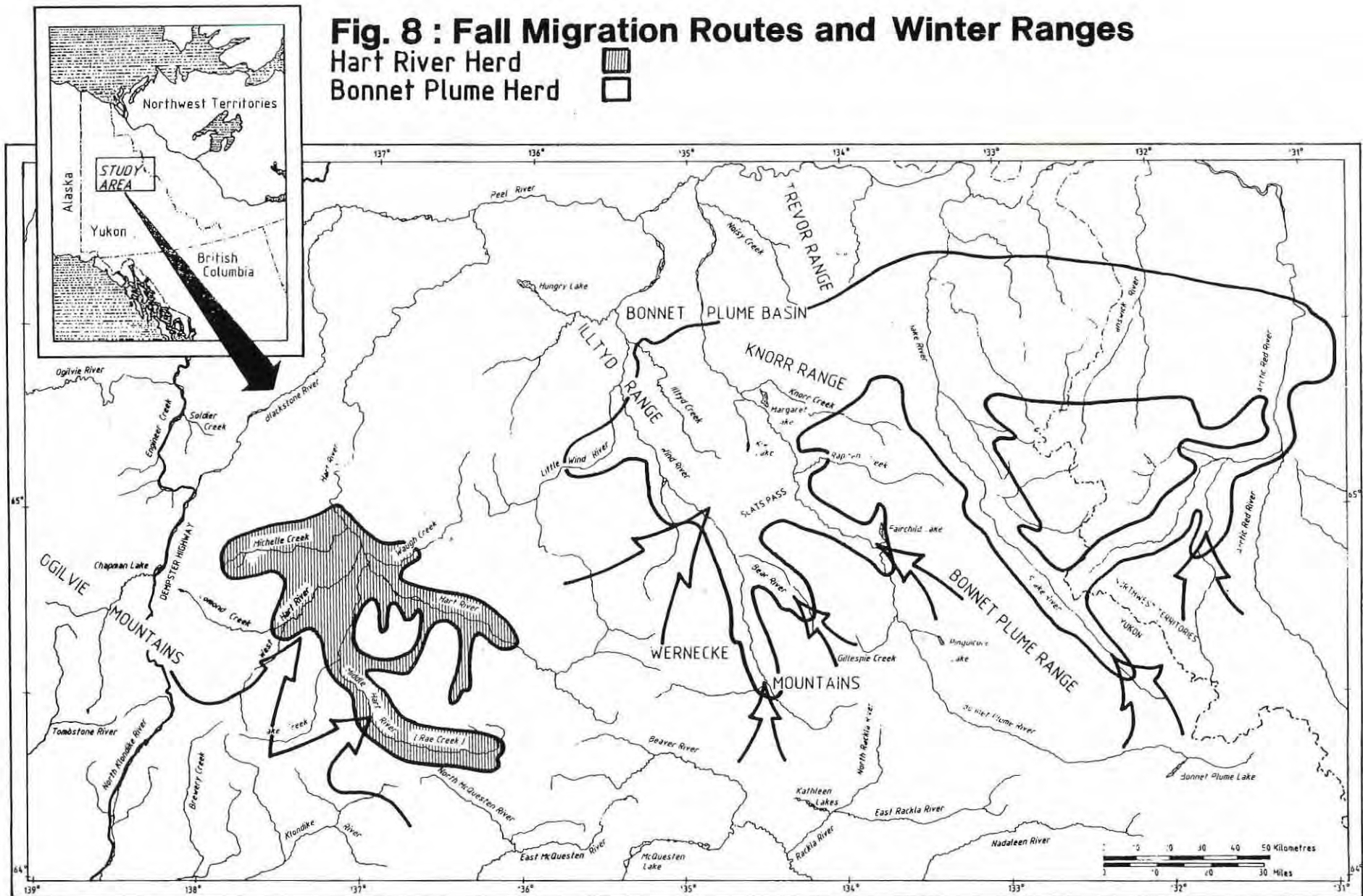
c) Porcupine herd (barrenground caribou)

During the fall and winter, part of the Porcupine herd often reaches the Ogilvie and Wernecke Mountains where some groups mix in with groups of woodland caribou from the Hart River and Bonnet Plume herds. However, when spring arrives these groups split up again with the Porcupine caribou migrating north out of the Ogilvie-Wernecke region while Hart River caribou head south to the Klondike River and Bonnet Plume caribou move southwest into the Wernecke Mountains.

This makes sense, as female woodland caribou give birth about 12-14 days earlier than Porcupine caribou. If they went with the Porcupine herd, they would never reach the calving grounds before their calves were born. As for the bulls, we assume that they also split up in the spring like the cows do, with each bull following its own herd. This is based on the results of our five radio-collared bulls and is also supported by another project which showed that radio-collared bulls from the Porcupine herd always stayed with that herd.

Fig. 8 : Fall Migration Routes and Winter Ranges

Hart River Herd 
 Bonnet Plume Herd 



How Our Results Are Affecting Caribou Management

The results of this project are helping us to manage Yukon caribou in the following ways:

a) Because we learned that the Hart River, Bonnet Plume and Porcupine herds are all independent populations, we can manage each of them separately. For example, if one herd starts to decrease we know that there is a real problem with that herd and not that part of it just joined one of the other herds.

b) Right now we think that the Hart River herd can withstand the present amount of hunting but not much more. The Bonnet Plume herd and Porcupine herd however are probably growing in numbers and could take more hunting. This is why in 1983 the bag limit was increased to two caribou in Game Management Zones 1 and 2. Within these zones we excluded areas belonging to the Hart River herd to protect it from overhunting due to the easy access provided by the Dempster Highway and the West Hart River Road.

We are also encouraging native people to hunt more Bonnet Plume caribou in order to take the pressure off over-hunted populations like the Finlayson herd.

c) Because we learned that woodland caribou do belong to herds that can be managed separately, we are using the methods from this project to describe other woodland caribou herds in the Yukon. Eventually we hope to have a complete map of all the woodland caribou herds here, which will help us make management decisions that fit the needs of each herd.

d) We are always trying for greater accuracy in counting woodland caribou. We already have a good method for counting small herds and are working on finding one that works for big herds such as the Hart River and Bonnet Plume herds.

This project was designed to clear up a confusing management problem in the Ogilvie and Wernecke Mountains by answering some basic questions about woodland and Porcupine caribou. In addition to improving caribou management in the Yukon, our results will also be helpful to others studying and managing caribou in Canada, Alaska and even Europe. Thus, this project will eventually benefit a great many people in numerous places, from hunters in the Yukon to wildlife managers and scientists around the world.



Fig. 9