

RECENT LITERATURE

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BOOK REVIEWS

Birds and People

Mark Cocker with photographs by David Tipling. 2013. Random House, UK. 592 pages, hundreds of color photographs. ISBN 9780224081740. Approximately \$70 (Hardcover). Also available as an e-book.

Did you know that one of the Tanzanian names for the Black-bellied Bustard (*Lissotis melanogaster*) is *Niasilalupweko*, which means “my diarrhea never ends,” and that the Houbara Bustard (*Chlamydotis undulata*) can use its “defecatory prowess” as a defense, so traumatizing attacking falcons that they forsake bustard hunting forever, and even causing them to crash-land? Or that an individual parrot encountered in Orinoco by the famous German explorer, Alexander van Humboldt, was the last living keeper of a language spoken by an extinct Amerindian race? I certainly didn’t, but dipping in and out of Mark Cocker’s “Birds and People” has provided me with material for my lectures, fascinating snippets to entertain friends and family, and a deeper appreciation of the history, diversity, and depth of our interactions with birds. “Birds and People” represents the assimilation of a vast pool of knowledge about our relationships with birds, contributed by 650 people from 81 different countries, and presented in entertaining and informative prose by Mark Cocker, with photographs by David Tipling. The authors explain that this collection of stories and information about birds serves to illustrate how people’s lives are entwined with and shaped by birds, both in the distant past and today. The accounts are presented as a personal view of the authors, rather than an exhaustive review, and are the product of thousands of stories, reflections, and observations sent in by contributors acknowledged and cited throughout the text. Although there are

common elements across the species’ accounts, such as exploitation and cultural significance, the book is organized according to taxa, rather than themes.

Some taxa inevitably receive more attention than others. For example, the section on pigeons and doves starts with a detailed account of the Dodo (*Raphus cucullatus*), including the origin of its name, its use by humans, and possible reasons for the strange caricature-like and anthropomorphized images of the Dodo. It then moves on to discuss pigeons as symbols of peace, love, and fertility on the basis of evidence from Sumerian archaeological sites, and associations between doves and fertility that are rooted in the Judaeo-Christian tradition. Also discussed is the value of pigeons to both ancient and modern people as carriers of information (in ancient Rome as well as during World War II), as delicacies, or just as birds to breed, fly, and “fancy.” The tale of the extirpation of the Passenger Pigeon (*Ectopistes migratorius*) is illustrated with many quotations describing the events that led to their demise, followed by an analysis of cultural responses to the demise of this super-abundant species. I enjoyed the section on albatrosses, which included an interesting and detailed analysis of Samuel Taylor Coleridge’s poem “The Rime of the Ancient Mariner,” including speculation on the possible origin of the symbolic use of the albatross and the degree to which this iconic poem shaped society’s attitudes towards albatrosses. The section on parrots covers oddities, such as New Zealand’s Kakapo (*Strigops habroptilus*), discusses both trade in and the cultural significance of parrots to Amerindians, and details how parrots featured in literature, art, and religious imagery over the centuries.

Although the authors acknowledge that a comprehensive treatment of the subject would run to 20 volumes, this book is still probably too large at 592 pages because the typeface

is too small and difficult to read unless well illuminated. The authors do not explain why they chose to present the material according to bird species, arranged taxonomically following “Birds of the World” by Gill and Wright (2006). However, there are disadvantages associated with this structure. For readers interested in a particular theme (e.g., fashion, religion, hunting, or popular culture), locating the different bird species that are relevant to that theme is very difficult. For example, you might know that there is a diving bird used for fishing, but the book does not provide a means for locating which species that might be. There is an attempt at referencing species together for some topics, such as “feather trade” in the general index, but there needs to be more of this, or a separate index for the various themes.

There are many interesting facts, but some sections go into extraordinary detail, such as the >3 pages devoted to ostrich eggs and feathers, and could be dealt with more concisely. The stories of contributors’ experiences and folklore scattered throughout make the book very engaging, but would have been better presented in boxes separate from the main body of text. The authors emphasize that this account is not comprehensive, but when I looked up species that I am very familiar with, I found that occasionally the information could have been more up-to-date or better balanced. I felt that human-wildlife conflicts were perhaps under-represented, as was nature-based tourism involving birds.

This is a book that many people will enjoy owning. It is very attractive with some stunning photographs, and even for those who are indifferent towards birds, among the diversity of themes covered there will be something that appeals to all. But for those readers over the age of 50, don’t forget your ultra-strong reading glasses!

