NEW(ISH) AND NOTEWORTHY

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Dare to Bird: Exploring the Joy and Healing Power of Birds

HAFTING, M. 2024. Rocky Mountain Books, Ltd. Surrey, Canada. 240 pp. Cloth, ISBN: 978-1-771-60654-7.

Melissa Hafting's new book, *Dare to Bird*, is many things: a book of one wonderful photo after another (including many of marine birds!), a trove of natural history observations, a memoir of grief, a *cri de cœur* to make birdwatching more inclusive. After all, for Hafting, an ecologist (among other things) in British Columbia, Canada, birds have themselves been many things: a source of lifelong fascination, a gateway to the outdoors, a means of strengthening her relationship with her parents, or a spiritual balm in the face of almost unfathomable loss. Her photographs throughout the book are lovely, testifying to her fine eye for small detail, her subjects made vivid and alive. As a writer, she gracefully weaves material about the lives of different species and the threats they face with her own at times devastating personal narrative. The reading is not always easy or pleasant—stories about sudden deaths seldom are—but it is definitely worthwhile.

Migration Mysteries: Adventures, Disasters, and Epiphanies in a Life with Birds

RAPPOLE, J.H. 2024. Texas A&M University Press. College Station, U.S.A. 335 pp. Cloth, ISBN: 978-1-648-43183-8

At first glance, bird migration would seem to be mostly about destinations: a bird leaves Point A intent on getting to Point B. Once there, job done, at least until it is time to go again. But for John Rappole bird migration is primarily about journeys, and in his latest book, *Migration Mysteries*, the journey on which he focuses is his own. Rappole, an emeritus research scientist at the Smithsonian's Conservation Biology Institute, has spent his career studying bird migration, and has published several more technical books exploring it across taxa. Here, in what he calls his "swan song," he is much more personal, taking readers with him as his interest in birds and their travels develops from his younger days. Of course there is a lot of science, because how could there not be given the topic? You might not—probably will not—agree with all of it. But there is a lot more on the human behind the science: anecdotes about improvised rain gear, the capability of Suzuki vehicles to float, some unfortunate haiku about spam, and the like. Biologists who spend time in the field will perhaps hear echoes of their own shenanigans. "Field biology is personal," Rappole writes. "You can't do it without going to those places, and you can't go to those places without things happening to you and the people who are with you."

Catastrophic Thinking: Extinction and the Value of Diversity from Darwin to the Anthropocene

SEPKOSKI, D. 2020. University of Chicago Press. Chicago, U.S.A. 360 pp. Paper, ISBN: 978-0-226-82952-4.

Extinction may be forever, but interpretations of it as a cultural and biological phenomenon are much more flexible, especially in the sense of how they motivate concern and care for biodiversity. In *Catastrophic Thinking*, newly released in paperback, David Sepkoski traces those shifts of thought in Western societies, from earlier times when people thought of extinction as a presumptive end in the natural selection process, and so not so terrible; to now, when, in some circles at least, extinction represents such a broad moral, environmental, and social failing that we should avoid it at (almost) all costs. Writing of what he calls "the extinction imaginary," Sepkoski, a science historian at the University of Illinois at Urbana-Champaign in the U.S., shows how even that most seemingly durable of dyads—Extinction = Bad, Biodiversity = Good—has not always been so. "The stories a society tells itself about the fates of extinct prehistoric creatures," he writes at one point, "have as much to do with that society's beliefs and values about the natural and social worlds of the present as they do with the past."

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THE AQUATIC WORLD OF PENGUINS. BIOLOGY OF FISH-BIRDS.

AINLEY, D.G. & WILSON, R.P. 2023. Springer, Cham Switzerland. 567pp. 18 b/w illustrations, 198 illustrations in colour. Hardcover: ISBN 978-3-031-33989-9, EUR€99.99. Paperback: ISBN 978-3-031-33992-9 due 24 November 2024. https://link.springer.com/book/10.1007/978-3-031-33990-5

The Aquatic World of Penguins is the third monograph by David Ainley on penguins (Ainley *et al.* 1983, Ainley 2002) and is a substantial volume of more than 560pp. The volume contributes to the Fascinating Life Sciences series from Springer. The hard copy will take up 4 cm of bookshelf and is a most welcome addition to the penguin literature, and seabird literature more generally. It will be of interest to physiologists and ecologists, from undergraduate to career researchers. I have no doubt that everyone who picks up this book will learn more about penguins.

Penguins are primary top-order marine predators throughout Southern Hemisphere oceans, from Antarctica to the Galapagos. Colony-based studies of almost all species are plentiful, but penguins spend most of their lives at sea, coming ashore only to breed and moult (and to avoid poor weather at sea if they can). The book is a more detailed companion and contemporary update to Mike Brooke's 2018 *Far From Land* monograph that dealt with all seabirds of the world. The literature on that portion their lives is much thinner. It was only recently that the technology became available to investigate the foraging behaviours that are a main subject of this remarkable book.

