The Puffin

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Møller et al.'s *Effects of Climate Change on Birds* (Oxford University Press, 2010) would be a better choice. The topic should appeal to many birders and naturalists, although more thought about presentation, especially the provision of text figures, would have made it more attractive. On the other hand, I know of no other popular treatise on this topic, and it certainly provides a very wide-ranging entry into the burgeoning literature on birds and climate change. It would be a good book for an undergraduate course on either birds or climate change. Mark: A–. Strength: lots of ground covered. Weakness: insufficient integration.—Tony Gaston, *Environment Canada, National Wildlife Research Centre, Carleton University, Ottawa, Ontario K1A 0H3, Canada. E-mail: tony.gaston@ec.gc.ca.*

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The Puffin.—Mike P. Harris and Sarah Wanless. 2011. T & AD Poyser, London, U.K. 256 pp., 44 color plates, 78 text figures. ISBN (print) 9781408108673; (e-pub) 9781408160565; (e-pdf) 9781408160558. Cloth, $79.—The puffin referred to in this book's title is the Atlantic Puffin (*Fratercula arctica*), the subject of over 35 years' research by the book's senior author, concentrated on the Isle of May in southeast Scotland. This long-awaited update of the classic 1984 volume—by the senior author and the same publisher—lives up fully to expectations based on both authors' reputations as among the finest seabird researchers of the past 50 years (and we hope many more). There are 14 appendices, 16 pages of references, and a 7-page index. The attractive cover painting, and numerous sketches throughout, are by Keith Brockie and add much to the pleasure provided by this book. While on the topic of aesthetic values, the publisher is to be congratulated on the number of high-quality color plates, which are needed to do justice to this bird and were sadly absent from the 1984 original.

This is a beautiful and fascinating book, written in an engaging and accessible style but with sufficient sources, tables, and graphs to satisfy the appetite of the most data-hungry ornithologist. The authors' work on puffins, and indeed seabirds in general, continues to influence the approach of many an ornithologist on both sides of the Atlantic. In the interest of full disclosure, I am happy to confess that Mike Harris was my first boss and mentor; he taught me both a work ethic and a rigorous approach to seabird research that have stood me in good stead for nearly 50 years.

There are 15 chapters, as in the original version, but with slightly different coverage. Each chapter has been updated thoroughly, with references extending into the year of publication. There are only 32 pages more than the earlier book, but the font is slightly smaller and the page margins narrower, so there is more extra content than the page count alone might suggest.

Chapter 1, "Puffins and auks," sets the focal species in its taxonomic and geographic context and includes discussion of the various subspecies that have been allocated (other puffins are also discussed briefly). Figure 1.3 shows nicely the increase in wing length across latitudes and shows clearly how the North American birds are ~20 mm longer-winged than birds at the same latitude in Europe. The authors attribute this, probably correctly, to latitude being a proxy for temperature; it might make a nice student exercise to confirm this. Size variation is clearly clinal, and the authors accordingly reject all proposed subspecies, except the clearly distinct *naumanni* of northern Europe (dramatically illustrated in plate 9); as they point out, DNA studies would help resolve this, and it is surprising that they have not been done.

Chapter 2, "Studies of puffins," briefly summarizes these, with North American studies earning only half a page (of four and a half); we have a lot of catching up to do! Chapter 3, "Appearance, development and moult" (British spelling throughout; the book is not yet available in a North American edition, so you will have to put up with weird spelling), covers the ground thoroughly and includes delightful drawings of the major plumages (also well illustrated in plates 11–16) and details of the arrangement of the proximal horny bill-plates, which are shed seasonally. My favorite line from the original book—"puffins do not so much land as stop flying" (and crash) has been reworded, somewhat more kindly but perhaps less graphically! This chapter also includes an interesting table (3.3) that summarizes studies of the relative roles of the sexes in rearing young, divided into 10 categories; males took the greater share in 9 studies, females in 12, and shares were equal in 11. The uncertainty about timing of wing molt in this species is clearly described—a cautionary tale for those of us using stable isotopes in feathers to infer diet at different times of year.

Distribution and status are covered in chapters 4 (Britain, Ireland, and France) and 5 (northern Europe, Greenland, and North America). These chapters are thorough and comprehensive, covering the entire range with the help of collaborators throughout the range and ending with an estimated total of 6–7 million pairs, over half in Iceland and a quarter in Norway, slightly more than the 5 million in the 1984 book.

Chapter 6, "Colony attendance and incubation," is full of interesting detail and includes mention of egg-replacement rates. In Chapter 7, "Chick rearing and breeding success," the "chick desertion myth" (started by Ronald Lockley and widely accepted since) is firmly refuted; the chick leaves the parents (strictly, the burrow), not the other way round. Forty-year trends in breeding success at five British colonies, illustrated graphically in figure 7.6, show worryingly steep declines in three colonies (including the Isle of May) but not the others.

Many readers will be particularly interested in "Puffin behaviour" (chapter 8, by Kenny Taylor) and may be struck, as I was, by the continuing dearth of peer-reviewed scientific papers on the topic. Excellent as this account is, it is based on the author's extensive personal experience (embodied elsewhere in two theses and two books) rather than the extensive scientific literature that supports topics covered in the other chapters, and adds little to the contents of the earlier book. This represents an obvious and surprising lacuna in the otherwise comprehensive scientific literature on the biology of this species. One of the few changes here from 1984, which I am glad to see, is that the "head flick" is no longer distinguished from the "head jerk" and is no more; some of us have wasted much time trying to distinguish between them! The main

postures of puffins are delightfully illustrated with monochrome sketches.

