On May 20, the author and the expedition geologist, Don Kidd, were flown north to Padloping Island, accompanied by the doctor from Pangnirtung and John [Jim] Killibuk, a most extraordinary Inuit resident of Pangnirtung, whose association with the local Hudson Bay Company had become legendary by the time I met him in 1971. As part of the overall expedition plan, the author and Don Kidd were to carry out their summer's work by investigating Padloping and neighbouring islands, including a visit to the fulmar colony at Cape Searle. In this work they were aided by Samo, an Inuit from Padloping, who, with his dog team and sledge, provided transport and knowledge of the land. Watson and Samo clearly developed a good working relationship, marred only by an angry confrontation between Don Kidd and Samo. The author's unhappiness with the choice of the expedition geologist is gently understated.

Chapters 3a and 3b are devoted to the work with Samo, an experience that obviously was one of the highlights of the author's time in the field. The association lasted until June 4 at the head of Padle Fiord at which point the two scientists were on their own carrying heavy loads towards their ultimate destination, the biological camp in Pangnirtung Pass. The arduous trek through the Padle and June valleys, leading to Pangnirtung Pass, is described in Chapter 4, entitled "Alone across snowy mountains." The title reflects the fact that Don Kidd chose to divide his load into two parts, carrying a load twice over each distance, and was rarely seen by the author during the entire traverse. During the last two weeks of June, working out of the biological camp in Pangnirtung Pass, Adam Watson worked mostly alone; Don Kidd also worked alone during the day, and they shared the camp facilities only at night. The author was subsequently joined by the expedition botanist, Fritz Schwarzenbach, whose field notes and book, *Baffin Island 1953*, are referred to and cited in many places throughout the author's book. Chapter 6 provides a well-illustrated description of the fieldwork carried out by the author and Fritz Schwarzenbach, highlighted by observations of snowy owlets near the biological camp.

By the middle of August, the various research parties began preparations to evacuate their field camps. On August 13, a Canso aircraft landed on Summit Lake in order to pick up sundry items of field equipment and supplies. In Chapter 7, the author recounts the trial and tribulations of transporting the remaining equipment and personal gear toward the base camp on Summit Lake, a journey that included dangerous crossings of swollen glacial meltwater streams via a precarious rope bridge. On August 29, the field party reached the head of Pangnirtung Fiord, where they were picked up by an Inuit skipper and transported by Peterhead boat to Pangnirtung. On September 7, the field party left Pangnirtung for the south on the Canadian icebreaker, *C.D. Howe*, leaving behind, in a stone grave, the geomorphologist Ben Battle, who had drowned near Base Camp on July 13. Each of the final 10 chapters is very short, and they serve mostly as brief appendices, with descriptions of expedition members and particular events, such as the death of Ben Battle, as well as special tributes to expedition members. The final Part D (Chapter 19) is a single page comparing expedition life and exploration near Pangnirtung Pass in the 1950s with the ease of traveling the area, known since 1973 as Auyuittuq National Park, today.

If there is a blemish in the author's account of the 1953 expedition, it has to be the near total lack of naming the Inuit portrayed in the many photos, particularly from Pangnirtung; the only exceptions are Samo and little Samo, from Padloping, and John Killibuk [Jimmy Killibuk] from Pangnirtung. This is not a criticism per se, as it is a reflection of another time. A most interesting future project would be to have people in Pangnirtung peruse the book and see how many names could be added. One or more good maps, especially of the Padloping area, would have added to the clarity of the presentation for those readers not familiar with that part of the Arctic.

The account is well written and superbly illustrated: a fine addition to scientific Arctic expedition lore from a time when getting into the field itself was often a daring adventure.

*Peter Schledermann*
*# 312, 9919 Fourth Street*
*Sidney, British Columbia, Canada*
*V8L 2Z6*
*schleder@ucalgary.ca*

CLIMATE, CULTURE, CHANGE: INUIT AND WESTERN DIALOGUES WITH A WARMING NORTH. By TIMOTHY B. LEDUC. Ottawa: University of Ottawa Press, 2010. ISBN 978-0-7766-0750-4. 267 p., endnotes, bib., index. Softbound. Cdn$29.95.

This book is about climate change and the challenges it poses to both Western and Indigenous knowledge systems. In an effort to expand the range of communal thoughts and responses to the global climate threat, Leduc discusses how our culturally defined understandings of ecology and climate can be broadened and contextualized through intercultural dialogue. This adaptation of his doctoral dissertation covers an enormous range of issues in an ambitious attempt to connect cultural, economic, political, philosophical, scientific, and religious considerations that influence the current state of our global climate and environmental consciousness. He evokes northern concepts, spirits, and contentious issues as metaphors for or examples of how conflicting perspectives and responses to climate change can be expanded into spiritual and ethical dimensions. Threaded throughout the text, therefore, are references to and reflections on Sila's northern warming, Gaia's climate change, Sedna's moving animals, the melting Northwest Passage, and its implications for polar bears. Such analyses help to outline the complex intercultural challenge of climate change and highlight the need, as stressed by Leduc, for a moral response drawing from various cultural beliefs.

