

MUSKOXEN



**Survivors of the
Ice Ages
Find a Place
in the
Modern World**

by Tim Smith



Alissa Crandall

In 1972 when I told people in Michigan that I was moving to Alaska to do graduate research on muskoxen, many of them looked at me blankly and asked, “What’s a muskox?” Since then, public awareness and the numbers of muskoxen in the world have grown hand in hand so that few people now would fail to recognize the name—and many even know something of the distribution and habits of the species. Muskoxen have been used as subjects for numerous photos, paintings, figurines, carvings and other works of art and serve as an appropriate symbol of the arctic. However, I’m not sure that many people are aware of how close muskoxen came to following other former resident Alaskan wildlife such as mammoths and steppe bison into the black void of extinction—and what it took on the part of conservationists around the world to halt and reverse the declining trend in muskox numbers. In Alaska, the program aimed at restoring viable muskox populations to the state continues.

In 1972 restoration of muskoxen to mainland Alaska ranges had just begun, and the success or failure of the program and the magnitude of future muskox populations could not be predicted. The prospect of bringing back a large mammal species from the brink of extinction and returning it to an environment which was virtually unchanged carried an irresistible fascination for me as an idealistic graduate student. As we acquire more knowledge about the ecological relationship of the species today, the potential for success has exceeded my wildest early speculations.

In terms of variety of large mammal species, Alaska is a rather dull place today. Muskoxen are among very few survivors

of a diverse ungulate fauna which inhabited North America during the ice ages. In northern Alaska, where at least 15 species of large plant eating mammals occurred in the relatively recent past, only four (muskoxen, moose, sheep, and caribou) remain. A compelling argument has been made that the development of advanced hunting technology about 10-15 thousand years ago and the related expansion of human hunter-gatherer populations led to the decimation and extinction of the less elusive large mammal species. Muskoxen may have survived when other species failed not because they are difficult to hunt, in fact the opposite is true, but because of their ability to thrive at extreme north latitudes, areas which were occupied only recently by humans and even then at low population densities.

In Europe muskoxen became extinct during the Pleistocene age, probably as a result of climatic change.

In Asia muskoxen survived at least until 2,000 years ago, and some Soviet scientists think they were there much later. Over-hunting by humans is the most probable cause of their extinction. Remnants of muskox populations survived into historical times in isolated regions of Canada and east Greenland.

In Alaska, muskoxen identical to those living today are known to have occurred as early as the Illinoian glaciation about 100,000 years ago and were widely distributed. By the 1800s it must be assumed that muskoxen were rare in Alaska since no early historians reported observing them here.

Even today it is difficult to verify the demise of the last member of a species and it is not clear when the last muskoxen in Alaska were killed. Many contemporary authors, however, consider a report of “many muskoxen” killed near Wainwright

in the winter of 1858 to represent nearly the last Alaskan muskoxen known. However, a less well cited report of animals killed near Christian Village in the winters of 1896-97 or 1897-98 may indicate that isolated groups survived much later. There is no evidence to suggest that muskoxen remained in Alaska by the beginning of the 20th century.

The cause of the long-term reduction of Alaskan muskox populations and their eventual extinction will never be proven. The success of the reintroduced muskox populations in Alaska demonstrates the suitability of the climate and habitat for the species today. There is no evidence to suggest that conditions occurred within the last several centuries which would have precluded muskox survival. It is difficult to imagine climatic change severe enough to cause extinction of muskoxen but no other species. It has often been stated in popular articles that the arrival of whalers and the introduction of firearms led to the demise of muskoxen in Alaska, but there is no documentation that whalers killed any muskoxen in Alaska.

In Canada and Greenland, the arrival of Europeans in the high Arctic had a direct influence on the decimation of muskox populations. In prehistoric and early historic times muskox populations in Canada had been eliminated in southern latitudes and their distribution reduced to the extreme high arctic where human population density was low and in some cases human population was seasonal. With the arrival of trading companies, Royal Canadian Mounted Police posts, overwintering whaling ships and large multi-year exploration parties, came a demand for large quantities of meat, and a new economy developed which would have ensured the eventual elimination of muskoxen.

The development of the fur trade provided a market for muskox hides and skulls and led Native hunters to support large dog teams and operate away from the coast during winter. Large numbers of sled dogs kept by the Europeans and the increased numbers of dogs used by Natives for commercial trading and fur hunting required tremendous quantities of meat. Muskoxen proved to be a predictable and easily obtained source of dog food in winter when alternate sources were not always available.

