

CARIBOU AND THE BARREN-LANDS. By GEORGE CALEF. Ottawa: Canadian Arctic Resources Committee, 1981. Published by Firefly Books, Toronto. 176 p. Hardbound. CAN \$35.00.

This book contains the most complete collection of caribou photographs ever published, and they are, without doubt, the most beautiful caribou photographs ever published. The photographs illustrate a text that is, at times, inspired but at other times is somewhat purple. Calef skillfully tells a fictional narrative of the life of caribou throughout the year and interweaves this with a series of more sober, factual accounts. The technique is extremely effective in conjuring up visions and, for me, memories — of crouching in the snow and counting caribou while trying to keep the binoculars from frosting in the -40° air, of watching long files of caribou plodding along a tundra esker heading into the north-hanging sun, of watching a newborn fawn first struggle to its feet with its rubbery legs wide-braced, of the clacking, rattling roar of the hooves of one-quarter of all the caribou in Canada streaming around me under a forest of bobbing antlers. There are a few trivial errors in this part of the book: at one place the text describes the Bathurst region while the accompanying photographs are clearly of eastern Alaska or western Yukon Territory; there is a statement that wolverines kill *many* wild reindeer calves in Scandinavia when there are neither many wild reindeer *nor* wolverines there; the author repeats the old wheeze about the edges of caribou hooves in winter providing "excellent traction on slippery ice." These are but minor cavils.

After such an enthralling story for about 150 pages, the book falls all to pieces. At this point Calef embarks on a crusade to save the caribou, and, in doing so, ignores most of the past 30 years of caribou research. Basically his thesis is that wolves and native hunting have done in the caribou and in order to stem the decline we must eliminate natural and human predation. Shades of Jack Miner! Why do we always blame *them* and never *us*?

In order to develop his thesis Calef selects conclusions from the research literature that agree with his ideas but does not mention conflicting views. For example, he points out that caribou can, indeed, thrive on grasses and sedges. But he fails to emphasize that the examples he gives are from tiny, isolated areas on the fringe of caribou distribution, areas that have mild, maritime climates and that have nothing in common with the vast reaches of the taiga wintering ranges on the continent. He repeats the astonishing statement that forest fires help maintain lichen crops. Again, this idea originated in the context of the windy, wet, maritime vegetation of Newfoundland where fire can indeed be used to break the forest canopy and increase lichen productivity. It has no relationship at all to the lichen ranges in the dry, continental taiga.

Calef seems to be a member of that group of southern foresters that claims "Fire is good for the forest." He says fires have not increased in frequency in recent years and that they would have to increase to five or ten times their present frequency before they would begin to affect caribou food supply. Anyone who revisits old, familiar regions of the northern taiga after an absence of 20 or 30 years knows that it is nonsense to say that fires have not increased in frequency.

If we use the same range-evaluation procedures on caribou that tell us a given range in Colorado will support a certain number of cattle, then we will be dead wrong. As Calef himself describes (but apparently does not really appreciate), caribou, by their own actions, disturb the snow cover so that the theoretical carrying capacity of the range is markedly curtailed for the remainder of that winter. Using this concept of range use, I once measured and calculated the carrying capacity of some of the burned range in northern Saskatchewan. It was instructive to note that the snow-related carrying capacity was almost identical with the number of caribou we knew, from our aerial surveys, to be using the range.

Resource administrators and politicians are always on the alert for anything that justifies doing nothing or eliminating difficult activities. "Wilderness" fire-fighting is one of the most difficult of all government activities to do and to justify to an uncomprehending public. Administrators are delighted to have any excuse for cutting back on fire-fighting programs. The fallacious reasoning presented here by Calef has already had unfortunate consequences for caribou survival because it has influenced changes in government policy.