Leduc crafts his chapters with an eloquent style, weaving together the many threads of his argument with powerful imagery. In so doing, he draws on a broad range of sources—academic literature, public media, political reports, and popular books—to develop his main messages. He effectively portrays how economizing trends limit Canada's political and economic manifestation of a global consciousness; how Canadian climate policy is tied to American policies and economic pressure; how Western assumptions and politics rooted in colonial culture are historically connected to today's northern warming; and how apocalyptic religious or spiritual views affect how people perceive and respond to climate changes and uncertainties. He acknowledges the social construction of scientific knowledge, while encouraging readers to consider learning from other cultural traditions, especially *Inuit Qaujimajatuqangit* (IQ - Inuit knowledge, beliefs, and worldview). Such learning helps to complement and deepen the more dominant Western and Canadian views on northern and global climate change, which include maladaptive practices and beliefs (e.g., "Canada's wasteland approach toward the tar sands [and] the West's continued promotion of a growth economy," p. 228). As Leduc notes on p. 229, "cultural change will have to go far beyond a political shift in energy sources if we wish to inspire a global, national, and regional conscience."

Overall the book is well written and organized. The author's arguments help readers to reflect on their own positions in the debates, and their responsibility to conceive of themselves as part of the environment and act accordingly. Using well-documented research, he explains the need to place climate research in a broader interdisciplinary and intercultural context in plain language, so as to engage readers across political, economic, media, academic, and public audiences. I enjoyed reading this book, and so my suggestions for improvements identify not so much weaknesses as areas where I was seeking additional depth or clarification.

First, because Leduc draws on such a broad range of literature and perspectives to develop his arguments, in places I found myself getting lost in the complexity and unable to follow the direction of the argument clearly. The concluding sections of each chapter effectively summarize the arguments being made, but do not always relate clearly to analyses of examples used throughout the chapter. The economic and political arguments are strong and clear, but understandably the argument gets more convoluted when incorporating additional religious, spiritual, and colonial considerations. The reproduction, editing, and printing of this book are of high quality, although it would have been nice (and might have helped clarify some arguments) if figures, tables, maps, or other visuals had been included to help illustrate key points.

Second, Leduc evokes Inuit concepts and spirits such as Sila and Sedna as metaphors for potential understanding of northern warming and responses to it. He makes great efforts to describe these spirits and how these concepts may be extended into Western climate dialogues. Sila is described by Arnakak (p. 19) as "an ever-moving and immanent force that surrounds and permeates Inuit life" that is usually experienced as various kinds of weather. Arnakak also explains Sedna on p. 182–183 as an ancestor, an indweller at the bottom of the sea controlling all animals, and a powerful and feared spirit who is "the source of all creation and destruction." These descriptions are complemented and expanded through various ethnographic references and stories, which Leduc then uses to develop powerful imagery and fascinating interconnections. However, despite the author's careful consideration of the spiritual dimensions of Sila and Sedna and his critiques of the narrowing of such concepts (including IQ) to suit Western knowledge frameworks and economic rationality, his references to these spirits throughout the remainder of the book imply that "Sila" is being used for "climate" and "Sedna" for "animals." It is undoubtedly challenging not to simplify these concepts for the sake of developing arguments accessible to political, media, and public audiences. However, from an academic perspective, these metaphoric analyses could be deepened to enrich our ability to begin truly intersecting IQ and Western conceptual frameworks, including their ethical and spiritual dimensions, in a complementary manner.

Finally, I would have liked to see the IQ elements of the dialogue developed further through more direct engagement with Inuit communities, elders, and local experts. This approach would be especially important to help those not familiar with (or convinced of) the value of IQ to interpret the relevance of Inuit stories and spirituality included in the text. Inuit philosopher and policy analyst Jaypeetee Arnakak provides influential guidance throughout the book, and Leduc draws from positions of the Inuit Circumpolar Council and respected Inuit leaders, but the majority of IQ contributions come from previously published works. Even Leduc's participation in a 2004 workshop in Chesterfield Inlet and the January 2009 Polar Bear Roundtable are not incorporated in direct analytical ways. They are used as examples, which include some relevant stories, but they come across more as anecdotal support for published ethnographic sources rather than important contributions of primary research to the development of the book's thesis. My main suggestion for improvement, if a future edition of this book were to be developed, would be for Leduc to incorporate more primary collaborative, community-based research—and thus, more Inuit voices—directly into his analysis and arguments.