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A Feathered River Across the Sky: The Passenger Pigeon’s Flight to Extinction

Joel Greenberg. 2014. Bloomsbury, New York. 289 pages, 16 color plates, additional black and white photos, notes, index, and appendix. ISBN 9781620405345. \$26.00 (Hardback). Also available as an e-book.

The Passenger Pigeon (*Ectopistes migratorius*) is an enduring icon of extinction and the power of humans to decimate even the most abundant and prolific species. The last Passenger Pigeon died at the Cincinnati Zoo in 1914, a century ago this year. Now, 100 years after the loss of the species, there is renewed buzz about Passenger Pigeons. A group called “Project Passenger Pigeon” seeks to educate people about the Passenger Pigeon to prevent similar human-caused extinction. The Revive and Restore group (an offshoot of the Long-Now Foundation) is focusing on genetic rescue of endangered species and the real possibility of “de-extincting” the Passenger Pigeon. And the new book by Joel Greenberg, “A Feathered River Across the Sky,” is the most important popular or scholarly work on Passenger Pigeons in many decades. Greenberg has been working on this book for several years, releasing it earlier this year as a rallying point for conservation and a host of other discussions (such as on de-extinction) to come.

The book begins with stories of the natural history of Passenger Pigeons that are so incredible, so beyond any 21st century experience, that they almost cannot be believed. But the stories flow, one after the other, each well documented and cited so that soon the reader becomes comfortable with the awe and scale of the species and their behavior. So moving were actual experiences with the pigeon that Anthony Philip Heinrich composed an entire symphony—an eight part requiem performed in Prague in 1857. So many were hunted by early European colonists that they filled their bellies when in season, likely even saving one small outpost from starvation after a severe crop failure. The bounty was so huge that the extra were fed to pigs, used as fertilizer, and even plowed under in gardens to grow “more colorful flowers.”

One could easily imagine that the huge flocks of birds could take a toll on agriculture. During planting, the pigeons would descend and devour

freshly sown seed. During harvest, the birds could decimate fruit and grain from fields and orchards. So, of course, this provided additional incentive to persecute and exploit the pigeons.

Despite the seeming waste and thoughtlessness, it is possible that the harvest was somewhat sustainable until the mid-1800s. Most of the exploitation satisfied only local appetites and hunting methods were simple. By the 1850s, however, two major technologies—telegraph for alerting hunters and railways for transport of carcasses—opened the way for a large well-organized game-market business. Hundreds of thousands or even millions of birds could be collected from a single nesting aggregation and shipped to New York, Chicago, Philadelphia, and other cities in between. Pigeons were smoked, pickled, and dried for rugged travel and, at the opposite end of the spectrum, some of the finest recipes were prepared for fancy New York feasts. The fat was made into shortening and soap, and chubby squabs were reduced to oil that could be shipped or stored. Beds and pillows were filled with pigeon feathers. Live birds were collected for the sport of trapshooting.

The luring and netting techniques were many and ingenious. Netters caught and trained “stool pigeons” as decoys and, in some cases, would devise bizarre ways to temporarily blind “bait” pigeons to get them to perform. A single net could sometimes catch so many birds (as many as 300 dozen birds have been claimed in a single net at a salt spring) that men would have to use their teeth to crush pigeon heads to spare their tired hands or use special instruments designed to quickly separate neck vertebrae.

By the mid-1880s, only three decades later, populations had declined to the point that hunting was no longer profitable for the larger professional hunting groups. However, local hunters and amateurs continued to exact their toll on any migrating flocks, and populations continued to crash.

After the many descriptions of the capture methods used, the crowds of collectors, and size of the breeding flocks, the reader can conjure a vivid image of what must have occurred at the larger nesting aggregations in the 1800s, such as the 1871 Wisconsin pigeon nesting, the huge Shelby, Michigan nestings of 1874 and 1876, or the Petosky, Michigan nesting of 1878. The throngs of hunters and trappers, the crazy fanfare, the celebratory atmosphere, the

barrels of pigeons being sent to market, and the live captures boxed for sport. It was like a migratory biological gold rush. But, by 1883, the pigeon gatherings were already a skeleton of what they once were. By 1887, only two states reported nestings, and the pitifully small numbers of birds were still harassed. By the late 1890s, reports were mostly of single birds or very small flocks, and usually ended with the bird in question being shot. And the last specimen was collected from the wild in 1902; only captive birds remained.

