

countries or major regions. Understandably, however, this cannot be expected to replace one's "Lonely Planet" guide or "Rough Guide" to the various parts of the Arctic in terms of current detail. And finally, Part 5, entitled "A vulnerable ecosystem," focuses on exploitation of wildlife, mining, various types of pollution, and climate change. A rather puzzling feature is the inclusion of two sections on the Antarctic, namely 12 pages on history and 14 pages on wildlife. Understandably, these brief sections cannot be expected to include much detail, and one wonders, given the title of the book, why they were included. A definite weakness is the lack of a bibliography, which means that the reader who wishes to pursue a topic at greater depth is provided with no guidance. One wonders, for example, about the sources of the information on the ranges of species in the Russian Arctic.

The illustrations undoubtedly represent one of the book's greatest strengths. It is profusely illustrated with superb photographs taken either by the author or by Per Michelsen. Very few coffee-table books on the Arctic can match this volume in terms of the quality of the photography. In terms of the text, probably the greatest strength of the book is the section on birds and mammals. While a description of the range of each species is included in the text, no range maps are included; however, the detailed descriptions of each species are comprehensive, and the photographs are superb. Yet insects and fish have received only a cursory treatment, while the vast topic of the vegetation is relegated to a fairly meagre treatment within the section on habitats. Another area that has received only token treatment is that on Native peoples; for example, while the various precursors of the present-day Inuit (Dorset, Thule, etc.) are discussed, there is no description of contemporary Inuit life. Other topics that receive little or no attention are demographics, economic geography, and political systems. The author can legitimately plead that he was obliged to be selective, in order to cover as many topics as possible, however briefly, in a single volume. Nonetheless, in view of these shortcomings in the treatment of what are critically important topics, the inclusion of sections (however brief) on the Antarctic seems even less defensible.

This reviewer detected very few factual errors in this very large volume. One of these, however, is so egregious that one wonders whether it might have been perpetrated by an over-zealous but ill-informed copy editor and subsequently overlooked by the author while proofreading. On p. 15, in the section on the definitions of the Arctic, and specifically in the discussion of the usefulness of the Arctic Circle as defining the southern boundary of the Arctic, one finds the confused, but totally erroneous statement that "a solstice is either of twice annual times, when the Sun is furthest from the Earth, these corresponding to the longest and shortest days." In reality, the relatively minor variations in the distance between the earth and the sun (152 million km vs. 147 million km) during the former's approximately elliptical orbit around the latter have no effect on either the seasonal variations in temperature or the length of day and night. These variations are dictated by the combination of the tilt of

the axis of rotation and the earth's revolution around the Sun. The Earth is closest to the Sun (at its perihelion) on or about 3 January each year, in the middle of the northern winter, and farthest from the Sun (at its aphelion) on or about 4 July each year, in the middle of the northern summer.

This reviewer also detected a somewhat incomplete truth. On p. 460 one encounters the statement that "caribou were never domesticated in North America." This, while true, surely ought to have been followed by a discussion (or at least a mention) of the fact that reindeer, which are the same species as caribou, were initially imported from Chukotka, and have been herded by Inupiat and immigrant Sami (or their descendants) in Alaska, particularly the Seward Peninsula, since 1898, and by Inuvialuit and by immigrant Sami and their descendants in Canada (on the Tuktoyaktuk Peninsula, immediately east of the Mackenzie Delta) since 1935.

As noted earlier, the strength of the text undoubtedly lies in its treatment of birds and mammals. But the wildlife enthusiast should be warned that this is not a field guide that would fit into an anorak pocket. It measures 30 × 24 × 5 cm and weighs a little over 3 kg! But even with its limitations, in view of its strengths this volume would be a useful addition to any library, especially school libraries, and to the home library of any family with an interest in Arctic wildlife.

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THE RETURN OF CARIBOU TO UNGAVA. By A.T. BERGERUD, STUART N. LUTTICH, and LODEWIJK CAMPS. Montreal and Kingston: McGill-Queen's University Press, 2008. ISBN 978-0-7735-3233-5. xxxvii + 586 p., maps, colour plates, b&w illus., bib., index. Hardbound. Cdn\$49.95.

The Return of Caribou to Ungava is as much a passionate telling of a northern saga as it is a scientific monograph about caribou. Bergerud and his co-authors tell the story of the rise (1950–88) and fall (1988–2001) of the George River Herd. At its peak, it was the largest herd of migratory tundra caribou in North America. To tell that story, the authors go back to the events unfolding as the last glaciers retreated (Chapter 3) and how the journeys of the caribou and early people became intertwined (Chapter 5). It is not just the human predators, but also the wolverine, bears, and wolves whose fate follows the sweeping changes in caribou abundance. Climate, weather, and vegetation and their interplay with caribou ecology are all part of the story of the George River Caribou herd on the Ungava Peninsula.

