

Book Reviews

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The Biology of Polar Regions

D.N. Thomas, G.E. Fogg, P. Convey, C.H. Fritsen, J.-M. Gili, R. Gradinger, J. Laybourn-Parry, K. Reid and D.W.H. Walton
Oxford University Press, Oxford, 2008.
ISBN 978-0-19-929811-2 (Hbk), 978-0-19-929813-6 (Pbk), 394 pp, £65 (Hbk) £29.95 (Pbk).

This is a new edition of G.E. Fogg's *Biology of Polar Habitats* published in 1998, thoroughly revised and updated by a well-known and respected team of polar scientists all considered leaders in their fields. The volume provides an excellent overview and detailed comparison of the major habitats, organisms and issues associated with the Arctic and the Antarctic. It is sufficiently detailed to be of use as a reference text to scientists at all levels of expertise. The book's content and language are also highly accessible to students, presenting them with a sound introduction to general concepts, illustrated with robust scientific data and interesting case studies.

The bulk of the book follows Fogg's original format, updating and expanding where necessary. The introductory chapter covers the physical similarities and differences between the Arctic and the Antarctic, discussing energy balance, climate and oceanography, as well as magnetic and electrical phenomena. Chapter 2 introduces the effects these polar conditions have on living systems, covering a wide range of stress, adaptation and survival issues. Chapters 3 to 8 systematically tackle polar habitats from periglacial and terrestrial, through glacial areas and inland waters, to expanded coverage of marine open ocean, frozen and benthic environments. In Chapter 9, the authors sensibly tackle *Birds and mammals in polar regions* together, in a cross-habitat discussion of distribution, life cycles, behaviour and basic physiology, with reference also to the environmental and anthropogenic threats. Throughout these six chapters, the authors succeed admirably in achieving a bipolar perspective that was sometimes missing in the original edition.

Commendably, this revised edition includes two highly pertinent chapters on the impact of climate change and human activities in polar regions. Chapter 10, *Climate change in polar regions*, sets the scene with an introduction to past changes during geological time, reminding us that the poles once supported organisms characteristic of much warmer climes and discussing biological responses to long-term changes. It also includes sections on refugia and colonization. The chapter then progresses to discussing present-day global climate change and future predictions of its impact on the poles.

Chapter 11, *Human impact on polar regions*, offers the reader a comprehensive summary of anthropogenic

activities at the poles from pre-industrial humans, through exploitative activities such as sealing, whaling and fishing, invasive species, mineral and oil extraction, and pollution, to the more recent expansion of the tourism industry and military use. The chapter ends with an essential overview of conservation and regional politics that are increasingly relevant for the future regulation and management of polar environments.

The book concludes with a final chapter, in which the authors discuss and refute traditional views of the poles as remote, fragile, isolated regions and highlight their key role in global processes such as climate regulation, ocean circulation, carbon cycling and, ultimately, their importance for the well-being of humans.

It is unfortunate that colour is limited to a centrally bound set of colour plates but overall the illustrations, graphics and photographs in the book are informative and of a high standard. The book contains a comprehensive further reading and web resources section, plus an extensive reference list. The indexing is also thorough and accurate.

Overall, *The Biology of Polar Regions* would make a valuable addition to any school, university or scholar's library. It fills an important niche by integrating bipolar material from a broad array of disciplines and brings the first edition fully up to date in terms of scientific breadth and content and globally pertinent environmental issues. The paperback edition is exceptional value for money.

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The Prince Edward Islands: land-sea interactions in a changing ecosystem

Edited by S.L. Chown & P.W. Froneman
Sun Media, Stellenbosch, South Africa, 2008.
ISBN 978-1-920109-85-1, 470 pp. 300 Rand.

This book is the first snapshot of the state of scientific knowledge on the Prince Edward Islands since the Van Zinderen Bakker-led baseline volume of 1971, and, given the research efforts there over the 40 years, is long overdue. The first chapter by the volume editors sets the scene in a very topical way by highlighting major global themes and environmental drivers and then placing the research from the islands into this context, thus establishing a well argued case for the islands as useful model systems and the science outcomes of more general value. The authors are correct in recognizing that the scientific output from these islands has been exceptionally high over these 40 years.

The next three chapters on oceanography, climate and climate change, and geology and geomorphology continue