Of these captive birds, the last and most famous was Martha, who died in the Cincinnati Zoo in September 1914. Greenberg expertly chronicles the last remaining captive flocks and what was known of them (and what was not recorded). Many of the details about Martha's life were poorly documented and even the documented reports contain conflict and inconsistencies. What is known is that she was old and infirm in her final days and, on the late afternoon of 1 September 1914, she was found dead in her cage. No other wild birds had been documented for the decade before Martha's death, and none were seen after.

As I read Greenberg's book, I was astonished to read the details of the earlier mass roosting and breeding events and horrified by the accounts of the carnage. Most scholars and authors agree that the pigeons disappeared by our doing—that our slaughter of the adults, our harvest of the squabs, and our disturbance of the breeding colonies made it impossible for the birds to replace themselves. Over time, each of the main colonies collapsed until nothing was left. One of the great questions was whether we really accomplished this in just a few short decades, or whether, in fact, the birds had been slowly declining by our hands since the early 1600s, and the scale of the decline simply quickened due to their stressed biology and our own advances in technology and commerce.

I also wondered how much we have learned from the Passenger Pigeon. On one hand, the slaughter of birds has declined, and many laws are in place to protect most avian species. On the other hand, there are still species that continue to be overharvested and for which hunters and markets fight to maintain rights to overexploit natural stocks.

Greenberg presents us with a crystal-clear parable of such dramatic proportions that it

almost seems unbelievable. The book was not always an easy read, and even for a biologist who is roughly familiar with the story, the scope of the pigeon's population size and the scope of our human folly were so large as to challenge my mind. The book is logically organized almost as a series of vignettes, each providing insight into some aspect of pigeon biology, harvest, market, and so on, until the reader can almost imagine being back in a small Midwest town during a pigeon nesting. The work is thoroughly documented, as a scholarly work should be, with excellent footnotes, bibliography, and index. I also thoroughly enjoyed "Appendix A," which is a collection of other Passenger Pigeon miscellany that did not quite fit anywhere else. The book is a must-read for any conservationist, and is packed with quotable or citable material. And as we move toward the possibility of "de-extincting" Passenger Pigeons, the book gives us much to think about. Wouldn't it be amazing to recreate phenomena like the mass roostings and breedings of Passenger Pigeons? And would the average modern American welcome such a huge impact on the landscape as these native pigeons brought? Could the small remaining forests of the Midwest even sustain them if they were revived from extinction?

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The Ornaments of Life: Coevolution and Conservation in the Tropics

Theodore H. Fleming and W. John Kress. 2013. University of Chicago Press, Chicago, IL. ix-xii + 588 pages, 98 color plates, 2 halftones, 15 line drawings, 53 tables. ISBN 9780226253411. \$50 (Paperback). Also available as an e-book.

In this impressive tome, Theodore Fleming and John Kress provide us with an absorbing overview of the ecology and evolution of pollen and seed dispersal mutualisms in the tropics, delving into their ecology and development through evolutionary time. Motivated by a quote from Robert Whittaker (1977), which seemed to trivialize the ecological role of birds in tropical systems ("Birds do pollinate certain flowers, distribute certain seeds On the whole, however, birds seem to be evolution's ornaments on the tree of community function"),

the authors set out to demonstrate that tropical vertebrate pollinators and frugivores are an integral component of ecosystem functioning and have been important protagonists in species diversification and plant evolution. Over 10 chapters, the authors beautifully demonstrate how interconnected plant and animal life is in the tropics.

The Ornaments of Life naturally falls into two sections; the first few chapters describing the ecology of plant-pollinator and frugivore interactions and the latter chapters providing an in-depth exploration of the co-evolution of plant and animal traits associated with pollination and seed dispersal. The chapters provide a logical progression through the topic, from first principles describing the taxonomic diversity of plants and animals involved in these mutualisms, to the nature of pollen and seed dispersal mutualisms and the consequences of animal dispersal for plant populations, through to a macro-ecological and evolutionary perspective on the role of dispersal mutualisms in speciation and the development of floral and fruit traits. Throughout the book, the authors did a phenomenal job of reviewing and synthesizing the massive literature on pollination and seed dispersal, and presenting it in a very approachable and readable form. At each step, the authors aim to identify the emerging patterns from their data review to provide some generalized ecological and evolutionary principles governing plant-pollination and seed dispersal mutualisms.

