

RECENT LITERATURE

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BOOK REVIEWS

Lost Land of the Dodo: The Ecological History of Mauritius, Reunion, and Rodrigues.

A. Cheke and J. Hume. 2008. Yale University Press, New Haven, CT. 480 pp. \$55.00. (hardcover)

Just over 200 years ago, Jacques-Henri Bernardin de Saint-Pierre served with the French military on a small Indian Ocean island we now call Mauritius. He was inspired by its lush forests and volcanic geography to set an idyllic romance there (*Paul and Virginia*), with the theme of avoiding the corruption of society by immersing oneself in wild nature. History itself served as a cynical sequel to this novel, however. Even as he wrote back in France, society was busy destroying the ecology of Mauritius, a destruction that would continue until only vestiges (though still beautiful) remained.

In fact, a century before Bernardin ever visited the island, a species of bird that once lived only on Mauritius had been abused until it disappeared. The poor Dodo (*Raphus cucullatus*) has always tended to make a wretched impression on those who become casually acquainted with it. The only thing the *Oxford English Dictionary* had to say about this bird, aside from it having lived on Mauritius, is that it was clumsy and its wings didn't work. Its very name apparently derives from a Portuguese word for "simpleton," and its scientific name was once *Didus ineptus*. Opinions even of scientists once ranged from considering it to have been just asking for extinction, to disbelieving that it ever existed. Despite the intriguing effect it had on those who saw it, its extinction only decades after it was first discovered occurred with hardly a notice: "Oh, we haven't seen Dodos in a while." Today we generally treat its demise with similar nonchalance, and are content to use this portly pigeon as a symbol of stupidity and defenselessness in the face of annihilation. I remember saying "dodobird" and "dodobrain" while growing up (and hearing them said to me)

before I knew anything about the bird we were insulting.

One reason for our cavalier attitude toward this bird, toward the ecological condition of Mauritius, and toward nature in general, is that people have tended to assume that nature is resilient to anything we can throw at it. The notion that we could cause a species to go extinct was occasionally entertained, for instance by Buffon, but it was clearly not a majority view and the possibility was still fiercely debated as recently as the 1800s! The Dodo was at the center of this controversy, and as it became the first officially recognized extinction, a major change began to happen (slowly) in our perception of nature, one that would eventually fit very well with Darwin's ideas. Just as the Dodo's flightlessness and fearlessness would be recognized as hallmarks of having adapted to an island free of predators, its disappearance would become the first step in our realization that nature is continuously bubbling with speciation and extinction, and that we humans can contribute to the latter. Thus, with an evolutionary perspective, the Dodo's vulgar symbolism becomes helpful: the frivolous phrase "dead as a Dodo" becomes a sobering object lesson about the ephemerality of species and the finality of extinction.

Lost Land of the Dodo lavishly and meticulously elaborates such lessons—with respect not only to the Dodo, but more broadly to the vertebrate fauna and, to some extent, the ecosystems of the Mascarene Islands of Mauritius, Réunion, and Rodrigues. Most of the book is the product of a lifetime of investigation of the Mascarenes by Anthony Cheke, an ecologist and ornithologist who also (while running a bookstore) became the world's expert on Mascarene ecological history. Julian Hume is a paleontologist involved in several excavations on Mauritius, the most recent of which are described in an appendix. Hume is also an artist, and contributed 39 color plates and three jacket illustrations of the communities that once thrived on the Mascarenes. He also wrote 38 informative boxes, each describing a group of

Mascarene vertebrates and featuring historical quotations. Finally, a chapter on practical conservation is contributed by Carl Jones, a conservationist and the Scientific Director for the Mauritius Wildlife Foundation. In this role, he was responsible for the captive breeding program that rescued the Mauritius Kestrel (*Falco punctatus*), despite the pessimism of the academics; he continues to lead efforts to restore and maintain the native biota.

