

This book is an honest, compelling, and personal story of a man who knows and understands the Arctic and its people intimately. His knowledge of the land, the people, their history, language, and culture is all carefully documented and enhanced by superb photography. The Honourable Jake Ootes writes in the Foreword (p. vi): “This is a fascinating slice of firsthand experience of a unique time in the N.W.T., when the Inuit made the transition from living in traditional nomadic groups to life in permanent communities. Told from the viewpoint of a European missionary, this account is a welcome addition to other voices of this historical period.”

*Igloo Dwellers Were My Church* ought to be in the library of anyone who has an interest in the Arctic and its people, whatever that person’s philosophy of life or belief system might be. The book would also be a welcome addition to any school library. A glossary of terms in the Inuinaktun dialect of Inuktitut and a comprehensive bibliography and index are a fitting conclusion to the book.

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THE NATURAL HISTORY OF AN ARCTIC OIL FIELD: DEVELOPMENT AND THE BIOTA. Edited by JOE C. TRUETT and STEPHEN R. JOHNSON. San Diego: Academic Press, 2000. ISBN 0-12-701235-4. xvi + 422 p., maps, b&w and colour illus., bib., index. Hardbound. US\$69.95.

This book is highly recommended, not only for wildlife managers anywhere in the Arctic circumpolar region, but also for lay people who want to be better informed about the upcoming land-management decisions in the region. Three such important decisions might be (1) the route of a pipeline for Prudhoe Bay natural gas, following either the oil pipeline across Alaska or the inner Beaufort Sea shelf to the Canadian Mackenzie River valley; (2) further oil exploration in the National Petroleum Reserve-Alaska; and (3) possible oil exploration on part of the coastal plain of the Arctic National Wildlife Refuge. This book is for those who want to have their own bases for these decisions, rather than relying on news articles.

In the introductory paragraphs, the editors explain that their goal is to help with peer review and dissemination of the vast amount of ecological information about the Prudhoe Bay region. They note that the region has been the focus of much ecological research during the past two decades, probably more so than any other Arctic region, yet much of the information has not been peer-reviewed or widely distributed. The research sponsored by BP Exploration (Alaska) Inc. alone fills hundreds of technical reports. Because BP wanted to help with the review and distribution

of this information, the company provided crucial financial support for this book.

The book should appeal to Arctic wildlife managers both for the descriptive environmental information and for the clear analyses of resource-management issues. The chapter on vegetative responses to disturbance shows an excellent balance of information and issues. It benefits from the long-term perspective of author Jay McKendrick (University of Alaska Fairbanks), gained through an extensive career of Prudhoe research. For example, McKendrick describes the changes in a 50-year-old road cut through thin soil over permafrost, and the difficulty of conducting such a long-term study with a series of short-term industry and agency contracts (p. 35 and 53). A minor shortcoming in the chapter is the lack of data about the ice-pad drill sites that have been commonly used for the past decade.

Three other outstanding sections of the book are the series of chapters on birds, fishes, and caribou. The series on birds, which fills almost a third of the book, describes Pacific loons, tundra swans, black brant, shorebirds, eiders, and lesser snow geese. The last two chapters are especially good, reflecting the experience of author Stephen Johnson, who is also the book’s co-editor. The fish chapters include one on anadromous and amphidromous species that exemplifies the editors’ goal of disseminating information, by referring to more than 30 technical reports that otherwise would not have been widely known. Two interpretations of the oil-field effects on caribou are included in the book. A chapter by Stephen Murphy and Brian Lawhead from Alaska Biological Research, Inc. (ABR) in Fairbanks includes excellent summaries of mitigating measures and of differences between the Central Arctic Herd and other herds on the North Slope. (The quality of their summaries was also noted by another reviewer, Dave Yokel, of the Bureau of Land Management in Fairbanks.) The other chapter, by Warren Ballard, Matthew Cronin, and Heather Whitlaw (all associated with LGL Alaska Research Associates, Inc., in Anchorage), reviews a long-term disagreement, also noted in the book’s concluding synthesis by co-editor Joe Truett, about interpreting data on how oil fields affect caribou. I think that including both peer-reviewed chapters in the book helps to maintain scientific communication in spite of the disagreement. When such communication breaks down, as it probably did over the effects of North Slope causeways on coastal fish, the subsequent decisions are based mainly on legal, political, and economic reasons rather than scientific ones.