In the first chapters, we learn that tropical plants rely on relatively few nectar-feeding vertebrates (mostly birds and bats) for pollination, but a larger range of fruit-eating animals (birds, bats, possums, and primates) are essential for seed dispersal. The spatial distribution and, in particular, the predictability of flowering and fruiting in tropical plants is important in determining the make-up and the biomass of plant-visitor communities and appears to contribute to community assembly rules, especially in Neotropical forests. The authors then describe the interactions between floral traits (e.g., nectar composition), plant mating systems, and pollinator behavior (e.g., territoriality and traplining) in determining patterns of outcrossing and seed set and the consequences of these for plant population genetic diversity and structure. Similarly, the authors investigate the role of seed dispersal

and recruitment limitation in determining the spatial structure of plant populations, as well as discussing the outcomes of frugivore dispersal behavior (e.g., clumping of seeds in roosting or display sites).

In the later chapters, the discussion turns to the contribution of pollinators and frugivores to speciation patterns and as drivers of floral and fruit trait evolution. The authors point out that co-evolution between plants and their pollinators appears to be stronger than the relationships between plants and their seed dispersers, though a few generalizations can still be made about different seed-dispersal syndromes (e.g., bird-dispersed fruits are typically high in carotenoids). This tighter co-evolution in plant-pollinator relationships appears to contribute to higher speciation rates in plants with more specialized pollinator interactions, and sometimes also in their pollinators (e.g., hummingbirds). Again, in these latter chapters, the authors do a great job of synthesizing information on the evolution of a large range of plant traits and linking them with ecological or physical traits of pollinators and frugivores to gain a handle on the selective pressures acting on trait development. It is clear throughout that the authors have a great depth of knowledge on the ecology of tropical systems.

Finally, underlying all of these observations is a deep concern by the authors that many of these mutualisms are being lost at an unprecedented rate through degradation, defaunation, and fragmentation of tropical forests. The true legacy of these perturbations is yet to be fully realized and is likely to represent a substantial extinction debt.

The *Ornaments of Life* is an expertly written, comprehensive introduction to the topic of plant-pollinator and seed dispersal mutualisms and will be of use particularly to upper-level undergraduates and post-graduates studying the topic or, more broadly, to anyone with an appreciation of the natural history of tropical fauna and flora. The book is accessible to the general reader, but sufficiently detailed and well-referenced for students who may want to follow-up with the primary literature. The book is also well presented, printed on glossy paper, and containing many color plates (including some beautiful illustrations) and color figures. One minor complaint is that legends were not included on the graphs (a style decision?), but in

the figure captions, making it difficult to quickly interpret the information presented in graphs.

Although the authors necessarily restrict their analyses to higher vertebrate pollinators and frugivores and only in the tropics, it does lead the reader to wonder whether similar analyses can be conducted on invertebrate plant-pollinator interactions (which are likely to be just as interesting due to a longer period of co-evolution) and also how temperate and tropical systems compare in terms of the range of adaptations and differences in selective pressures, and whether the same general patterns may persist. The authors also just briefly touch on two areas of research in this book, which I think offer exciting opportunities for further insight into plant-pollinator and frugivore interactions: network analysis (e.g., Jordano et al. 2002, Petanidou et al. 2008) and the opportunities offered by genetic analysis of dispersed pollen and seeds (e.g., Jordano et al. 2007, Grivet et al. 2009, Karubian et al. 2010, Ottewell et al. 2012). If there was to be a second edition of this book, it would be great to expand on and provide the same rigorous review of these areas of research.

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Ten Thousand Birds: Ornithology Since Darwin

Tim Birkhead, Jo Wimpenny and Bob Montgomerie. 2014. Princeton University Press, Princeton, NJ. vii-xvii + 524 pp, 94 color illustrations and 60 halftones. ISBN 9780691151977. \$45 (Hardcover). Also available as an e-book.

This fascinating, wide-ranging synthesis of ornithological history since Darwin brings a mix of science, discovery, innovation, eccentricity, and personality to ornithology. Perhaps more importantly, it brings to life some of the people who made some basic contributions, illustrating how they made their discoveries, and the birds that induced them to pursue ornithology. Because birds are beautiful, abundant, and diurnal, scientists focused on them earlier than other creatures that are much harder to study. Ornithologists developed theories that ultimately drove other branches of science, especially animal behavior, physiology, and evolution. Ornithology has contributed much to the study of biology, and the book chronicles these discoveries. Ernst Mayr is quoted as noting that, “birds are such a good stepping-stone to do researches in general biology because there is no other group of organisms that is as well-known as birds.” This book is an incredible and impressive tale of discovery.

