

REVIEW

CARIBOU HERDS OF NORTHWEST ALASKA, 1850–2000

Ernest S. Burch, Jr., edited by Igor Krupnik and Jim Dau, 2012. University of Alaska Press, Fairbanks; 203 pages, photos, maps, tables, appendices, index. ISBN: 978-1-60223-178-8, \$45.00 (cloth); ISBN 978-1-60223-179-5, \$29.95 (paper).

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This small but important work was unfinished at the time of Ernest S. Burch's death in 2010. It might have languished indefinitely except for the determined efforts of a small group of Burch's colleagues and friends who assumed the task of publishing the manuscript. We should thank them for bringing the volume to fruition. The book contains seven chapters, two postscripts, and five appendices. The first five chapters and the appendices are in Burch's hand. The final two chapters, unfinished by Burch, are synopses gleaned from his notes by the editors, Igor Krupnik and Jim Dau.

Chapter 1 describes the geographic and methodological parameters of the book. The study area includes the Alaska mainland north of the Yukon River and adjacent portions of Canada; the study period is 1850–2000. Burch formulated two hypotheses: (1) the same four caribou herds present today were present throughout the period of study; (2) wolf predation was the primary factor limiting caribou numbers. In response to the first hypothesis, Burch developed models of annual caribou movements based on modern biological research and tested them against data obtained from historical records and Native historians. The second hypothesis was similarly tested. Burch, a master at working with Native historians, acknowledges that many view Native observations as anecdotal and thus unreliable. To those critics, he replies that if Native observations were empirically unsound Native societies would have perished millennia ago.

Chapters 2 (Caribou versus Reindeer) and 3 (Predators) are essentially primers intended for those lacking northern

expertise. Although reindeer and caribou are the same species (*Rangifer tarandus*), there are critical differences between the two. Reindeer are part of the discussion because their introduction profoundly influenced the fate of caribou and thus the path of Burch's story. Chapter 3 discusses caribou predation, focusing primarily on humans, wolves, and brown bears, but other predators are discussed as well. For example, sled dogs, which Natives preferred over reindeer as draft animals, were serious reindeer predators.

Chapters 4 and 5 summarize the history of caribou during the "traditional period," which Burch defines as the period immediately prior to about 1850. Chapter 4 discusses the Western District, which extends from Harrison Bay to the Chukchi Sea and southwest to the Yukon River delta, an area coinciding with the contemporary range of the Western Arctic caribou herd. Burch's data suggest that the southern portion of the district was occupied by at least one and possibly as many as three herds in addition to the Western Arctic herd. Caribou numbers fell precipitously during the latter half of the nineteenth century, and the additional herds ceased to exist by 1900. Only the Western Arctic herd remained, albeit in greatly reduced numbers. Similarly, the caribou population of the district's northern section crashed in the 1880s. Severe famine was felt first at Kivalina but soon spread throughout the area, leading to starvation and human relocation.

Chapter 5 discusses the Northern District that comprises the remainder of the study area and is currently occupied by three contemporary herds (Teshekpuk Lake, Central Arctic, and Porcupine River) cumulatively

containing about 200,000 individuals. Unfortunately Burch was unable to obtain oral history data for this region. West of the Colville River mouth, caribou appear to have been relatively abundant until the late nineteenth century. Charles Brower, a long-time resident of the region, claimed there were more caribou in the area in the winter of 1897–1898 than he had ever seen before, but they were virtually absent there afterward. East of the Colville River, early reports suggest caribou were abundant until about mid-century when there was a sharp population decline. The population had rebounded by the time commercial whalers began overwintering at Herschel Island in 1890, however. The overwintering whalers depended heavily on caribou, largely supplied by Native hunters, for meat. Although it is not possible to plot the decline of caribou during this period, it is clear that by 1908 caribou were practically absent from all of northern Alaska. Burch vigorously argues that the decline was largely caused by overhunting.

Chapter 6 addresses the introduction of reindeer to Alaska. Unfortunately, only a single page of this chapter was written before Burch's death. The editors wisely, I think, chose to present a synopsis of the chapter based on Burch's notes rather than to complete it on the author's behalf. From the introduction of about 1,300 reindeer during the decade following 1892, the herd grew to 600,000 by 1930, slightly more than half of which occupied the study area. Unfortunately, Burch didn't live to fully present the fascinating relationship between reindeer, wolves, and caribou. That relationship can be briefly summarized as follows: wolves selectively preyed on reindeer because they are more easily captured than caribou; reindeer have the proclivity to join caribou herds; reduced wolf predation allowed caribou numbers to increase, thus providing more opportunities for reindeer defection. The net result of this was that reindeer numbers declined precipitously while caribou numbers slowly increased.

Chapter 7, presented as a synopsis, summarizes the volume and presents conclusions. Burch maintains that the primary cause of the caribou population crash was human overhunting. Only two of the historic caribou herds survived, the Western Arctic and Porcupine River herds, and these gradually expanded to occupy the ranges of the nineteenth- and early twentieth-century herds. The principal cause of caribou population increase was the shift of wolf predation from caribou to reindeer.

The idea that overhunting was the primary cause of the caribou population crash has been disputed for years and warrants critical examination, although spatial constraints preclude all but the briefest scrutiny here. In the discussion of the Northern District (Chapter 5), Burch accepts Bockstoce's careful argument that whalers overwintering on Herschel Island between 1890 and 1908 bartered for 12,308 caribou carcasses. Burch contends that this figure is accurate but fails to reflect the overall caribou kill because it overlooks the Native consumption of caribou. Although not discussed by Burch, Bockstoce (1986:275) indicates that whalers consumed only slightly more than one percent of the herd annually. Even if whalers and Natives were present in the region in equal numbers, which seems unlikely, the consumption of caribou would have been no more than three percent of the herd per annum. It is difficult to see how a harvest of this size could almost completely destroy the herd(s) in nine years.

Similarly, Burch quotes Charles Brower regarding the large number of caribou present in the Barrow area during the winter of 1897–1898 and an estimate that 1,200 caribou were required that winter to sustain the whalers stranded there. Brower also commented that the following year there were no caribou in the area. It is simply inconceivable that harvesting 1,200 caribou beyond the requirements of local residents would exterminate the herd. Clearly, heavy hunting pressure reduces animal populations. It is equally clear, however, that other factors must have been responsible for the sudden and catastrophic decline in caribou numbers and that one of these factors, or perhaps several in concert, were far more destructive than overhunting alone.

In conclusion, this is an excellent volume. I have focused on parts of the text of interest to anthropologists, but there is a great deal here for biologists as well. The volume is meticulously researched, thoroughly documented, and well thought out. It is... well, classic Burch.

REFERENCE

- Bockstoce, John R.
1986 *Whales, Ice, and Men: The History of Whaling in the Western Arctic*. University of Washington Press, Seattle.