Eleven chapters comprise the main text. They are arranged in rough historical order, with initial emphasis on the original fauna and early contact, followed by development and habitat destruction, and ending with conservation efforts. Chapter 1 is a short introduction to Mascarene geography past and present. Chapter 2 is mainly a summary and evaluation of early accounts and controversies about Mascarene birds, real and imagined. Chapters 3 and 4 describe more objectively the precontact fauna of the islands and how the animals got there, respectively. The (unnumbered) color plates appear in Chapter 4; the animals and plants, nearly all extinct, are painted with an idyllic serenity that is poignant, sometimes even eerie.

In the chapters that follow, the authors survey and interpret the economic, social, and resulting ecological history of the islands following human contact. Chapter 5 covers the seventeenth century and Chapter 6 the eighteenth, when rampant species introductions and slaughter were the predominant drivers of ecological degradation and extinction. For instance, by 1740, only one eighth of the land on Mauritius had been cleared, but the endemic fauna had already been virtually eliminated. Chapter 7 documents settlement and massive land conversion in the nineteenth century, when sugar and other crops decimated the arable land on Réunion and Mauritius, and slash-and-burn practices destroyed the forests of Rodrigues. Only in the 1860s and 1870s did governments survey the situation and begin to legislate land use, and did the long lost Dodo get some publicity. However, as described in Chapter 8, serious consideration of the native species did not occur for another century.

Chapter 10 is an overview of conservation efforts and recommendations. The sharp contrast between the abandon and ignorance described in the previous chapters and the sensitivity and appreciation for species and eco-

logical relationships that suffuses this chapter is similar in its effect on reader psychology to the sudden resolution of some novels—relief and refreshment—and contributes to the book's unity. Two chapters remain: Chapter 9 is a somewhat arduous chronicle of accounts of the smaller isles near Mauritius: Round, Flat, and Serpent. Chapter 11 is a collection of insights, asides and arguments on subjects such as breeding programs, introducing species that are analogous to extinct endemics, and the paradox of using alien species to control other alien species. There is no conclusion per se—no summary statement or explicit take-home message—although the reader will get the gist of the book even from the title. If I were to hazard a concluding statement, it would start with a sentence from the guest-authored conservation chapter: “An important part of conservation work is to compile ecological histories of the islands, so we can try [to] understand how these systems functioned, and then to use these data to reconstruct them” (p.226). To this I would add that the ecological history of the Mascarenes is an intense reminder of human folly, lest we continue to assume the endless resilience of species and ecosystems, and lest we take centuries to realize and attempt to mitigate the damage we cause.

An incredible amount of ancillary information is included in the endnotes of this book, information that is either tangential or would hamper the flow of the narrative for the casual reader. These notes contribute significantly to the book's reference value. The hundreds of accounts and musings enrich the *Lost Land* story, including a debunking of evidence (based on a bird) that Indians discovered Mauritius (ch.2 n.29), a reminder that no European artist ever saw the Dodo in nature (ch.3 n.72), a presage of natural selection in seventeenth century writing about Mauritius (ch.4 n.1), the fact that almost all native Mauritian plants were inedible to humans (ch.5 n.75), a hypothesis about why protected species tend to acquire magical or medical properties (ch.8 n.351), and the personal side of how Carl Jones saved the Mauritius Kestrel (ch.11 n.29), to name a few. I believe (in disagreement with an impatient reviewer of this book for *Science*) that the authors have chosen the best way to set forth this material. The notes are too voluminous for the main text or footnotes, but the experience and research they

represent are certainly worth the space. Those aggravated by having to flip to the back are free to ignore them.

