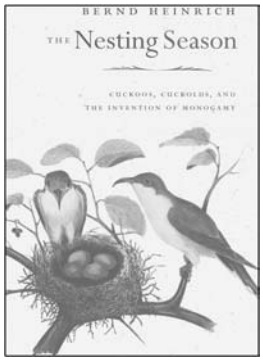
# Why Do Fowls Fall in Love?

**The Nesting Season: Cuckoos, Cuckolds, and the Invention of Monogamy.** Bernd Heinrich. Harvard University Press, 2010. 352 pp., illus. $29.95 (ISBN 9780674048775 cloth).

In my first year of graduate school, a friend gave me a copy of the just-published *Bumblebee Economics* (1979), Bernd Heinrich's first book. I was riveted. I read it cover to cover in one sitting and have reread it several times since. Much of the book concerned foraging, which I was studying (and still do), but what made the book so absorbing was its presentation. Heinrich mixed fingers-in-the-muck field biology and rigorous science into a gripping narrative with the rhythm and pacing of a good novel. He leavened it with amusing and insightful personal anecdotes, beautified it with illustrations by his own hand, and created such a clear sense of place that readers were transported to the bogs and forests of New England the way that readers of, say, William Faulkner visit Yoknapatawpha County. Importantly, and also like a good novel, the book was about more than is described by its title. It addressed bigger themes like why and how scientists do what they do and what this tells us about nature and about ourselves. In his 15 or so subsequent books, Heinrich has developed these trademark elements into a distinctive style and has become perhaps our foremost living natural history writer.

In this book, *The Nesting Season: Cuckoos, Cuckolds, and the Invention of Monogamy*, Heinrich uses this same approach to examine all facets of breeding and the breeding seasons of birds. In 11 chapters, he examines mating systems, the timing of breeding, nest construction, courtship, eggs, predators, parenting, and nest parasites. His descriptions come from personal experiences with the birds he knows so intimately from his New England home (e.g., Canada geese, wood pewees, wrens, woodpeckers, swallows, ravens) and regular excursions into the scientific literature to look at species further afield—sandpipers in the Arctic, penguins in the Antarctic, birds of paradise in New Guinea. He investigates a whole range of questions about the reproductive habits of birds, ranging from classics of ornithology such as why birds pair up to rear offspring to minutiae such as the exact materials orioles use to build their hanging nests—the former tracked down in the extensive (100-plus years) ornithological literature, the latter from nose-to-the-ground research on his farm.




The pairing-up habits of birds get special attention in *The Nesting Season.* Commonplace among birds but unusual among other animals, this feature of avian reproduction is more human-like than the reproductive habits of most mammals, even those to whom we humans are most closely related. Heinrich discusses "monogamy" in all its variety (e.g., social, sexual) as an adaptation that boosts reproduction under particular natural conditions. Under these conditions, mechanisms that promote (the right flavor of) monogamy are favored by selection, much as different patterns of egg blotching or coloring or particular types of nests might enhance the survival of eggs.

Especially pertinent to avian biology, as it is to human biology, is the magnitude of the job of child rearing. Offspring must be fed, protected, and cared for—a task that in most birds and in humans is more easily carried out by two parents than one. This much is widely accepted, but Heinrich also runs the logic the other way, and here, the book makes a contribution to our thinking on this subject. If we can gain understanding of monogamy in humans by studying birds, should we not also be able to gain insight into birds from our knowledge of humans? For example, why wouldn't deep bonds of affection and attachment develop to aid the reproductive enterprise of avian partners, much as they do in humans? Heinrich argues that the nervous and endocrine systems that all animals inherited from their evolutionary ancestors function in much the same ways, using the same structures and chemicals; therefore, they might be expected to be able to induce the same emotional effects when they are called for by ecological conditions. In other words, shouldn't birds also fall in love?

Heinrich's speculations on these ideas have received a lot of press, especially with regard to the film *March of the Penguins*, but media reporting cannot really transmit the extent and elegance of his argument. Fully aware of the pitfalls of anthropomorphism, he explicitly argues against any implication that we humans ought to better emulate the familial devotion of penguin parents, just as we should not condemn, for example, egret nestlings for killing their siblings. Penguins are penguins, egrets are egrets, and humans are humans. An understanding of one can provide insight to the other, and in Heinrich's world, this understanding brings appreciation and awe, not judgment.

