

POLAR BEARS: A COMPLETE GUIDE TO THEIR BIOLOGY AND BEHAVIOR. By ANDREW E. DEROCHE; Photographs by WAYNE LYNCH. Baltimore, Maryland: The Johns Hopkins University Press, 2012. ISBN: 978-1-4214-0305-2. 249 p., colour illus., glossary, bib., index. Hardbound, US\$39.95.

The polar bear occupies a diverse set of niches in the popular imagination. Universally recognizable, it is an obligate carnivore in an extreme environment at the top of a food chain. It is an important cultural, nutritional, and economic resource to communities across the Arctic. Finally, it is emblematic of the vulnerability of a species in the face of global climate change. In light of these facts, Andrew E. Derocher's *Polar Bears: A Complete Guide to their Biology and Behavior*, an accessible account of polar bear biology and behavioral ecology, is a welcome and timely contribution. Derocher is among the world's preeminent polar bear biologists, so the book is a reliable and comprehensive source of information, benefiting from a broad perspective and a vast pool of personal experiences.

The first several chapters provide a detailed background on the physical attributes and adaptations of polar bears (e.g., the fur, skull and teeth, limbs, and senses) and their evolutionary history and relationship to other *Ursus* species. The polar bear's Arctic environment is described, from the physical attributes, such as the extreme seasonality and the critically important sea-ice habitat, to the biological features, in particular the primary prey species. Derocher goes into some detail describing the 19 recognized subpopulations of polar bears, outlining the state of the knowledge on each subpopulation. The latter half of the book focuses on polar bear behavior, including details on various hunting tactics, mating, denning, and the birth and care of cubs. The end of the book covers the threats polar bears face, from pollution to hunting and, of course, climate change.

The book is dense with concrete information, including relevant (or simply interesting) facts, and detailed descriptions. But it is also visually appealing, with excellent photographs by Wayne Lynch, carefully selected to illustrate points in the text. There are also colorful text boxes sprinkled throughout the chapters with sometimes unexpected asides, such as "Polar bears in Antarctica?" and "To catch a polar bear."

What really makes the book stand out, however, is the wealth of personal anecdotes drawn directly from Derocher's field experience. Often with humor and using the distinctive voice of a keen biologist synthesizing his observations, Derocher describes many events that he witnessed during his biological field work, including surveys and polar bear captures, as well as reporting strictly behavioral observations. These anecdotes are often delightful and give the reader a visceral feel for the experience of studying polar bears in their natural habitat. For example, Derocher recounts observing the athletic feat of a polar bear climbing a ladder to reach some dog food, or describes removing his parka and squeezing himself into the presumably empty

den of a polar bear. These moments give the reader an idea of the surprising and unpredictable events that are characteristic of field-based animal observations, and perhaps of the types of experiences, however rare, that draw biologists back to the field despite remote and difficult conditions.

The final chapter, "Looking forward" (p. 225), provides a general message of encouragement to the global community to reduce carbon emissions in various ways, from taking small steps in one's daily life to encouraging political entities to support green initiatives and industry compliance. Because the book is otherwise largely focused on behavioral aspects of polar bear biology, it gives a somewhat cursory treatment of Inuit interactions with polar bears, perspectives from traditional ecological knowledge, and general features of the polar bear harvest in the Arctic.

The book is accessible to a wide range of people, including the general public, students, and scientists. Derocher takes care to define and clearly explain any ecological concepts or terminology as they appear in the text. Despite having worked in the Arctic for many years, including with polar bears, I found myself highly engaged and entertained by the text, particularly the personal observations and anecdotes from the field. The reproduction quality of the photographs and printing is excellent, with a soft and appealing look and texture and agreeable dimensions. The book is also well documented—complete literature sections for each chapter are available for readers interested in following up by delving into the primary scientific literature. In addition, two appendices include the scientific names of all the species mentioned in the book and a list of polar bear prey items.

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