In east Greenland, exploration parties, trappers and commercial sealers took large numbers of muskoxen for human and dog food. In addition a trade in live calves for zoological gardens developed which resulted in the killing of large numbers of adult muskoxen in the process of obtaining calves. The practice of loosing sled dogs on muskoxen herds to hold them in their defense formation was universally followed and meant that all adult animals in a herd usually had to be slaughtered in order to recover the semi-wild dogs.

By 1917 the declining trend in muskox numbers could no longer be ignored and Canada enacted the Northwest Game Act to provide full protection to muskoxen. However, enforcement was ineffective in the remote regions where muskoxen still occurred. Hunting was still allowed under exceptions to the Act,

including that by Royal Canadian Mounted Police charged with enforcing the law. Extinction of the species appeared to be imminent.

By the late 1920s this concern brought together a variety of people—scientists, explorers, conservationists, sportsmen, politicians and those interested in furthering economic development of the North, to work toward protecting and expanding the numbers and distribution of muskoxen. With the future of the species in Canada and Greenland in doubt, establishment of protected populations in Alaska was seen as a way to conserve an endangered species and to recover an animal which had been absent from the state for at least 30 years.

In 1930, the U.S. Congress appropriated funds to carry out the transplant and President Hoover set aside Nunivak Island as a federal Reserve for these objectives:

1. "To aid in conserving a species threatened with extinction."
2. "For contemplated experiments in reestablishing the muskox as a native animal in Alaska."
3. "For experimentation with a view to their domestication and utilization."

In 1930, muskoxen were obtained from east Greenland, and this extremely successful conservation program continues. Today, the Nunivak Island population numbers just under 600, and four wild populations have been established on mainland Alaska.

Nelson Island: Alaska Department of Fish and Game personnel counted 228 muskoxen on Nelson Island in February 1990. Muskoxen have emigrated to the adjacent Yukon-Kuskokwim Delta over the past 15 years but still have not established thriving populations there. The potential available habitat appears to be widespread and future transplants to the area could produce excellent results.

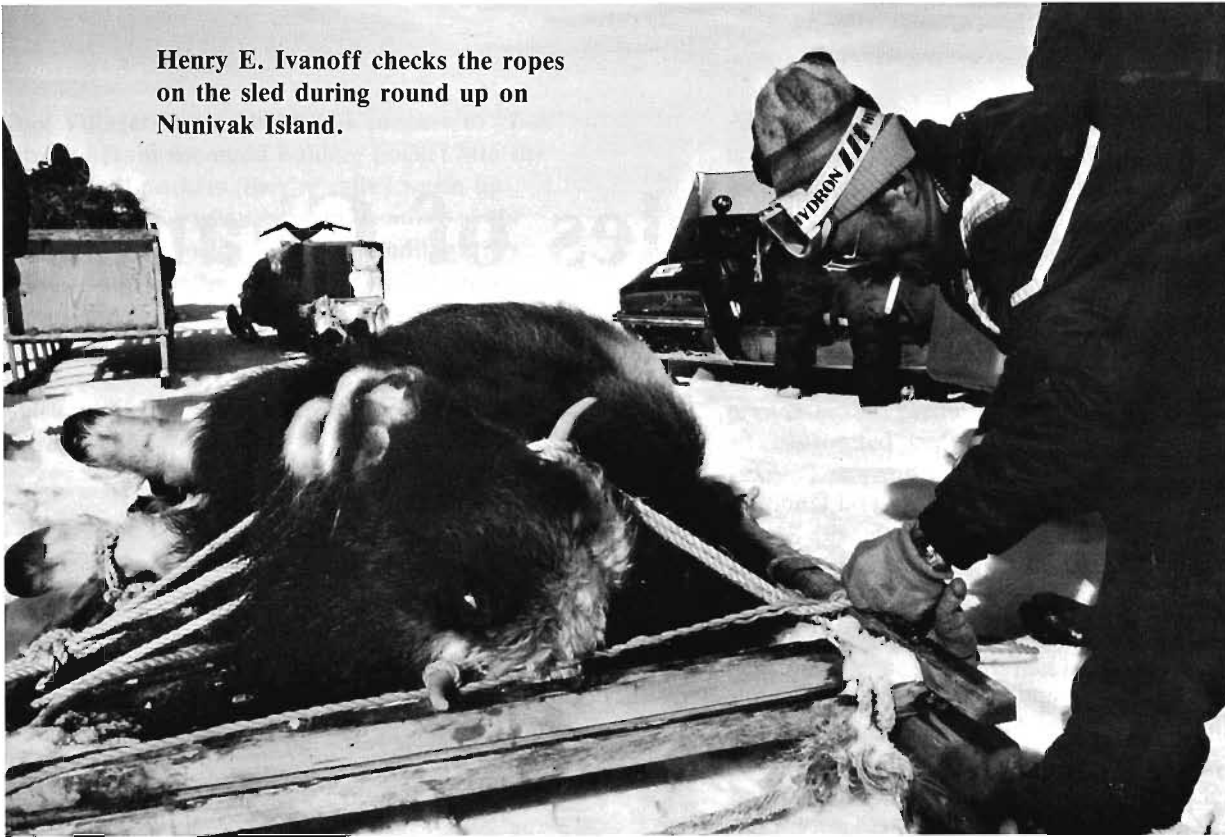
Seward Peninsula: A minimum of 527 animals occupied the Seward Peninsula in April 1988. The population is growing and expanding its range. However, suitable habitat is extremely widespread and muskox densities are still low. The Seward Peninsula can probably support several thousand muskoxen. Enormous tracts of apparently suitable adjacent habitat will be populated by emigrating muskoxen far into the future.