Tom Bergerud is one of the world's most influential caribou biologists, and his passion for caribou rings through the book. The book has the stamp of authority from his

decades of experience, and his voice in the book is unmistakable. Bergerud's concern is for the future of caribou and whether insights within the book will provide a way to ensure a future for caribou rather than running the risk of losing them, as was done for the Atlantic cod, "for not having asked the right questions" (p. xxxvii). The book seeks to answer questions about why caribou distribution changes with abundance; how caribou use the vast space of their annual range; whether the George River herd is a model for other herds and, if its dynamics are understood, whether the pattern can be managed. The authors also raise the question about global warming. Bergerud and his co-authors present compelling evidence that it is summer range, rather than lichen abundance on the winter range, that influences herd abundance. Wolves did not regulate the George River herd because rabies outbreaks limited the wolves. However, predation (wolves and humans) can extend the time of low caribou numbers triggered by high caribou densities on the summer range. The authors' appraisal of other herds, especially Alaskan herds, is that they are threatened by global warming because warmer winters will mean deeper snow and greater vulnerability to predation. This line of argument leads the authors to conclude that wolf management will be necessary for the future of caribou, and this point is emphasized for the sedentary caribou herds in southern Ungava.

The book is mostly but not only about migratory tundra caribou. Bergerud has long drawn the distinction between two groups of caribou: those that disperse at calving (sedentary), and those that migrate to a common calving ground (migratory). Chapter 4 outlines the declining abundance and contracting distribution of the sedentary caribou of southern Ungava Peninsula—such herds as the Red Wine, the Mealy Mountain, and the Lac Joseph. The description leads inescapably to the role of wolves in the declines.

In Chapter 6, which is rich in history of the Ungava Peninsula, the authors describe historical fluctuations in abundance of the George River herd. Caribou abundance has a periodicity of about 80–100 years. The authors reject earlier arguments that fires, harvest, predation, and snow cover drove the fluctuations in abundance in favor of the premise that caribou themselves reduce forage on the summer range. The arguments are further developed in Chapters 7 and 8, which describe the changes in the summer ranges over time, especially the reduced growth of shrubs (such as birch) at the peak of caribou abundance in the late 1980s. The state of the summer range influences caribou body weight and growth, pregnancy rates, and survival (Chapters 9, 10, and 11). The authors maintain that the birth weight of the calf, which affects its survival, is strongly influenced by the condition of the maternal cow during the last six weeks of pregnancy, which in turn is affected by the timing of spring plant growth and migration distance. Changes in migration distance correlated with changes in herd abundance and this takes the authors into the second theme of the book.

About halfway through the book, the discussion shifts from herd abundance to the annual and seasonal distribution of the George River herd (Chapters 12 to 15). One of

Bergerud's strongest contributions to caribou ecology has been his emphasis on how and why caribou use their annual ranges. And this theme is well explored, showing how as abundance increased and decreased, the annual ranges expanded and contracted from a tundra center of habitation. Seasonally, caribou movements are distinguished by shifts and then pauses as insect harassment (warbles and mosquitoes), wind, snow, forage, and the caribou themselves all affect the movements. One of the best-known characteristics of tundra caribou is the annual migration of the cows to their traditional calving grounds. Chapter 15 delves in detail into the return of the cows to their calving grounds, arguing that the cows are spacing themselves from their predators, although forage availability also plays a role in the location of the calving grounds. The book's final chapter reasserts conclusions of the earlier chapters regarding the interaction between predation and the reduction of forage on the summer ranges by the caribou themselves and summarizes the authors' arguments about the applicability of their conclusions to other herds in North America. Surprisingly, the authors do not explore the implications of the markedly small extent of the George River herd's summer range in their comparisons with other herds.

The book achieves its objectives partly by amassing a huge amount of detail, which is both a strength and a weakness. It is a hefty 600 pages of text interspersed with frequent tables, graphs, and maps. It is easy to get lost in the details but equally, it is necessary to present the data for readers to make their own judgments (although more use could have been made of appendices and text boxes). Data analyses depend heavily on descriptive statistics and linear regressions. In part, the value of the book is that the authors present their own data, much of which was not available previously. However, reliance on their own data brings the detailed story to an end by 1993, although there is reference to the 2001 census. The sheer amount of data does reveal the effort needed to understand caribou in the northern landscape and the fact that answers only come from extended efforts over time.

The maps are a delight and a strength of the book. The eight pages of historical photos are a reminder about the role of caribou in the lives of aboriginal people. The book is generously endowed with many other photographs that admirably capture the feeling of the caribou and their world. The writing is clear, with few lapses into jargon (such as "negative demography"). All in all, the book is well produced, with care taken to minimize errors. Perhaps my only regret is that the index is superficial and not particularly helpful.

And for the future of North America's spectacle of large migratory caribou herds, the book is not a recipe for conservation. Beyond a general plea to "treat the land with respect," it offers nothing in the way of comments except a few regrets about the effects of hydro developments and the need for management of human activities on the seasonal ranges. However, the authors' insights into caribou ecology do map out a pathway for both what to monitor and when management is most effective—during the low phase of

caribou numbers, which can be prolonged by caribou deaths from predation and hunting.

