

How have wildfires affected the peninsula's caribou population?

by Brandon Miner

A few years ago, I was fortunate enough to have my name drawn for a caribou hunting permit for the Kenai Mountains. I have hunted white-tailed deer and mule deer for many years in the Midwest, and this was my first caribou hunt. I didn't take an animal, but I certainly enjoyed the excitement of the hunt and the scenic hike above treeline.

This past fall I accompanied some friends on a successful caribou hunt in the Kenai Mountains. One could say that I was fortunate to accompany my friends on this hunt, but after packing 80 pounds of meat four miles down the mountain, I found out why they were so keen to have me along.

Caribou have always been mysterious animals to me. I've long thought of them as creatures of wilderness, tough enough to endure extra-harsh conditions.

Having done some research on moose and fire, I began to wonder about caribou. It's widely recognized that burning spruce forest is beneficial to moose because fire generates hardwood winter browse such as birch, willow and aspen. But what about caribou and fire on the Kenai Peninsula? Do caribou benefit from fire?

Historically, caribou were found on the Kenai Peninsula, although the few historical records are not clear on their distribution and population size. During the 1800s, caribou were in the Caribou Hills and Skilak-Tustumena benchlands areas. Moose are reported to have been rare during this time. By about 1913, caribou became extinct on the Kenai Peninsula.

The peninsula is connected to mainland Alaska by an 11-mile wide strip of land, much of it ice-covered. For many species, this narrow isthmus makes the Kenai more of an island than a peninsula. We hypothesize that the original Kenai caribou were genetically distinct from interior herds due to breeding isolation on our "island," perhaps since the last major glacial period. Some historical reports claim that caribou became extinct on the peninsula because their winter range was destroyed by fire, while others claim that uncontrolled hunting and natural mortality were the primary causes.

Trapper Andrew Berg, for example, described fires on the Tustumena benchlands in 1871, 1881 and 1910, and it is possible that these fires destroyed lichen winter range that was important to local caribou.

Be that as it may, the benchlands fires probably created a lot of willow browse, which greatly increased the moose population. By the turn of the century, hunters from Europe were writing exuberant travelogues on the excellence of moose hunting on the Kenai benchlands.

A 1994 Alaska Department of Fish and Game report stated that market hunters during the early 1900s hunted caribou for mining camps and may have killed most of the remaining original population. Animals not killed by humans probably died through predation and old age. Whether fire was a substantial factor in the caribou decline remains an open question, because the known fires were nowhere nearly extensive enough to have significantly reduced the potential caribou range over the entire peninsula.

Fortunately, this story has a happy ending. Interest in reintroducing caribou to the peninsula increased in the 1950s, with the U.S. Fish and Wildlife Service leading the way with a 1951 reintroduction plan. In 1965 and 1966, Fish and Game imported 44 caribou from the Nelchina herd near Glennallen, which created the Kenai Mountains herd (north of the Sterling Highway) and the Kenai Lowland herd.

Despite these successful reintroductions, the historical caribou range in the central and southern peninsula remained unoccupied. So, in 1985 and 1986, 80 more animals from the Nelchina herd were released at four sites, creating several new herds in the mountains between Skilak Lake and the Fox River.

But still the question remains, what about the effect of fire on Kenai caribou?

In Interior Alaska people usually assume that because caribou are often feed in mature black spruce-lichen habitat on their winter ranges, burning such habitat was detrimental to caribou and caused population declines. Recent studies, however, have shown that caribou are not entirely dependent upon lichen for

winter food and that only an insignificant percentage of total caribou winter range is burned annually. This view maintains that fire is necessary for nutrient cycling processes in the northern environment, and that fire is not at all detrimental to caribou populations in the long run.

On the peninsula, the alpine herds spend both summer and winter in the mountains, well above tree-line, so they are effectively beyond the range of most fires. The Lowland herd, however, ranges over much of the central peninsula, from the Kenai River flats to the foothills of the Kenai Mountains. These caribou could be affected by a loss of forest habitat, and they are probably the modern analogue of the original Kenai caribou.

As in most forested areas in the northern region, fire is a natural occurrence on the Kenai Peninsula. Although lichens recover very slowly following a fire, vegetation studies show that in the absence of fire, shade-tolerant mosses can replace light-loving lichens as the forest canopy closes over a period of decades. While fire destruction of lichens means immediate loss of winter caribou range, fire at long intervals appears to be necessary to maintain optimum lichen growth in the forests.

Although the caribou herds on the peninsula are much smaller than in Interior Alaska, it would take quite a large fire to remove enough forest to affect our Lowland caribou herd. In fact, a natural fire regime is probably the best guarantee that such a large fire will

not occur. Many small fires spread over many years will create a vegetation mosaic and prevent the spread of new fires, so that in any given year only a small percentage of the range is burned.

With an ever-increasing human presence on the Kenai, a natural “let burn” fire regime is not always possible over much of the Peninsula. Fire managers walk a tightrope because complete fire suppression can cause a large fuel build-up (over a time span of decades, as we see in the western United States) and subsequent large catastrophic fires. On the other hand, a “let burn” approach risks the possibility of escaped fire that threatens human life and property.

The best option is probably to allow natural fires to burn when not near human settlement, supplemented with prescribed burning in selected areas for fuel reduction and habitat improvement. With careful management and luck, we should be able to prevent large devastating fires that are bad for both humans and caribou, and still create a mosaic of forest vegetation of different ages that is beneficial for all forms of wildlife.

Brandon Miner has worked at the Kenai National Wildlife Refuge since 1998. He recently completed an master's degree at Alaska Pacific University, evaluating 50 years of moose habitat enhancement programs on the refuge. He is currently employed as a biological science technician with the refuge fire program. Previous Refuge Notebook columns can be viewed on the Web at <http://kenai.fws.gov>.