Cape Thompson: In May 1988, 123 muskoxen were censused. We have just begun to actively monitor muskoxen from this population and the trend in numbers is unknown. However, it is clear that this population has fared poorly and the causes are unknown. Illegal hunting is known to occur and is at least partly to blame for the lack of increase in this population.

Arctic National Wildlife Refuge: This population and the one on the Seward Peninsula are most likely to contribute toward repopulating Alaska. Muskoxen from the eastern Arctic have moved south of the Brooks Range, into western Canada and west of the pipeline. In April 1989 this population numbered at least 506.

The initiators of the muskox program intended that muskox-

Henry E. Ivanoff checks the ropes on the sled during round up on Nunivak Island.



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en would be restored throughout suitable range and would become an important wildlife species in Alaska. They recognized that reaching this goal would require many years. We know today that muskoxen can reach population densities higher than anticipated in 1930 and use a much broader range of habitats than was assumed 20 years ago.

Residents of a number of communities in Alaska and Canada where muskoxen have returned after many years' absence have expressed concern over competition between muskoxen and caribou. Although we cannot discount that these species could compete for forage under certain conditions, a number of substantial studies have shown significant separation in plant species preference, geographic and seasonal range use, methods of locating and obtaining forage, and survival strategy. My own observations indicate that muskoxen and caribou and reindeer may coexist on the same range but avoid direct competition at reasonable population densities. Muskoxen occupy a niche which has remained vacant since their disappearance a century or more ago.

We have only recently been able to look at muskox populations living at or near maximum sustainable densities and much more work is needed to understand the relationship between muskoxen, their range, and other species using the same range. It is an accepted principle of ecology that herbivore species coexisting on the same range evolve ways to partition the range and avoid direct competition, or one of them will become extinct. The fact that muskoxen and caribou have coexisted for

hundreds of thousands of years indicates that they have avoided deleterious competition.

A corollary to this principle is that a given range can support more animals and produce more pounds of meat when used by several species than by a few. In addition, a diverse fauna is less subject to radical fluctuations in aggregate numbers than a simple one.

In total, Alaska has about 2,500 wild muskoxen. The incredible populations of muskoxen achieved in Canada after 70 years of protection suggest that Alaska can look forward to large numbers of muskoxen in the future as well. For example, Banks Island, which is only slightly larger than the Seward Peninsula, now has more than 35,000 animals.

The program to restore muskoxen to Alaska has been an important achievement in wildlife conservation. In a time when many large mammal species in other parts of the world are being systematically exterminated by man, it is encouraging to know that at least one species has been saved from extinction and can look forward to attaining numbers as high as before human impacts occurred. There are now about 90,000 muskoxen in the world. The potential for the future cannot be predicted but is probably in the hundreds of thousands. I am proud to have participated in this program.

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The Magazine of the Alaska Department of Fish and Game

ALASKA'S WILDLIFE

November-December 1990

\$3.00

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**Animals of the
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