The book's structure, its writing, and its photos and maps make the book attractive to readers, and the detailed graphs and tables make it a treasure for students and biologists. All those with an interest in Canada's North would want this book on their shelves as it has so much insight into caribou, people, and the landscape that they have shared from time immemorial to the present. For wildlife biologists—not just caribou specialists, but any biologists with an interest in large mammal ecology—the book is a gift for its quantity of information and ecological insights.

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DISROBING THE ABORIGINAL INDUSTRY: THE DECEPTION BEHIND INDIGENOUS CULTURAL PRESERVATION. By FRANCES WIDDOWSON and ALBERT HOWARD. Montreal: McGill-Queen's University Press, 2008. ISBN 780773534216 (paper). 330 p., notes, index. Softbound. Cdn\$29.95.

Much like Cairns's *Citizens Plus* (2000) and Flanagan's *First Nations? Second Thoughts* (2000), Widdowson and Howard's *Disrobing the Aboriginal Industry* is sure to stimulate discussion in aboriginal research in Canada. The book is a comprehensive and critical examination of what the authors suggest is a deceptive network known as aboriginal cultural preservation in Canada. By examining education, social work, health, environmental and wildlife resource management, and governance structures, the authors conclude that many of the problems in aboriginal communities are due both to internal factors, such as oral societies, tribalism, spiritualism (i.e., shamanism), and animism, and to external factors like postmodernism, revisionism, and opportunism (whereby researchers, consultants, and lawyers benefit most from the process of land claims and self-governance). All of these factors have contributed to a "neolithic gap" in aboriginal communities—an abrupt change from a primitive society to a modern welfare state, a dysfunctional society where racism, patriarchy, corruption, and nepotism run rampant. The authors borrow heavily from Morgan's studies on the Haudenosaunee (Iroquois) confederacy (1984) and cultural evolution (2007), which suggest that all human cultures evolve from savagery or barbarism to civilization. The "neolithic gap" concept assumes that contemporary Western culture represents the pinnacle of evolutionary achievement. Missing however, from this discussion on the "neolithic gap" is the critique of this concept (see for example, Sharer and Ashmore, 2002).

Widdowson and Howard also note that discussions about self-governance, land claims, and traditional ecological knowledge pervade the narratives of aboriginal people, yet

seem to provide benefits only to the leadership, lawyers, consultants, and researchers. These discussions and processes continue while the real issues of poverty, despair, and the violation of human rights remain unaddressed. The authors question the assumed benefits of self-governance and recommend a re-examination of how to engage and integrate aboriginal peoples into Canadian society.

One challenge associated with a comprehensive overview of so many topics in a single book is how to address each one properly. For the sake of this analysis, I will focus on the chapter pertaining to traditional ecological knowledge (TEK). Widdowson and Howard explain how TEK was integrated into policy in the Northwest Territories, and later in Nunavut: with little, if any, understanding of what TEK actually is or does. They add that since its integration into policy, TEK has permeated the fabric of the Canadian lexicon and provided its proponents with a justification for traditional harvesting rights and a critique of science. TEK has also provided numerous academics and researchers with careers and major research projects.

There is some validity to the authors' arguments; however, such conclusions fail to acknowledge the extensive research and progress in this area of study and the fact that the biggest proponents of TEK have outlined both the benefits and drawbacks of these approaches in resource management (for an excellent discussion on this topic see Berkes, 2008). In addition, their argument for the "overwhelming acceptance" of TEK fails to recognize that in some regions of Canada, TEK continues to be marginalized and dismissed, and their generalization about the universality of animism and mysticism in aboriginal communities fails to recognize that many aboriginal communities in Canada are indeed Christian, and that such traditions, which they claim are widespread, are often discouraged and frowned upon.

The work is critical and passionate, but at times lacks rigor. For example, the authors define proponents of the "aboriginal industry" and critiques of the scientific process (by that, I assume that they mean the positivistic research process) under the general rubric of "postmodernism" or "PoMo-speak." Such labels are theoretically and conceptually inaccurate, and they fail to address or acknowledge the rich and diverse ontological and epistemological perspectives in critical theory, action research, constructivism and interpretivism, feminism, and critical race theory.

Widdowson and Howard also argue that the political left and proponents of leftist perspectives lack the ability to be reflective, self-critical, and analytical of their worldviews. This is one reason that the authors give for their own overwhelming dependence on grey literature, Internet and media sources, and "right-wing" literature. The authors' disregard for the theoretical and empirical content that would support or oppose the "aboriginal industry" may reflect their conscious aim to distance themselves from the industry or to expose it. This approach may be reasonable, granted the breadth of topic areas and the intended audience—policy-makers, lawyers, consultants, researchers, NGOs, and students. However, by failing to situate their own discourse,