The book is divided into 11 chapters, from yesterday’s birds to tomorrow’s birds. And in between are some of the major topics in ornithology: the origin and diversification of species, birds on the tree of life, ecological adaptations for breeding, form and function, instinct, behavioral adaptations, sexual selection, and population studies. There are small autobiographies scattered through the book that bring to life some of the ornithologists who made key discoveries that moved beyond ornithology. Anecdotes are liberally sprinkled: Stresemann once got a tattoo of a headhunter on his arm while in Malaysia, Robert Hinde built a window bird box outside his window when he had German

measles at ten, and Colonel R. Meinertzhagen stole specimens from museums and quite likely murdered his wife. Not only are the topics fascinating and scholarly treated, but the delightful accounts of the scientists involved will keep any undergraduate interested.

Several aspects of the book contribute to its appeal. There are fine illustrations of birds and people by some important artists, such as Robert Bateman and Guy Tudor. A novelty is the chronologies illustrated by a few of the books that transformed ornithology. The time lines that chronicle people, books, and discoveries make ornithological history fun.

Because it is ultimately a book about scientists, written by scientists, it is selective in its choice of people to illustrate the ideas, and many quite creative ornithologists will feel left out. The intent of the book was to include discoveries that had broad biological relevance, changed the course of ornithology, made an important point, or simply appealed to the authors’ interests. It is by its very nature, impossible to be inclusive, and others would make different choices. By describing the development of ideas by some of the people who developed them, it provides a valuable tale of discovery. It is a fascinating account of ornithological history that brings together a wide range of topics.

It will be of interest to professional ornithologists, and people interested in animal behavior, physiology, evolution, science history, as well as birders, naturalists, and conservationists. Philosophers of science will find it a fascinating history of the development of ornithological thought since Darwin. I highly recommend the book—I found it fascinating.

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Wildlife in Airport Environments: Preventing Animal–Aircraft Collisions through Science-Based Management

Travis DeVault, Bradley Blackwell, and Jerrold Belant. 2013. Johns Hopkins University Press, Baltimore, MD. 200 pages, 53 black & white illustrations. ISBN 9781421410821. \$75.00 (Hardback). Also available as an e-book.

If a book like this had been available some years ago when I started my research on wildlife

strikes as a human–wildlife conflict issue, it would have saved me a lot of time on bibliographical research and helped me to distinguish reliable literature from anecdotal information; one of the advantages of this book is its selection of grey literature among the large quantity available. This book will be helpful to airport safety managers and new researchers studying the subject because it summarizes much of the literature available. The research is strongly biased to the United States, but considering that the United States has almost 35% of the world's airports, the book is a good starting point that could be expanded to integrate international research.

Wildlife strikes at airports are a two-fold problem: airport safety managers need an easily applied solution, but researchers face complex and multidisciplinary problems that require sufficient time to investigate for delivery of results applicable in practice. Thus, finding robust solutions in the timeline required by managers is often difficult. This book summarizes most of the research conducted and highlights good practices that may be rapidly and efficiently adopted by managers.

The first part of the book is organized into six chapters where the authors describe in detail many management practices, such as excluding wildlife from airports and behavioral and sensory cues important for managing wildlife. The authors then propose a variety of solutions. Most interesting and useful to airport safety managers are the comments on the effectiveness of management methods for different species,

and the wide variety of examples outlining potential methods.

The second part, consisting of four chapters, is a useful summary of many papers, comments, reports, manuals, and general literature available on management. There is not much novelty in this section, but its real value lies in how it condenses the information, focusing the reader on best management practices. Many important subjects are addressed here, from behavioral observation and diet analyses of wildlife to stormwater and turfgrass management.

Part three, consisting of four chapters, summarizes information on wildlife monitoring. In my opinion, this section is critical and would have benefitted from a more detailed discussion of monitoring schemes and, importantly, risk assessment methodologies that have been adopted (or not) worldwide. These two points are essential, the first to understand an airport's circumstances and thus implement appropriate standardized monitoring protocols, and the second to evaluate the effectiveness of wildlife strike risk assessment methodologies. A more globally oriented text would have provided a comparison of the different practices used worldwide to help airport managers choose their working tools.

The last chapter of the book outlines future areas of research, and seems to be a call for integrating modeling approaches. Could a second volume of the book be in preparation?

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