Probably the most significant virtues of this book are its abundant details of natural and social history, and the integration of this knowledge into explanations and hypotheses. Appendices 2–8, to illustrate, graph the presence/absence of observations of all native and introduced land vertebrates on the Mascarenes (the three main islands and the islets off the Mauritian coast) over the last four centuries. Tables such as the one in Chapter 4 on the origins of the Mascarene vertebrate fauna are similarly impressive, and demonstrate not only a careful and extensive integration of literature and personal experience, but also significant interpretation. Another example, or rather category of examples, is the excellent case studies that provide insights into the causes and consequences of ecological change. For instance, cyclones and scale insects on Rodrigues show how natural or seminatural disasters can exacerbate the damage caused more directly by humans. Cheke also contributes impressively on some hotly debated topics, such as the theory of island biogeography and the factors influencing success of introduced species. His historical research is as careful and thorough as his biological research, as can be seen in his clarifying a plethora of confusions about what early visitors saw (or thought they saw), how writers have used (and misused) each others' accounts, and how and why land management policies went wrong or right.

Aside from the book's biological and historical merits, one of its chief values is that it is spicy as well as nutritious. From the second chapter onward (including the notes), we are made privy to scandals, controversies, investigations, and other tales that are bound to give a reader, say, nonacademic reasons to pick up the book. Here, the discursive or peregrine qualities of the volume are a benefit, just as we would rather an herb be distributed throughout a dish than be concentrated in one place. To illustrate, the author frequently assesses the authenticity of a claim or a source with a comprehensive command of past accounts, sometimes tracing an error (usually with significant biological implications) to a hasty statement or incorrect drawing somewhere along the line.

Overall, the text is clear, engaging, good-humored, and bold. Arguments are presented with care and a weighing of all relevant evidence. On controversial or uncertain matters, Cheke presents the evidence and the range of opinion, and then (usually) presents a case for a particular view. For this reason, "definitive" is almost the wrong word because it seems to end consideration of a subject, whereas the issues here are presented as alive, changing with time, and subject to future research and increased understanding. When need be, however, with refreshing candor, the author's critique spares neither inept leader nor careless writer, living or dead. If Casela Bird Park does more harm than good, if the supposed importance of the Dodo for seed dispersal of a native tree is a "Tambalacoque and bull story," and if the Office National des Forêts (at least in the '70s) hadn't a clue about forest ecology, the author will certainly let us in on these secrets.

For the most part, the tone of the book balances the demand for readability by the casual ecophile with the quest for detail by the academic or other enthusiast. The compromises made to cover both bases are necessary ones. For instance, the progression would be more fluid if many chapters were not composed of three separate accounts, one for each of the main islands. However, combining them would obscure important ecological and historical differences. In fact, the differences among the islands provide the clearest demonstration of how patterns of settlement, species introductions, land use, and policy interact with the native biota and geography to determine the ecological fate of an island.

The main drawbacks of the book are in organization and large-scale presentation, and are problematic partly because they are in such contrast to the book's enormous strengths of detail and comprehensiveness. Chapters and topics are sometimes poorly introduced and summarized in an apparent desire just to get to the juicy details as soon as possible, and to stay there. The Preface, for example, reads as though we already know about the Dodo and Mauritius (and Chapter 3 treats the Rodrigues Solitaire [*Pezophaps solitaria*] in the same way). The Introduction begins promisingly with "Imagine you are a Dutch sailor in 1598," but this narrative unfortunately soon gives way to a few paragraphs about oceanic islands in general.

In fact, nowhere are we actually told what the book as a whole is about. The subtitle is “An Ecological History of Mauritius, Réunion, and Rodrigues,” but a reader should be aware that this book is mainly (though not exclusively) a history of the amniotes—essentially the lizards, bats, and birds—of these islands. Until I realized this (for instance, when the faunal tables excluded invertebrates and there were no floral tables), I had been expecting broader coverage because of the subtitle and the very general first chapter on geography. With the exception of a discussion about conservation at the end of the book, the reader should be content with the occasional mention of plants, crabs, and insects rather than a sustained treatment of them. This contentment should not be hard to manage, especially for ornithologists, because the book absolutely excels in its coverage of birds and other land vertebrates. Although readable enough for the general public, this book comes off sometimes as a book by ornithologists for ornithologists (or at least for birders).