The book is comprehensive with regard to the documented effects on the distribution and abundance of on-shore and nearshore biota, but it doesn’t mention any effects of contaminants. A recent Arctic Monitoring and Assessment Programme (AMAP) report on contaminants (1997) is strikingly different. For example, the book’s synthesis by Joe Truett concludes that “the oil-field ecosystem continues to function much as it did prior to development, constrained primarily by the forces of climate,

landscape structure, and nutrient availability and cycling” (p. 408). In contrast, the AMAP report (p. 152) describes marginal hydrocarbon contamination of Alaskan Arctic biota: “Measurements of hydrocarbons in fish tissue show that fish from the southern Beaufort Sea are more contaminated than fish from the northeast Pacific Ocean, which is considered a clean environment. Other biota from Alaska also show indications of some contamination with petroleum hydrocarbons.” A reason for the different conclusions in the book and the report might be that, while hydrocarbons have been detected in animal tissues, their effects on individuals, populations, and ecosystems have not been detected.

One minor shortcoming is that the book focuses on highly valued species and overlooks some of the common, opportunistic ones, for which there might not have been much data. For example, the book includes a key chapter on arctic foxes by Robert Burgess from ABR in Fairbanks, but excludes the gulls and ravens. Co-editor Truett helps to correct the imbalance in the concluding synthesis by noting that several chapter authors recommend additional research on the opportunistic species to reassess their impact on water birds.

But despite its somewhat limited information on ice pads and some opportunistic species, I still highly recommend the book for all Arctic wildlife managers and for lay people who want to be better informed about Arctic land-management decisions. For the latter, I suggest especially the introductory chapter on construction of the oil-field facilities, the two chapters on caribou, and the concluding synthesis.

#### REFERENCE

AMAP (ARCTIC MONITORING AND ASSESSMENT PROGRAMME). 1997. Arctic pollution issues: A state of the Arctic environmental report. Available from AMAP, P.O. Box 8100-Dep., N-0032, Oslo, Norway.

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THE COLDEST MARCH: SCOTT'S FATAL ANTARCTIC EXPEDITION. By SUSAN SOLOMON. New Haven and London: Yale University Press, 2001. ISBN 0-300-08967-8. xxii + 383 p., b&w illus., maps, appendixes, glossary, bib., index. Hardbound. US\$29.95/£19.95.

An expert's first reaction to seeing another book title on the expeditions of Captain Robert Falcon Scott is to expect another review of the failed expedition to the South Pole in 1911–12, its heartbreaks, hardships, effects of scurvy, frost-bite, accusations about the poor planning and preparation

by its leader, and the grim ending of three men slowly dying in a tent on the Ross Ice Shelf, only to be found months later by a search party. Those aspects are all here, and most people who know the story might put the book aside without another glance. However, there is a twist to the story, a denouement, done expertly by a renowned scientist and author. The ending doesn't change, of course, but the author has assembled new information that in many ways vindicates Scott, who for years has carried the reputation of an inept leader and bumbler. Susan Solomon is perhaps better known for her insights in explaining ozone depletion, first discovered and announced by the British Antarctic Survey in 1985, and followed up by her and others in the U.S. Antarctic Research Program. Her research in this area led to her recent award of the U.S. National Medal of Science. How, after all these years, had the research detailed in this book gone unnoticed, to show that Amundsen, by an earlier start and perhaps experiencing different weather systems, survived when Scott did not? The key to her discovery of the unusually harsh weather that Scott experienced is the information gained from Automated Weather Stations (AWS). These were placed in various parts of Antarctica beginning in the 1980s by a program funded by the U.S. National Science Foundation and carried out by the University of Wisconsin. Wind speed, wind direction, and air temperature sensors are mounted at the top of the tower.

Some of those AWS were placed along the route that Scott took on his route to and from the South Pole. By comparing trends and averages during the period that Scott was on the trail, Solomon shows that Scott indeed had been plagued by unusually low temperatures, as well as by accompanying snow conditions that produced greater friction on sled runners. Amundsen, who operated on an earlier schedule to achieve the Pole and thus escaped weather difficulties, had an easy time of it by comparison.

Scott's expedition meteorologist, George C. Simpson, calibrated the instruments and analyzed the temperature and other data vital to the author's comparison with AWS records. Aside from AWS information, the bulk of weather data in Antarctica has been collected daily since the International Geophysical Year (1957–58). Such data continue to be collected today, but that information is primarily from occupied stations and a few seasonal camps. Scattered older records are available, the oldest beginning in 1904 from Orcadas Station (Argentina) on Laurie Island in the South Orkney Islands, east of the Antarctic Peninsula, but this area is a long way from the Ross Ice Shelf for purposes of comparison. The lowest temperature at the surface of the Earth was recorded at Vostok Station (Russia) in July 1983:  $-129^{\circ}\text{F}$  ( $-89^{\circ}\text{C}$ ). The author contends that AWS records show that abnormal weather was experienced during Scott's 'march' to and from the South Pole. Periods of blizzards kept the men confined to a tent when they could have been gaining crucial distance on the trail. The coldest 'march' thus became a coldest March, with temperatures  $10^{\circ}$  to  $20^{\circ}\text{F}$  lower than normal. These unusually low temperatures, along with blizzards, produced conditions that led to