*The Nesting Season* is referenced throughout, and 21 pages of endnotes provide direction to the literature Heinrich has consulted, making the book useful for layman and professional alike. It will join all of the other Heinrich books on my shelf, and I

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expect that I will return to this book from time to time, rereading it for the pure pleasure, as I do *Bumblebee Economics* or good novels. A popular book on natural history that also makes a scientific contribution while ranking as great literature is a rare bird indeed.

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## THE INCONVENIENT TRUTHS ABOUT CLIMATE CHANGE AND BIRD MIGRATION

**Bird Migration and Global Change.** George W. Cox. Island Press, 2010. 297 pp., illus. $45.00 (ISBN 9781597266888 paper).

*Bird Migration and Global Change* is a compendium of factual material—recorded alterations in the behavior, breeding, and annual schedules of migratory birds—that offers insight into the compelling issues of a planet in flux. The intended purpose of the book is to provide a comprehensive account of interrelated topics, including meteorological conditions, climatological events, alterations of temperature, air and oceanic currents, ecological habitats, and biota—all features that affect migratory species. It is thorough in its treatment of the subject, well organized and divided into geographic delineations of ecological habitats, which call to mind R. H. MacArthur's *Geographical Ecology.* Although this new book is not the only text of its type on the market, its contribution to the field of migration is of critical importance, because it recounts past and current events and provides a roadmap for the practices of conservation in a valiant effort to preserve migratory species—particularly those at risk.

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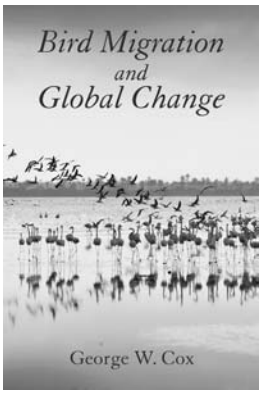


This book is a valuable resource not only for its compilation of facts but also for its broad scope, with many inspired tables but only a few figures. The chapters are short, with clearly defined subdivisions, and each has a definitive summary. Author George W. Cox, a professor emeritus of biology at San Diego State University, is a life-long student of birds and their migrations. He moves through species descriptions quickly; some more in depth than others, and some cases are more anecdotal in nature. The strongest chapters are those in which the empirical data are most firm—for example, chapter 8 ("High latitude species of land birds: Palearctic long-distance migrants"), chapter 12 ("Shorebirds"), and chapter 16 ("Oceanic birds: Southern Hemisphere"). In other chapters, the text is more of a call to action for those lesser-known species of birds, whose survival is impinged by current climatic conditions. Cox also relates a number of his personal field experiences in both the Arctic and the Antarctic, which adds endearing touches throughout the book.

Structured consistently throughout, the text begins with basic climatic information then applies these facts to both avian taxonomic and geographical divisions. The breadth of information is commendable, as is the scholarship of the writing. Aspects of bird migration covered include behavior, physiology, flight routes, timing, and distance. The issues of physiological responses to change and genetic potential for adaptation are also addressed. However the book's strengths lie in the ecological and climatological realms; the chapters on the physiological and genetic aspects of birds are the weakest. I suggest that the book is best used as resource material and would be less effective as an undergraduate textbook.

*Bird Migration and Global Change* represents a heartfelt effort by the author, who has pulled together a tremendous amount of information from a wide array of fields. This contribution to science gives its readers an appreciation and awareness of the vast number of migratory bird species and their geographical habitats—habitats that offer seasonal resources to support migration and breeding but which are vulnerable to climatic alterations. With time, availability of such resources may improve or worsen; however, issues of projected changes in the phenotypes of migrants and, ultimately, their evolution are discussed offering some hopeful notes on a rather dire subject in the final chapters. Data from both molecular and behavioral studies certainly suggest that genetic heterogeneity within populations of migrants may contribute to adaptations by individuals to changing environmental conditions.

It is worth noting that although global climate change is imminent, the planet has historically undergone dramatic shifts in temperature, oxygen content, and precipitation, during which many migrant populations either appeared or disappeared. The period of climatic change referenced in the book ranges from 1970 to the early years of the twenty-first century. To estimate changes beyond these dates, Cox relies on climatic models, which come with a measurable degree of uncertainty, given the vagaries of planetary and meteorological events and the resulting impact on migrants. This approach points to the continued need for more complete and accurate monitoring of environmental conditions, in relation to responses of