Sometimes chapters seem to wander as unpredictably as a Mascarene Swiftlet. Formatting is to blame for some of this. In Chapter 3, for instance, Rodrigues, the smallest of the three islands, is the only one with a section devoted to its forests, and roughly half of a section entitled “Surviving cyclones” consists of an explanation of the practical difficulties of figuring out what species used to live on an island. These and other examples (Chapter 4 and others start with similar problems) are so blatant that I suspect the appropriate section headings were omitted in error. In other cases, the source of confusion is not formatting, but a (usually wonderful) discursive overflow of information that can result in tidbits falling into odd places in the text. Thus, glacial history is covered in the chapter on early settlement instead of geography, and a fascinating story about how Cuvier was finally convinced of the existence of the Solitaire and Dodo in 1830 appears in a section about tortoises.

The voracious casual reader of *Lost Land of the Dodo* will not much mind this situation, any more than one mind's time warps or digressions in a good novel or conversation, as the discontinuities usually seem natural. Those who wish to consult the book, on the other hand, might be frustrated. As a reference work, *Lost Land of the Dodo* is like a tropical rainforest: a superb and

diverse trove, but only those who know it well will know where to look for something. Roughly half of the book is devoted to interesting and highly informative boxes, illustrations, maps, tables, appendices, endnotes, and references. The index is somewhat uneven, however (e.g., the entry on the Rodrigues Solitaire omits the book's longest section about it on page 45), and the best way to locate some facts or topics is simply to flip through the book. The facility of this volume for reference would have been greatly improved if the index had been more expansive (especially to cover the copious endnotes), and if the tables, boxes, and maps had been listed after the Table of Contents. Perhaps this book will soon be scanned, which would alleviate these difficulties; considering the incredible amount of information it contains, a searchable text would be especially valuable.

After reading this book straight through, one will not likely be thinking of indexing or subtitling, but of Didosaurus and the Raven Parrot, of pigs and rats running rampant through Eden, of blinkered government agencies, of (thank goodness) the Gerald Durrell Trust, and, of course, the stocky columbid looking over its shoulder on the cover. This book is at once our best ecological history of the region, like William Cronon's *Changes in the Land* is for New England; an exciting chronicle of the discovery of nature, like Darwin's *Voyage of the Beagle*; a clear window into island biogeography and conservation biology in action, like Jonathan Weiner's *Beak of the Finch*; and an inspiration for positive efforts on behalf of the environment to mitigate our past failings, like Rachel Carson's *Silent Spring*. Moreover, unlike these other books, *Lost Land of the Dodo* provides comprehensive checklists of the region's reptiles, birds, and mammals, past and present, and contains not only extensive reviews of disparate historical and scientific fields, but several original contributions to these fields as well.

Perhaps most importantly, *Lost Land of the Dodo*, while avoiding a moralizing or activist tone, implicitly encourages reflection about our own species and how we interact with nature. The examples can be highly divergent, ranging from those who held squawking parrots to attract conspecifics merely for the pleasure of clubbing them; to the overlooked exile François Leguat, whose careful field notes have become one of our most valuable sources of information

about native Mascarene ecology; and to the vision and ambition of largely English expatriates over the last few decades who are saving birds like the Mauritius Kestrel, Echo Parakeet (*Psittacula eques*), Pink Pigeon (*Columba mayeri*), and Mauritius Fody (*Foudia rubra*) from otherwise certain extinction. The Mascarene situation serves as an illustration of the extravagance of nature, together with the ambivalence of human attitudes toward it. Some of us would as soon destroy an island as step onto it if there were anything to be gained by it, whereas others would devote their careers to its conservation and restoration. Bernardin, that old French writer who fell in love with the Mauritian wildlands, proposed one solution: he thought, like Rousseau, that we'd be more virtuous and more perceptive of the value of nature if we were to grow up in a wild environment rather than in society. Most today would instead emphasize environmental education that is, fostering knowledge about nature, especially an understanding of the species and communities that still exist, so that we become familiar with them and in turn respect them. But perhaps for some, the most potent stories might not be of the nature that still exists, but that which is gone, particularly that which is gone because of our neglect. There is something mysterious and captivating about a lost land and, if we ourselves are responsible for having lost it, there is a conscientious pensiveness as well. Gone is the Rodrigues Solitaire, gone is the Réunion Ibis, gone is the Dodo, and similarly for dozens of other Mascarene species. . . . Let's try not to do *that* again.