Calef puts his fact-selection process to good use in his advocacy of wolf control. He says "There is little doubt that wolves control the number of caribou," and thus ignores Mech's massive work that certainly indicated just the opposite. Calef says that "Wolves' prey consists above all of healthy young animals . . ." but back on p. 44 he states that ". . . calves and adults in poor condition usually constitute a high proportion of the wolves' victims." (Note that they are not food for another

level in the food web but *victims*, a most anti-ecological choice of words.) But then, Calef also gives a warped interpretation of wolf population dynamics and says that wolves can rebuild their populations quickly from very low numbers but caribou cannot, even though two pages earlier he tells of one caribou population having a rate of increase that would double its size in five years! Calef attempts to sugar-coat his proposal for wolf control by stating that he does not mean wolf extermination or massive poisoning. He has not done his history homework. "Wolf control" programs have a way of degenerating into massive poisoning programs. They end in an orgy of killing wolverines, grizzlies, coloured fox, white fox, ravens, eagles, jays, etc. I recall how the former director of one of the infamous wolf control programs on caribou range in the 1950s said to me years later, "Doc, you were right. We shouldn't have started it. I couldn't stop it, couldn't turn it off when we wanted to." It is nonsense to state that the only way to eliminate the wolf from the tundra would be to eliminate the caribou. With modern technology we can extirpate any species we want to. And we know that a "little control" destroys the finely-tuned self-regulating population-control mechanism of a wolf population and causes it to explode in numbers. This nullifies the entire reason for the program except that it provides the excuse for more control.

Calef ignores the classic study by Parker (Canadian Wildlife Service Occasional Paper No. 10, 1971) which showed that the type of program advocated by Calef did not increase caribou numbers when it was tried in the late '50s. Calef brings in comparative data on muskox survival but nowhere mentions the mass of data from the Isle Royale moose-wolf studies. In fact, the Isle Royale results are just the opposite of what Calef supposes will happen.

Not only is there a biased selection from the scientific literature but there is an inordinate reliance on ideas and data in unpublished theses and government agency or consulting company in-house reports (the "grey literature") that have never undergone scrutiny and criticism by the scientific community. In fact, of Calef's citations after 1954 (the date of Banfield's classic study, the beginning of modern caribou biology) 27% are from unpublished sources not in the open scientific literature.

The last part of the book shows numerous other errors and inconsistencies. For example, on p. 152 Calef says that caribou are the only deer that have evolved to live in the Arctic. Quite true, but this book is solely about those caribou that spend over half their lives in the taiga, not the Arctic. On p. 152 he says that caribou become more active as temperatures fall but on p. 155 he says that their basal metabolic rate drops by more than 25% from November on. On p. 156 he says that lichens ". . . grow widely on the poor soils of the boreal forest and tundra . . .", implying that lichens receive nutrients from the soil, but, of course, they do not.

The author clearly loves caribou, passionately and devotedly. I fear that his devotion to caribou has fogged his scientific objectivity and has prevented him from bringing his full faculties to bear on the problem. He has forgotten that "Those who ignore history are forced to repeat it."

Calef does have good advice regarding protection of fawning grounds, use of vehicles, interference with migration routes, overhunting, etc. He admits that if the lichens were killed by sulfur dioxide and the taiga cut for lumber and fence posts then the caribou would disappear, but for some reason he cannot see that fire kills lichens, too, and fire destroys taiga as surely as cutting for fence posts does.

The book is beautifully bound and produced. Probably because of its appearance it has received a number of uncritical, effusive and laudatory reviews. Such general acceptance by an unsophisticated public means the book probably has already set back rational caribou management by many years.

William O. Pruitt, Jr.
Department of Zoology
University of Manitoba
Winnipeg, Manitoba, Canada
R3T 2N2

KITOVAIA ALLEIA — DREVNOSTI OSTROVOV PROLIVA SENIYAVINA [WHALEBONE ALLEY — ANTIQUITIES OF THE SENIYAVIN STRAIT ISLANDS]. By S.A. ARUTIUNOV, I.I. KRUPNIK and M.A. CHLENOV. Moscow: Nauka, 1982. Academy of Sciences of the USSR, Institute of Ethnography of N.S. Miklukho-Maklai. 174 p. No price indicated.

This unpretentious book by three outstanding Soviet scholars presents us with an important addition to our store of data on prehistoric cultures