This book has broad topical appeal, and I would recommend it to a wide range of readers interested in the challenges of understanding and responding to global climate change that we are now facing. In particular, I think it would be a valuable text for upper-level undergraduate courses in which students would be encouraged to explore these multiple dimensions of climate-change perspectives and reflect on their own assumptions and beliefs in relation to the complexities raised. Furthermore, I would recommend

this book as providing valuable perspectives for government decision- and policy-makers struggling to find effective responses to climate change. There would also be broad appeal to the interested public. Many important lessons in Leduc's integrated analysis could help us to follow Primavesi's emphasis on our increasing need to see the earth through recognizing "our place within it" (p. 50) and to learn from Inuit to use "head and heart together" (p. 213). This book serves as an important reminder and encouragement for climate research and politics to come together in order to address complex environmental challenges, drawing from interdisciplinary knowledge and intercultural inspiration to develop a heartfelt global conscience.

*Gita J. Ljubicic*
*Carleton University*
*Department of Geography & Environmental Studies*
*1125 Colonel By Drive, B349 Loeb Building*
*Ottawa, Ontario, Canada*
*K1S 5B6*
*gita_ljubicic@carleton.ca*

POLAR BEARS: THE NATURAL HISTORY OF A THREATENED SPECIES. By IAN STIRLING. Markham, Ontario: Fitzhenry & Whiteside, 2011. ISBN 978-1-55455-155-2. 300 p., colour illus., glossary, bib., index. Softbound. Cdn$40.00.

Almost everyone knows Ian Stirling. He has written many articles for *Arctic* and has written extensively on Arctic ecology, particularly on polar bears. So this review is not necessary for most readers, as they already know that Stirling's book will provide a wonderful assessment of knowledge on polar bears, including much of the exciting research he has been personally involved with over the last few decades. The book describes the natural history of polar bears. We don't have many "natural historians" anymore and Ian Stirling fits more within the mould of a contemporary scientist, using all of the latest technologies to study polar bears. But Ian summarizes his scientific findings in this book to provide a remarkably complete view of polar bear natural history. To be a great contemporary scientist and a natural historian at the same time requires considerable time conducting fieldwork, talking to Northerners, watching bears, and pondering how the various bits of anecdotal information piece together. Few people could accomplish this feat, but Stirling does it admirably. The book is highly recommended for readers of all backgrounds from laypeople to experts, and the quality of the reproduction, editing, pictures, and printing are excellent.

The book covers polar bear population ecology, behaviour, physiology, genetics, interspecific relationships with seals, sea ice, polynyas, denning habitat, environmental degradation, human development, and models of future Arctic change. It is largely non-technical, providing a broad understanding of the ecology and natural history of polar bears that is accessible to most people. Yet it does not "talk down" to readers; they can expect to be challenged with complex ideas and difficult topics, from the effects of contaminants on polar bears (e.g., hermaphroditism) to models of predicted climate change. Some of the best writing is found in Ian's descriptions of how polar bears travel, hunt, eat, den, and interact. His many hours in the field have provided him with a unique perspective that can give readers a sense of what it is like to be a polar bear.

Most of the book is scientific in presentation, but the stories of unique observations made by Stirling and his colleagues are equally interesting and valuable. Science does not often report on individual occurrences, but Ian describes a unified attack by walrus on a polar bear, a dying matriarch, and polar bears diving underwater to retrieve mouthfuls of tissue from a submerged whale carcass after a group of eight polar bears captured five belugas and four narwhals from a High Arctic estuary in summer. He also observed polar bears' mating behavior and reports that average copulation duration is 71 minutes, a number that can inform research into comparative mating behaviour. He reviews the harvest of polar bears from the Svalbard area (> 20 000), which varied from 150–200 per year taken by Russian hunters in the 1700s, to 150–400 per year taken by Norwegians in the 1800s, to more than 300 per year in the 1900s. He tells of a pack of wolves in the Churchill denning area that had learned to kill polar bear cubs traveling from their maternity dens to the sea ice. Anyone who has had the pleasure of listening to a great storyteller, such as an Inuk elder, knows how fascinating these one-off accounts can be.

Yet I have some quibbles. The Churchill chapter is longer than necessary, with too many pictures of bear dens. Unfortunately, there is no mention of disease, although climate warming could provide the vector for new diseases to enter the Arctic by hitching a ride on temperate invaders, resulting in significant mortality of unprotected polar bears. A few observations (e.g., of a polar bear dying of kidney failure after ingesting oil) are repeated.

The chapter on evolutionary origin of the polar bear is particularly relevant given the possibility that we may lose this unique creature. Reviewing the literature, Stirling describes how Bering Sea brown bears using the sea ice about 150 000 years ago evolved into seal-eating specialists that subsequently expanded their range into the circumpolar ice areas. Since the publication of this book, genetic findings have suggested an Irish polar bear origin occurring about 14 000 years ago. Of interest in all of the described scenarios is the accelerated rate of evolution evident from these studies. As a follower of human evolutionary discoveries and theories, I am fascinated by the similarity of how the science of bear evolution has paralleled that of human evolution. I predict that we will come to appreciate the complexity of bear evolution, understanding that an ice-adapted bear has evolved a number of times, and branches have also gone extinct during the waxing and waning of past ice ages. Hybridization between polar bears and brown bears indicates the considerable similarity between the two