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Bird Banding in North America: The First Hundred Years.

J. A. Jackson, W. E. Davis, Jr., and J. Tautin, eds. 2008. *Memoirs of the Nuttall Ornithological Club* No. 15. Cambridge, MA. 280 pp. \$40.00 (hardcover).

Bird banding is now taken for granted as a research tool used by modern ornithologists. Marking birds with aluminum bands and other types of markers has vastly expanded our knowledge of many aspects of avian biology, ecology, behavior, management, conservation,

population dynamics, population genetics, and disease transmission. Although these achievements are well established in the scientific literature, many scientists may be surprised to learn that the validity of bird banding as a scientific method was seriously questioned when the concept was proposed over 100 years ago, and ornithologists were initially slow to recognize the potential of bird banding to address research questions.

The history and role of bird banding in North American ornithology is the subject of this book, a product of the symposium held at the Third North American Ornithological Conference at New Orleans, Louisiana, in 2002 celebrating the 100th anniversary of the first bird banded in North America. When Dr. Paul Bartsch banded 23 Black-crowned Night-Herons (*Nycticorax nycticorax*) in Washington, D.C., in 1902, little did he know that he was about to revolutionize the study of ornithology. This book provides a thorough history of bird banding in North America and the major contributions to science resulting from this technique, presented in 13 chapters derived from presentations delivered at the 2002 symposium.

Jerry Jackson summarizes the early history of bird banding in North America in the first chapter. During these formative years, visionaries such as Leon Cole and Percy Taverner in North America and their counterparts in Europe led efforts to establish bird banding as a valid approach for the study of bird movements. These efforts were modest by today's standards, but the fact that a few recaptures resulted from these efforts demonstrated the potential value of this technique. However, considerable skepticism remained in the ornithological community, and bird banding remained within the realm of a small handful of practitioners in North America prior to 1920. When Samuel Baldwin presented the paper "Bird Banding by Systematic Trapping" at the 1919 AOU meeting, the wealth of data available from that study caused the ornithological community to wake up and take notice. Any skepticism quickly vanished. This first chapter provides a fascinating perspective on the development of innovative scientific methods during the early twentieth century and the reaction of the scientific community to these methods.

The next two chapters expand on the history of bird banding during the twentieth century.

Chapter Two by Sara Morris et al. describes the evolution of and contributions from the various bird banding organizations, and Chapter Three provides a history of the Bird Banding Laboratory (BBL). Written by former BBL Chief John Tautin, this chapter provides interesting insights into the operations of the BBL beginning with its founding under Frederick Lincoln. Although times have changed as bird banding has evolved from an entirely paper-driven process into the electronic era of the twenty-first century, many issues surrounding the relationship between bird banders and the BBL have remained surprisingly constant over the decades.

The remaining chapters explore the use of bird banding data for the conservation and management of bird populations and in other realms of ornithology. Banding data were instrumental in the development of quantitative population ecology, with a well-written chapter authored by James Nichols and John Tautin providing a concise summary of the development of population estimation methods and the application of these methods for wildlife management. Other management-related chapters summarize the role of bird banding in the restoration of extirpated and declining populations and in migratory bird hunting. From a conservation perspective, there are chapters describing the contributions of bird banding to international waterbird conservation, investigations of disease and economic issues related to the interactions of birds with humans, and the role of banding in monitoring changes in bird populations. Chapters summarizing the role of banding in avian ecotoxicology research and behavioral studies provide two examples of how banding has contributed towards advancing our understanding of birds.