The Aquatic World of Penguins has 15 chapters in six parts. Part 1 in two chapters serves as the introduction, reviewing the current state of knowledge on penguin evolution and species radiation throughout the Southern Hemisphere, and the various means by which penguins have overcome the challenges of getting out of the ocean onto dry land (or snow and ice for some species) for breeding and moult. This apparently simple transition from the marine to the terrestrial is actually more complex than one might assume, and the evolutionary introduction provides a useful perspective on the behavioural, physiological, and anatomical considerations and constraints for all the species.

Part 2 commences the dive into penguins' oceanic habits in three chapters. Chapter 3 examines the relationships between penguins' foraging behaviours and oceanographic processes and water masses. The roles of island wakes, eddies, outflows are included, as are the Marginal Ice Zone of the Antarctic. Chapter 4 details the results of more than 140 studies into the diets of penguins, supplemented with an Appendix where the results of all cited studies are tabulated. Further details on the foraging behaviour during the chick period and prey species' sizes and energy densities are provided in further Appendices. Chapter 5 then reviews the issues of competition among penguin species, reviewing foraging ranges, at-sea distributions, sex-based differences in foraging, the role of central place foraging as related to colony size, and the extent of competition between penguins and the various commercial and industrial fisheries.

Part 3 explores the physics of penguins' swimming and diving. It's a long time since I've had to think about Boyle's Law (the relationship among pressure, volume, temperature and depth), but Chapter 6 reintroduced me to the challenges penguins overcome every time they head out to sea—from buoyancy and Bergmann's Rule to the physics and biomechanics of swimming and the energy required. Chapter 7 addresses thermoregulation, insulation and heat loss at sea. Chapter 8 explores the wide spectrum of physiological and anatomical adaptations that allow penguins to dive as deep as 500m (in Emperor Penguins). Penguins have evolved a suite of adaptations in lung and air-sac morphology, blood chemistry, and gas exchange to maximise their diving behaviour whilst foraging. There is a detailed account of vision in penguins, including the sensitivities at low light levels that facilitate prey capture at depth.

Part 4 delves into the details of dives. Chapter 9 describes the typology of dive profiles and our understanding of the various types of dives penguins make. Chapter 10 deals with the three-dimensional aspects of searching for prey—from the moment the penguin leaves the colony and enters the water to how it deals with the patchiness of prey species—and the challenges of encountering a prey patch when there can be many small or one large prey patch. Chapter 11 explores prey capture in detail. Technology has allowed cameras to be mounted on penguins foraging at sea, allowing for a better understanding of the depth profiles obtained from instrumented birds.

Part 5 reviews the pressures and threats faced by penguins while they are foraging. Chapter 12 details the predation by seals, fur seals, sea lions, killer whales, and sharks. Chapter 13 explores the pressures on penguin populations from the highly variable global oceans and concomitant changes in the availability of prey species, the ongoing warming of the world's oceans, responses to El Niño—Southern Oscillations and other large-scale oceanographic/atmospheric processes. Marine pollution, including oil spills, are also included. Chapter 14 examines perhaps the least known aspect of penguins at sea—their social interactions and the navigational tools they use. Chapter 15 draws then the book to a close, with a retrospective by the authors that reflects on their experiences, lessons learned, and the very real need to heed the signals from penguins.

There are four appendices: (1) common and Latin names of the 20 species of penguins, and all other species mentioned throughout; (2) a summary of the dietary literature with details of all published studies per species; (3) aspects of foraging behaviour at various stages of the breeding cycle for each species; and (4) mean sizes and energy densities of prey species. A glossary ends the book. Each chapter has its own bibliography, while the appendices have a consolidated bibliography. Based on a check throughout the book, there appears little overlap or repetition in the studies cited. I have no doubt that there must be well in excess of 1000 citations listed. With many citations to 2022, the bibliographies are clearly comprehensive and contemporary. I could not find any material relevant to the book's contents of which I was aware that was not cited in the appropriate chapter.

Throughout the book, there is a wealth of graphs and figures illustrating key concepts and results. The list of acknowledgements is long—reinforcing the depth of knowledge of the authors and that of the broader penguin community globally, ensuring the information presented is contemporary and correct. With the book available electronically as an ebook, it would have been useful to include URLs for citations where available. There is no index in the printed volume, but the ebook is easily searched, and there are extensive embedded links to other chapters, tables and figures throughout the ebook.

It would be easy to imagine authors who prepare such a useful contribution to rest on their laurels – something I suspect neither David nor Rory have any intention of doing anytime soon. They are to congratulated for a most remarkable book that will serve researchers around the world for many years to come.

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