Chapter 9, "Food and feeding," is extremely detailed, covering everything from nutritional value of different prey species to size of fish taken to size of bill loads to long-term trends in diet at the Isle of May. The record number of items in a bill load now stands at 82! The importance of prey size as well as energy density in determining optimal prey is more clearly demonstrated here than I have seen anywhere else. The steady long-term decline in length of prey at two U.K. colonies is well illustrated. Much new material on diving behavior (surprisingly rapid and shallow) and feeding areas is enabled by the new miniaturized instruments available in the past few years that have revolutionized studies of seabirds at sea.

"Predators, pirates, parasites and competitors" are covered in Chapter 10, which includes interesting discussions of both predation and klepto-parasitism by gulls, illustrating that the impact of gulls on puffins depends very much on the relative densities of the species. Possible effects of parasites and diseases remain little studied, but the available evidence suggests that they have little impact on puffins in general.

Chapter 11, "Survival of puffins and the Isle of May population," is full of rich detail and shows the benefits of rigorous recording of survival as well as productivity in long-lived seabirds; on the Isle of May, adult survival, like breeding success (chapter 7), has declined over the 35 years of study, from an extraordinary (albatross-like) figure of 98–99% in the 1970s to 90–91% 30 years later. This study has continued long enough to allow senescence to be clearly demonstrated (Figure 11.4), and examples are given of individuals known to have lived more than 40 years. The chapter concludes with a convincing case for attributing the recent crash in this colony to reduced survival in both adults and immatures, and a summary of inter-colony movements of Isle of May birds.

Chapter 12, "Puffins away from the colony," compares European information from the two traditional sources—band encounters and at-sea surveys—with exciting new data from geolocators and satellite tags; previously unsuspected wintering areas of European puffins have been discovered this way. It is telling that in the Northwest Atlantic we have very little information to compare with telemetry data.

In Chapter 13, "Puffins and people," the various ways in which people have exploited puffins over the centuries are explored, ending on a sunny note with the economic contributions that puffins now make through tourism and the success of Steve Kress's reestablishment of puffin colonies in the Gulf of Maine (as well as the failures of some less well-advised restoration attempts in Europe).

Chapter 14, "Other threats to puffins," is a mixed bag, covering everything from pollutants to industrial fishing, but not climate change, which is instead addressed in Chapter 15, "Overview and the bigger picture." The rapid warming evident in North Atlantic marine ecosystems is spectacular, with the 10°C isotherm moving north at 22 km year^{-1} since the 1960s. The progressive decline in feeding conditions, breeding success, and survival at the Isle of May is attributed in large part to warming of the ocean coinciding with changes in plankton from cool-temperate to warm-temperate species, with that trend likely to continue and shift puffin distribution some 180 km northward by the end of this century. Efforts to combat global warming by deploying farms of wind turbines, often in the areas where puffins like to feed, may pose yet another threat to the future of puffin populations; as the book concludes, "seeing a thriving puffin colony in 50–100 years time may involve travelling much further north than the Isle of May."

This magnificent book belongs on the shelves of every university library, every government library (are there any left?), and every seabird biologist.—Tony Diamond, *University of New Brunswick, Fredericton, New Brunswick E3B 5A3, Canada. E-mail: diamond@unb.ca.*

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The Man Who Saved the Whooping Crane: The Robert Porter Allen Story.—Kathleen Kaska. 2012. University Press of Florida. 235 pp., 18 black-and-white illustrations. ISBN 0813040248. Hardback, $26.95.—Before Earth Day, before the Endangered Species Act, before *Silent Spring*, the National Audubon Society was perhaps the primary face and force of bird and other environmental conservation in North America. In the early to mid-20th century, the Society sent biologists to study birds with declining populations, and Robert Porter Allen (1905–1963) worked with some of the long-legged wading birds: American Flamingos (*Phoenicopterus ruber*), Roseate Spoonbills (*Platalea ajaja*), and Whooping Cranes (*Grus americana*). In 1942, according to this book, the number of Whooping Cranes in the wild was 15 (*fifteen*); no wonder that some biologists at the time considered the species doomed and not worth a major conservation effort (p. 36).

Kathleen Kaska, "writer of fiction, nonfiction, travel articles, and stage plays," had access to Allen's journals and correspondence, which allowed her to populate this biography with detailed accounts of activities down to the hour. Some of those hours were hair-raising, for Allen endured great privation and danger, especially in the search for the crane's nesting area in northern Canada, unknown until 1954 and most difficult to find in the vast boreal plains.

Kaska has done a good job with Allen's life, creating a compelling personal story and introducing the reader to the larger world of ornithology at the time, as Allen, an AOU Fellow (elected 1955), was a collaborator and colleague of a pantheon of ornithologists from that era (e.g., Roger Tory Peterson, Olin Sewall Pettingill, Frank Chapman). Alexander Sprunt IV contributed a memoriam to Allen in *The Auk* (1969, 86:26–34). Allen was awarded the AOU's Brewster Medal for ornithological achievement in 1957 and the John Burroughs Medal for distinguished natural history writing in 1958. Kaska fills around these dry details with a narrative occasionally tedious, but sometimes worthy of an adventure novel; an epilogue summarizes Whooping Crane conservation since Allen's death, including the brilliant use of ultralight aircraft to train the artificially reared