As in any compilation of papers, the content and depth of discussion of these topics varies among chapters. The entire volume is well written and edited, with every chapter providing a thorough summary of their respective subjects combined with fairly extensive bibliographies that allow exploration of the relevant literature in greater detail. No new information is presented, so the chapters may be less useful for scientists already familiar with these subjects.

My only criticism is that the entire volume looks backward to the accomplishments of the past. A chapter looking forward into the future

roles of bird banding would have been a welcome addition, especially given some of the cutting-edge advances recently reported in the literature. The importance of bird banding as a scientific tool used by ornithologists around the globe cannot be overstated, and this informative book serves as a landmark publication documenting the many contributions of bird banding to the growth of North American ornithology during the previous century.

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The Birds of Costa Rica: A Field Guide.

R. Garrigues and R. Dean. 2007. *Zona Tropical*, San Jose, Costa Rica. 387 pp. \$29.95 (softcover).

“The Birds of Costa Rica” guide was an integral part of my recent field research conducted at La Selva Biological Research Station, in Puerto Viejo de Sarapiquí, located on the eastern Caribbean slope of Costa Rica. Previously, the standard for Costa Rican bird guides was set by Stiles and Skutch’s “Guide to the Birds of Costa Rica,” and no other guide compared. Although certainly a different style of field guide, Garrigues and Dean have provided a more than suitable alternative to the oversized, hard-to-carry editions of the Skutch guide.

This new field guide provides excellent field-mark keys for identification and a clear, easy-to-use format with pictures on every page. This is certainly an advantage, especially for the average birder, because it not only permits quick identification of the bird in question, but provides supplementary information about the species on the same page. This is a major difference between the two guides. In addition, the organization of birds into clear groups permits much quicker identification than flipping through the laminates in the Skutch guide (which many birders remove and carry separately from the rest of the book’s thoroughly detailed pages). Although the Skutch guide provides more detail about each species and is arguably better suited for advanced birders who require (and demand) more detailed information about behavior, habitat, and identifying characteristics, the Garrigues and Dean guide is more than adequate for use as a basic identification guide and the pictures, in my opinion, are clearer and easier to use.

Another nice feature of this guide is the inclusion of range maps for each species. As a birder new to Costa Rica, I found the range maps incredibly helpful; allowing me to identify birds quickly by using the maps to eliminating species unlikely to be in the area. Being able to quickly glance at a map to find a bird's range and distribution was easier than having to read about it in the text, which is the format of choice in the Skutch guide. Again, the trade-off between compact size and overly thorough detail made this guide much easier to use and, especially, to carry during long days in the field.

One suggestion for the authors and publishers of this book would be to print a Spanish edition. Having had the pleasure to meet individuals associated with "Zona Tropical Publications" while in Costa Rica, it sounds like a Spanish edition is planned and, if so, it will certainly be useful for the local Spanish-speaking population. For educational purposes, a Spanish-version edition will allow educators to use the guide to enhance bird and environmental ed-

ucation. This is especially important in many areas of Costa Rica because ecotourism and birders make important contributions to the economy.

I would also recommend that, in future editions of the English-version of this field guide, the Spanish names of each species should be included (and vice versa for future Spanish-version editions) so that tourists visiting Costa Rica to enjoy the great diversity of birds can take home more than just photographs. When they show friends and family their Costa Rican slideshow, they can also explain how the Golden-hooded Tanager is so colorful that it inspired the local population to call it "*Siete Colores*," which means "seven colors," or how another tanager (Passerini's Tanager) is called "*Sargento*" (sergeant) because the bright red patch on its rump was reminiscent of a sergeant's epaulette.

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